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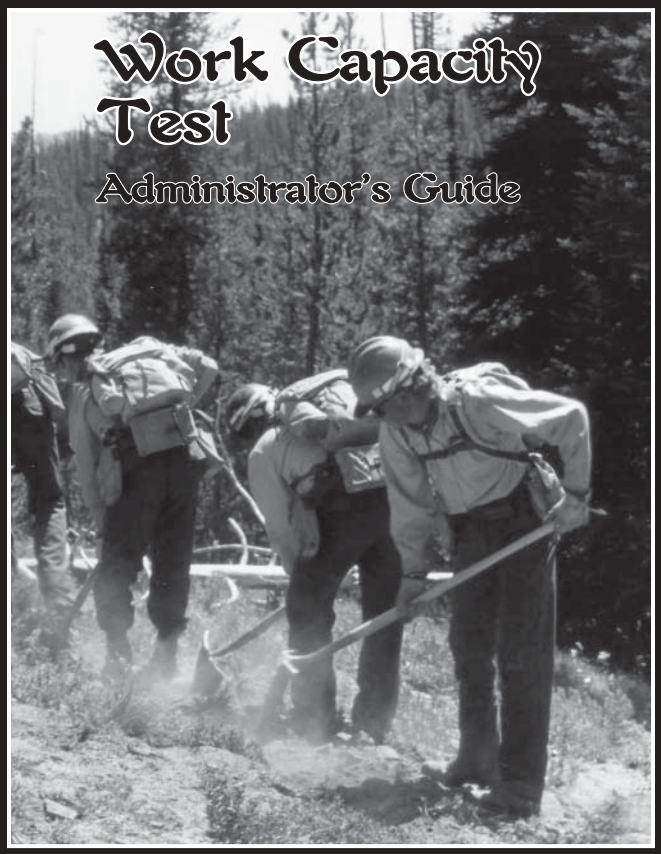

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Preface

Work capacity tests are used to ensure that persons assigned to fire activities are physically capable of performing the duties of wildland firefighting. Before training for the test or the duties of the job, an individual must first complete a health screening questionnaire (or medical history) designated by the hiring agency. The agency may require a medical examination as part of the qualification process. Once individuals have received medical clearance, they may begin training for the work capacity test.

Those who have been regularly active may begin training (appendix E) as soon as they receive medical clearance.

Agencies participating in the wildland firefighter medical standards program are required to ensure that a candidate has received medical clearance before the candidate takes the work capacity test. Clearance requires completing the periodic medical exam (every 5 years for firefighters under 45 years old, or every 3 years for firefighters over 45) or review of the annual medical history and clearance form during the years between exams.

WARNING:

Individuals who have not been involved in regular physical activity are at an elevated risk for cardiovascular complications during exertion. They should not begin training for a work capacity test until they have participated in a gradual transition from inactivity to regular physical activity. Previously sedentary individuals should engage in 4 or more weeks of moderate activity (walking 30 to 60 minutes, 3 to 5 days per week) before they begin more vigorous training for a test or the job.

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This document supersedes the previously published
Work Capacity Tests for Wildland Firefighters: Test Administrator's Guide
(9851–2810–MTDC)

Introduction

Studies of wildland firefighting clearly show the link between fitness and work performance. Fit workers can do more work with less fatigue and still have a reserve to meet unforeseen emergencies. They perform better in a hot environment and recover faster from adverse firefighting conditions, such as long shifts and reduced rest. In short, fitness is the most important factor in work capacity. Beginning in 1975, Federal agencies used a 5-minute step test and an alternative 1.5-mile run to screen candidates for wildland firefighting. In 1994, the Missoula Technology and Development Center (MTDC) began reviewing alternative ways of testing work capacity. The center conducted a comprehensive job task analysis and extensive laboratory and field studies of proposed tests. The result is a family of job-related field tests to determine a worker's capacity to meet National Wildfire Coordinating Group (NWCG) 310–1 standards for wildland firefighters (*Wildland Fire Qualification Subsystem Guide* 310–1, NWCG, 1993). Tests were developed for workers with arduous, moderate, or light duties (table 1).

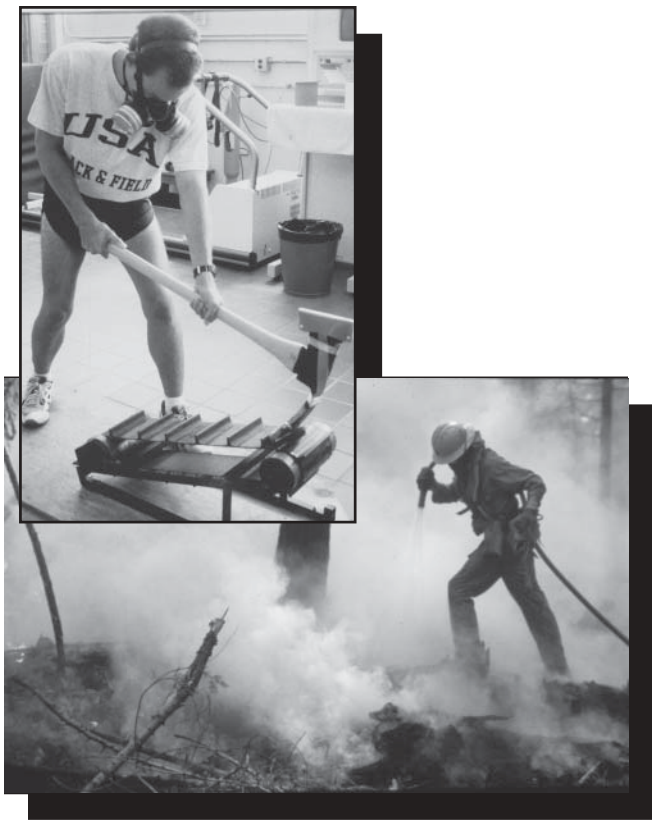


Table 1—Tests developed for arduous, moderate, or light duties.

Work category	Test	Distance (miles)	Pack (pounds)	Time (minutes)
Arduous	Pack	3	45	45
Moderate	Field	2	25	30
Light	Walk	1	None	16

Arduous—"Duties involve field work requiring physical performance calling for above-average endurance and superior conditioning. These duties may include an occasional demand for extraordinarily strenuous activities in emergencies under adverse environmental conditions and over extended periods. Requirements include running, walking, climbing, jumping, twisting, bending, and lifting more than 50 pounds; the pace of work typically is set by the emergency condition." *—NWCG 310–1*

The pack test is a job-related test of the capacity for arduous work. It consists of a 3-mile hike with a 45-pound pack over level terrain. A time of 45 minutes, the passing score for the test, approximates an aerobic fitness score of 45, the established standard for wildland firefighters. The energy cost of the test is similar to the energy cost demanded on the job. The test is correlated to measures of performance in field tasks such as working with handtools or carrying loads over rough terrain and with measures of aerobic and muscular fitness. The test's length ensures that successful participants will have the capacity to perform prolonged arduous work under adverse conditions, with a reserve to meet emergencies.

Moderate—"Duties involve field work requiring complete control of all physical faculties and may include considerable walking over irregular ground, standing for long periods, lifting 25 to 50 pounds, climbing, bending, stooping, squatting, twisting, and reaching. Occasional demands may be required for moderately strenuous activities in emergencies over long periods. Individuals usually set their own work pace." *—NWCG 310–1*

The field test is a job-related test of work capacity designed for those with moderately strenuous duties. It consists of a 2-mile hike with a 25-pound pack. A time of 30 minutes, the passing score, approximates an aerobic fitness score of 40.

Light—"Duties mainly involve office-type work with occasional field activity characterized by light physical exertion requiring basic good health. Activities may include climbing stairs, standing, operating a vehicle, and long hours of work, as well as some bending, stooping, or light lifting. Individuals almost always can govern the extent and pace of their physical activity." *—NWCG 310–1*

The walk test is designed to determine the ability to carry out light duties. It consists of a 1-mile test with no load that approximates an aerobic fitness score of 35. A time of 16 minutes, the passing score for the test, ensures the ability to meet emergencies and evacuate to a safety zone. The instructions for the pack test also apply to the field and walk tests. Test requirements for a given position may change. Consult the latest version of NWCG 310–1 for the current requirements.

Preparing for the Work Capacity Tests

Determining the Employee's Role

The employee will work with fire program managers to determine appropriate firefighting duties, considering factors such as training, medical condition, current level of activity, and willingness to achieve and maintain the level of fitness required. Targeted duties must be consistent with these considerations, and should be discussed annually before training for the test. The duties determine which of the three tests an employee must pass.

Work capacity tests are generally effective for 1 year after the date the employee passed the test (consult hiring agency for exceptions).

Informing Employees

All persons who require a work capacity test must be informed of the requirements in a timely manner that allows time for health screening, medical clearance, and training. Each current and prospective employee will complete a health screening questionnaire (or medical history). Individuals who require further medical evaluation will be provided necessary information and directions.

NOTE:

When emergency hiring practices require rapid callup of firefighters, health-risk screening and/or medical clearance must be completed before participants take the work capacity test. Under these circumstances, it is extremely important that participants receive warning concerning the risks of exertion after inactivity.

Individuals are responsible for their physical condition and their health. No amount of health screening or medical examination can ensure an individual's safety during a work capacity test or during fire duties. Individuals who are uncertain about the condition of their health, have been inactive, or are seriously under or overweight, should consult their personal physician before beginning training, taking a work capacity test, or engaging in wildland firefighting duties.

Retesting

Except in emergency hire situations, those who do not pass a test will be provided another opportunity to take the work capacity test. In general, employees will have to wait ***at least*** 48 hours before retaking the work capacity test. If an employee sustains an injury (verified by a licensed medical provider) during a test, the test will not count as an attempt. Once an injured employee has been released for full duty, the employee will be given time to prepare for the test (not to exceed 4 weeks). The number of retesting opportunities that will be allowed include:

- Three opportunities for permanent employees required to pass a test for duties in the fire program.
- One opportunity for temporary employees required to pass a test (a second chance may be provided at the discretion of fire management).

Permanent and temporary employees who do not perform fire assignments as a recurring part of their position, but who are authorized to perform fire assignments, may be retested as many times as management deems appropriate. Consult agency-specific guidelines for retesting policies.

Health Assessment

A health screening questionnaire (or a medical history) is used for self-screening of current and prospective employees involved in the fire program. The questionnaire and medical history contain confidential information and must be handled accordingly. The forms will be reviewed according to your agency's policies and filed in your confidential medical folder in your agency's human resources office. Follow agency policy for handling these forms.

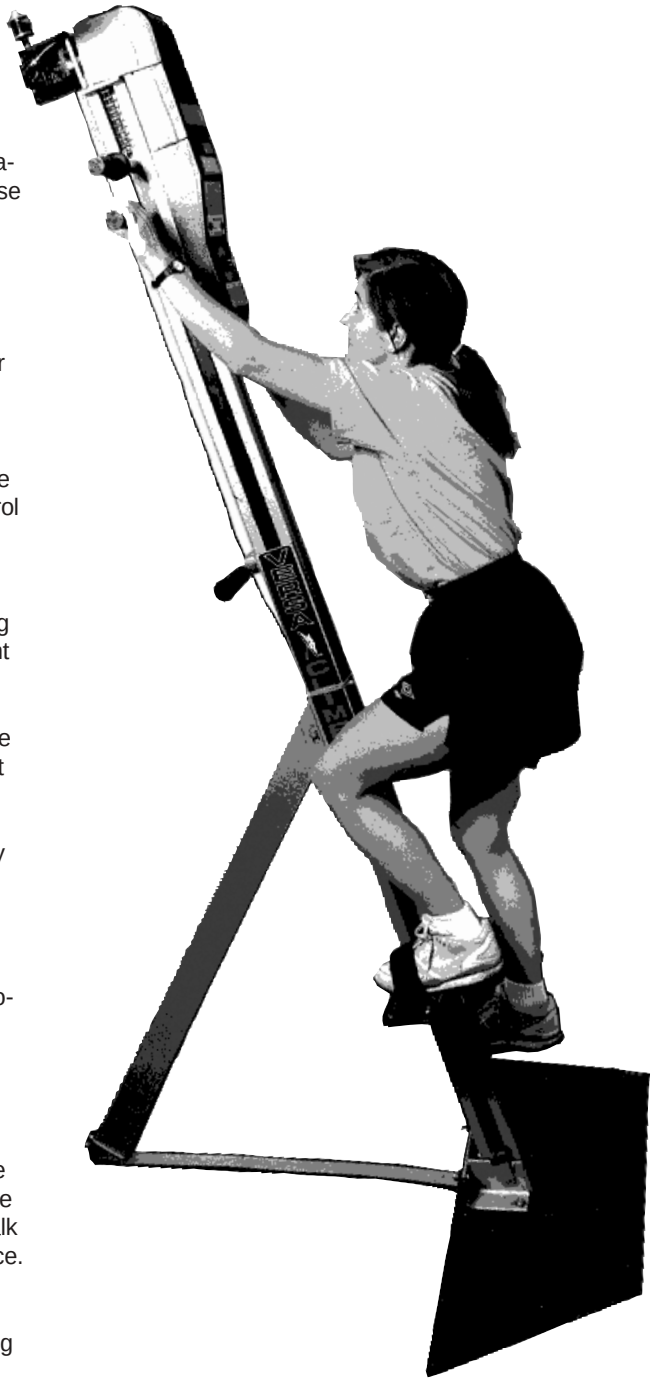
Medical Examination—When a medical examination is called for, the agency will provide instructions to the examining physician. The agency will pay for the examination specified in the instructions. When the physician cannot clear an individual for testing and field work, the individual has the right to seek an outside medical opinion that might clarify a medical condition. The individual may also seek a waiver or an accommodation. The agency's human resource office will determine the process that must be followed in such cases.

Test Administration

For safe and accurate test administration, the test administrator must become familiar with these instructions that apply to the pack, field, and walk tests. Test results are valid for 1 year from the time a test is passed (consult agency policy for exceptions).

Safety

- A job hazard analysis and an emergency medical evacuation plan (appendix F) must be prepared for the course. These must be updated annually.
- Test administrators must be familiar with the job hazard analysis and the medical emergency plan.
- A trained and qualified emergency medical technician (or someone with equivalent qualifications) must be onsite during the test.
- Avoid conducting the test on roads and intersections where traffic is a concern. When testing on roads, use traffic-control devices and have persons wearing high-visibility vests control traffic as needed.
- Require candidates to read and sign the health screening questionnaire (or medical history) and an informed consent form (if applicable).
- Check to see that candidates are wearing footwear suitable for athletic activity or hiking—footwear with ankle support is recommended for the pack and field tests.
- Encourage participants to stretch and warm up adequately before the test.
- Do not test anyone who is tired or has been injured.
- Do not conduct tests during conditions that could compromise health or safety.
- Monitor participants to identify those having difficulties. Terminate their test, if necessary.
- At the midpoint, consider terminating candidates who are substantially behind the required pace (22.5 minutes for the pack test, 15 minutes for the field test, 8 minutes for the walk test) and those who are having difficulty maintaining the pace. Participants cannot jog or run to make up time.
- Encourage fluid intake and replacement. Provide fluids along the route when conditions contribute to heat stress.
- Encourage cooling down with an easy walk after the test. Monitor the recovery of participants, especially those who appear distressed.
- Recommend several weeks of training before participants retake the test.



Test Personnel

The number of individuals needed to administer the test will depend on the course layout, testing conditions, and the number of candidates being tested. In some cases, one person will fill multiple roles (administrator, timer, first aid specialist, course monitor). All persons involved in the test must understand the instructions and safety considerations, as well as their individual roles and responsibilities. A briefing for everyone involved is recommended before the test. The following personnel may be needed for safe and effective testing.

Test Administrator—The person in charge of administration at the test site must understand test procedures, the job hazard analysis, and the local emergency medical and evacuation plan.

First Aid Specialist—A qualified emergency medical technician (or someone with equivalent qualifications) will be onsite to observe candidates during and after the test, and to provide emergency medical assistance, if it is needed.

Course Monitor—The test administrator will determine the number of persons needed to monitor participants during the test.

Lap Counter—Someone who records the laps completed by each candidate (if needed).

Timer—Someone who keeps the time during the test.

Two persons may be able to administer the test for small groups of candidates. For larger groups, or when the course is difficult to monitor, three or more persons will be needed.

The Course

The course must be essentially level, have a firm, relatively smooth walking surface, and allow access for emergency vehicles. The course length (3 miles) must be accurate, so use a measuring wheel (figure 1) or a calibrated bicycle computer to measure doublecheck distances. ***Vehicle odometers are not accurate enough.***

Loop or out-and-back courses are preferable. Try to avoid one-way courses. A moderate grade (2 to 3 percent) is acceptable if the course starts and finishes at the same place. Have lap counters available for courses that will require more than one lap. Use course monitors when needed.

Participants must be informed of the course layout (use a map or sketch of the course). Use distance markers (at 1 or 1.5 miles) to help candidates pace themselves. Use hazard and traffic markers as needed.

Figure 1—A measuring wheel can be used to measure the distance of the test course.

Equipment

- Packs—use a comfortable, well-fitted pack or a commercially available weight vest (figures 2, 3) with a gross weight of 45 pounds (25 pounds for field test). Load packs with gear, sandbags, water, or other materials to achieve the required weight. The test administrator must ensure the correct weight of the pack.
- Safety vests—as needed.
- Route markers—as needed.
- Distance markers—use mile and midpoint markers to help participants maintain the proper pace.
- Stop watches—have two watches to provide backup timing.
- Vehicles—bicycle, all-terrain vehicle, or other vehicle to monitor participants on the course.
- Radios—use radios and cell phones for monitoring and safety.
- Scale—an accurate, hanging-style spring scale is recommended for weighing packs.

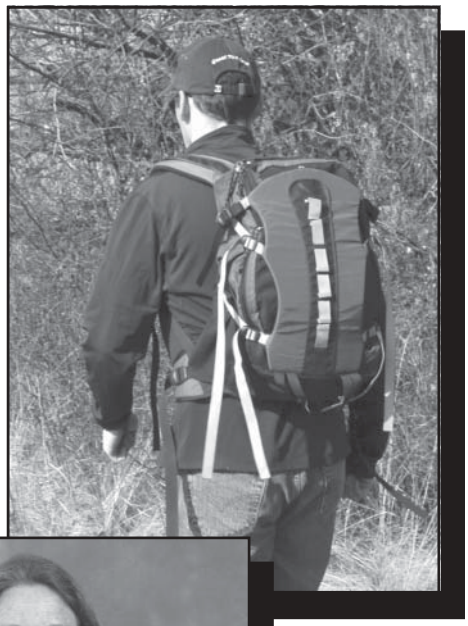


Figure 2—A comfortable, well-fitted pack can be used for testing.

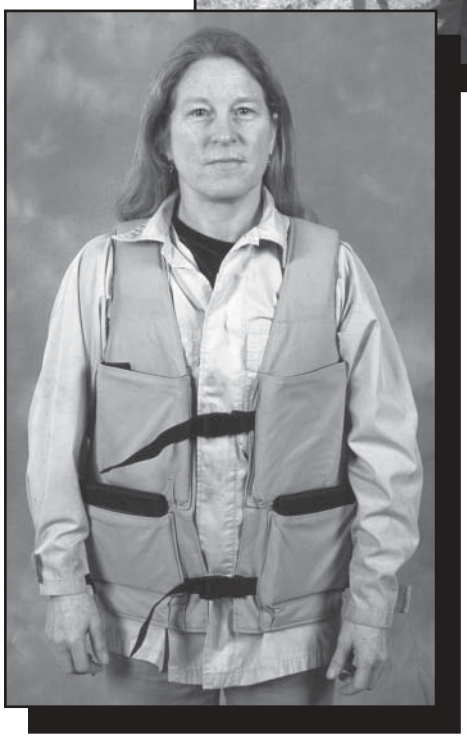


Figure 3—A commercially available weighted vest is another option for these tests.

Forms

- A health screening questionnaire (appendix B, or an agency-mandated medical history form) and an informed consent form (appendix C).
- A data collection form (appendix D).

Testing Tips

- Weigh packs before the test and check pack weights after the test.
- Use color-coded numbers on packs (red for pack test, yellow for field test, and green for walk test)
- Group or stagger starts. Some participants will benefit from the support provided by a group start, but discourage competition.

Environmental Conditions

Administer the test during moderate environmental conditions. Do not test new recruits when the temperature is high or when the temperature and humidity combine to create high heat-stress conditions. If necessary, test early in the day to avoid combinations of high temperature and high humidity. Avoid high winds that may affect performance.

Hydration—Encourage participants to drink fluids before the test and provide fluid replacement at the midpoint of the course. Participants may carry a water bottle.

Heat stress—Unacclimated or unfit workers will suffer at lower levels of heat or work. The graph in figure 4 is based on shaded air temperature, moderate radiant heat, light breeze, standard firefighter clothing, and moderate work rate.

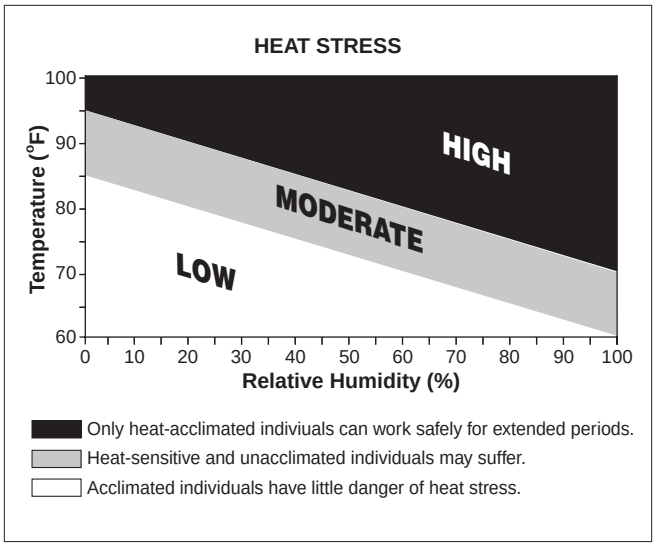


Figure 4—Heat stress increases as temperature and humidity rise.

Altitude—Use this chart (table 2) to adjust for tests administered above 4,000 feet:

Table 2—Altitude corrections for work capacity tests. Add the correction to the required test time.

Altitude (feet	Pack test (seconds)	Field test (seconds)	Walk test (seconds)
4,000 to 5,000	30	20	10
5,000 to 6,000	45	30	15
6,000 to 7,000	60	40	20
7,000 to 8,000	75	50	25
8,000 to 9,000	90	60	30

For the pack test at 6,000 to 7,000 feet, add 60 seconds to the test standard (45 minutes) for an altitude-adjusted standard of 46 minutes.

The altitude adjustment assumes that the participant has had an opportunity to acclimate to the altitude of the test site. If a participant doesn't meet the required standard even with the adjustment, encourage training at the altitude of the test site before retaking the test.

Providing Instructions for Candidates

Distribute work capacity testing information and the health screening questionnaire (or medical history) well before the test date. Have candidates initial a form indicating that they have read and completed the health screening questionnaire. Some agencies may ask candidates to sign an informed consent form before taking the test (appendix C).

Clothing—Recommend to the participants that they choose footwear that provides ankle support, such as hiking boots or ankle-high sport shoes. Wearing T-shirts and shorts is acceptable.

Safety—Brief participants on the test, the course, and safety considerations. Tell them they are ***free to stop at any time for any reason***, and that they should seek help if they experience physical problems.

Warmup—Encourage candidates to stretch (calves, lower back, hamstrings) and to warm up adequately before the test.

Pace—Show participants how they should hike the course at a fast pace, without jogging. The heel of one foot must make contact before the opposite toe leaves the ground. Jogging or running will result in disqualification. Discourage competition.

Accommodations—Inform participants that a walking staff may be used.

Hydration—Encourage participants to drink 1 to 2 cups of water before the test. Participants may carry a water bottle, but the extra weight is not counted as part of the pack weight.

Script—Read the instruction script (appendix A) to ensure that participants are informed about the test, the course, safety, and other site-specific information.

Essentials of Good Testing

- An accurately measured flat course with a good surface.
- Packs of the proper weight. Verify pack weight with a calibrated scale. Participants are responsible for ensuring their packs are properly adjusted before the test begins.
- Accurate timing that is verified by backup timing. Give split times along the course (at 1 mile and/or the midpoint, 1.5 miles for the pack test).
- Participants should be rested and well informed about the course and the need to maintain a pace that will allow them to complete the test successfully.
- Favorable environmental conditions. Avoid adverse conditions.
- A completed health screening questionnaire (or medical history) and medical exam (if indicated) and a signed informed consent form (if applicable). When completed, these forms are considered confidential records that must be safeguarded from unauthorized access or release. Follow agency policy for handling these forms.

Appendix A—Test Script

To be read to participants before they take the pack, field, or walk tests:

Welcome. You are about to take a job-related work capacity test to determine your fitness for duty. The test you are taking has been determined by the requirements of the job. You will be taking the [ ] test, intended for [ ] duties.

(Read the following description for the appropriate test.)

The *pack* test is intended for those involved in arduous duties, defined as requiring an aerobic fitness score of 45, lifting more than 50 pounds, and an occasional demand for extraordinarily strenuous activities. The 3-mile test with a 45-pound pack in 45 minutes is strenuous, but no more so than the duties of wildland firefighting.

The *field* test is intended for those with moderately strenuous duties, defined as requiring an aerobic fitness score of 40, lifting 25 to 50 pounds, and an occasional demand for moderately strenuous activity. The 2-mile test with a 25-pound pack in 30 minutes is fairly strenuous, but no more so than field duties.

The *walk* test is intended for those whose duties involve light work with occasional field activity, defined as requiring an aerobic fitness score of 35. The 1-mile walk in 16 minutes is moderately strenuous, but no more so than the duties assigned.

You should have completed the health screening questionnaire (or medical history) before taking the test. Some agencies may require that you sign an informed consent form. It is your responsibility to discuss any health concerns with your physician before taking the test. The test and the work of wildland firefighting require individuals who are healthy and physically fit.

If you have doubts about your health, you should talk to your physician. If you are not in good physical condition, you should undertake a training program before you take the test.

You are free to wear clothing that suits the activity and environmental conditions. Your footwear should provide good support for your feet and ankles. Ankle-high hiking boots or athletic shoes are recommended for the pack and field tests.

The course is [ ]. **(Describe local course and any safety issues, such as traffic and heat. Encourage candidates who are not acclimatized to the heat to delay testing until conditions are more favorable, or until they have become acclimated by exercising for at least 1 week in the heat.)**

You should stretch and warm up before the test, and cool down after the test. **(If heat stress conditions exist, explain that water will be available at the [ ] point on the course.)**

The test begins when I say *go* and finishes when you complete the required distance. We will announce the elapsed time when you pass the [ ] **(1- or 1.5-mile point)** of the course. ***You are free to stop the test at any time, for any reason.*** Simply notify the course monitor that you have decided to stop.

The course monitor will have you stop the test if you are having difficulties or if you are substantially behind the pace required to pass the test.

The test requires a fast walking pace. Jogging or running is not allowed and will lead to disqualification.

When you finish the course, remove your pack and keep moving until you cool down. Pack weight will be checked after the test. Your test score is the time required to complete the course. At this elevation, [ ] feet, you will receive an altitude correction of [ ] **(minutes:seconds)**, so you must complete the course within [ ] **(minutes:seconds)** to receive a passing score.

If you do not pass, you are encouraged to train before you retake the test. Retests will be possible [ ] **(indicate when)**.

Before we begin, do you have any questions about the test, the course, or related matters? **(Answer questions.)**

Complete your warmup. The test will begin in 5 minutes.

Appendix B—Health Screening

Complete sections A and B of the following health screening questionnaire (HSQ). Mark all true statements and provide the information requested.

To accurately assess your health risk:

- In section A, list the prescription medications you currently take.

- In section B, in order to determine if you are more than 20 pounds overweight, consult the body mass index (BMI) chart following the HSQ. If your height and weight yield a BMI score above 25, you are more than 20 pounds overweight.

If you check one or more boxes in section A, or two or more in section B, agency policy may require you to have a medical examination ***before*** you participate in training or take the work capacity test.

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OMB 0596-0164

HEALTH SCREENING QUESTIONNAIRE (HSQ)

Assess your health needs by marking all true statements.

SECTION A—HISTORY

YOU HAVE HAD:

- ❒ A heart attack
- ❒ Heart surgery
- ❒ Coronary angioplasty (PTCA)
- ❒ Pacemaker/implantable cardiac defibrillator/rhythm disturbance
- ❒ Heart valve disease
- ❒ Heart failure
- ❒ Heart transplantation
- ❒ Congenital heart disease
- ❒ Personal experience or a doctor's advice of any other physical reason that would prohibit you from carrying out the duties of a wildland firefighter

SYMPTOMS:

- ❒ You experience chest discomfort with exertion
- ❒ You experience unreasonable breathlessness
- ❒ You experience dizziness, fainting, blackouts
- ❒ You have musculosketetal problems, spine, knees, etc.

OTHER HEALTH ISSUES:

- ❒ You are pregnant
- ❒ You take prescription or over-the-counter medication(s), list:_____
- ❒ You take heart medications

SECTION B—CARDIOVASCULAR RISK FACTORS

- ❒ You are a man 45 years of age or older
- ❒ You are a woman over 55 years old, or you have had a hysterectomy, or you are postmenopausal
- ❒ Your blood pressure is greater than 140/90, or you don't know your blood pressure, or you take blood-pressure medication
- ❒ You are more than 20 pounds overweight
- ❒ You are physically inactive (i.e., you get less than 30 minutes of physical activity at least 3 days per week)
- ❒ Your blood cholesterol level is greater than 240 g/dl, or you don't know your cholesterol level, or you take cholesterol medication
- ❒ You have a close blood relative who had a heart attack before age 55 (father or brother), or age 65 (mother or sister)
- ❒ You are a diabetic or take medicine to control your blood sugar

PRIVACY STATEMENT—The information obtained in the completion of this form is used to help determine whether an individual being considered for wildland fire-fighting can carry out those duties in a manner that will not place the candidate unduly at risk due to inadequate physical fitness and health. Its collection and use are consistent with the provisions of 5 USC 552a (Privacy Act of 1974).

PAPERWORK REDUCTION ACT STATEMENT—Under the Paperwork Reduction Act of 1995, no person is required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control for this information collection is 0596-0164. Public Report Burden hour is estimated to average 2.5 minutes per response including the time for reviewing instruction (if any) hearing a description of the project. Send comments regarding burden estimate of any other aspect of this survey, including suggestions for reducing burden to: Information Collection Officer, USDA Forest Service; 1621 North Kent St., Room 800 RPE; Arlington, VA 22209, and to the Office of Management and Budget, Office of Regulatory Affairs, Desk Officer for Forest Service, Washington, DC 20503.

NAME:_____ DATE:_____

BODY MASS INDEX	HEIGHT																	
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145	42	39	36	34	31	29	27	26	24	23	22	20	19	18	17	17	16	15
150	44	40	27	25	32	30	28	27	25	24	22	21	20	19	18	17	16	15
154	45	41	38	36	33	31	29	27	26	24	23	22	20	19	18	18	17	16
158	46	43	40	37	34	32	30	28	26	25	24	22	21	20	19	18	17	16
163	47	44	41	38	35	33	31	29	27	26	24	23	22	20	19	19	18	17
167	49	45	42	39	36	34	32	30	28	26	25	23	22	21	20	19	18	17
172	50	46	43	40	37	35	32	30	29	27	25	24	23	22	21	20	19	18
176	51	47	44	41	38	36	33	31	29	28	26	25	23	22	21	20	19	18
180	52	49	45	42	39	36	34	32	30	28	27	25	24	23	22	21	20	19
185	54	50	46	43	40	37	35	33	31	29	27	26	25	23	22	21	20	19
189	55	51	47	44	41	38	36	34	32	30	28	27	25	24	23	22	20	20
194	56	52	48	45	42	39	37	34	32	30	29	27	26	24	23	22	21	20
198	58	53	49	46	43	40	37	35	33	31	29	28	26	25	24	23	21	20
202	59	54	50	47	44	41	38	36	34	32	30	28	27	25	24	23	22	21
207	60	56	52	48	45	42	39	37	35	33	31	29	27	26	25	24	22	21
211	61	57	53	49	46	43	40	38	35	33	31	30	28	27	25	24	23	22
216	63	58	54	50	47	44	41	38	36	34	32	30	29	27	26	25	23	22
220	64	59	55	51	48	44	42	39	37	35	33	31	29	28	26	25	24	23
224	65	60	56	52	49	45	52	40	37	35	33	31	30	28	27	26	24	23
229	67	62	57	53	49	46	43	41	38	36	34	32	30	29	27	26	25	24
233	68	63	58	54	50	47	44	41	39	37	35	33	31	29	28	27	25	24
238	69	64	59	55	51	48	45	42	40	37	35	33	32	30	28	27	26	24
242	70	65	60	56	52	49	46	43	40	38	36	34	32	30	29	28	26	25
246	72	66	61	57	53	50	47	44	41	39	37	35	33	31	29	28	27	25
251	73	67	63	58	54	51	47	45	42	39	37	35	33	32	30	29	27	26
255	74	69	64	59	55	52	48	45	43	40	38	36	34	32	31	29	28	26
260	76	70	65	60	56	52	49	46	43	41	39	36	34	33	31	30	28	27
264	77	71	66	61	57	53	50	47	44	42	39	37	35	33	32	30	29	27
268	78	72	67	62	58	54	51	48	45	42	40	38	36	34	32	31	29	28
273	79	73	68	63	59	55	52	48	46	43	40	38	36	34	33	31	30	28
277	81	75	69	64	60	56	52	49	46	44	41	39	37	35	33	32	30	29
282	82	76	70	65	61	57	53	50	47	44	42	40	37	35	34	32	30	29
286	83	77	71	66	62	58	54	51	48	45	42	40	38	36	34	33	31	29
290	84	78	72	67	63	59	55	52	48	46	43	41	39	37	35	33	31	30
295	86	79	74	68	64	60	56	52	49	46	44	41	39	37	35	34	32	30
299	87	80	75	69	65	60	57	53	50	47	44	42	40	38	36	34	32	31
304	88	82	76	70	66	61	57	54	51	48	45	43	40	38	36	35	33	31
308	90	83	77	71	67	62	58	55	51	48	46	43	41	39	37	35	33	32
312	91	84	78	72	68	63	59	55	52	49	46	44	41	39	37	36	34	32

- Underweight (under 19)
- Desirable (19 to 25)
- Increased health risk (26 to 29)
- Obese (30 to 40)
- Extremely obese (over 40)

Form 9213-1a
(January 2003)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

WORK CAPACITY TEST RECORD

Units will document the administration of the WCT to all employees and job applicants. This documentation must be retained until the next WCT is administered. Units may also be requested to provide data from these records to assist in the evaluation of the WCT process.

The information on the Work Capacity Test Record is considered confidential and must be filed in the employee's medical file. The identity of the individual must be protected.

Solicitation of this information is authorized by Title 5 U.S. Code Section 3301, which provides for a determination of an individual's fitness-for-duty.

The information on this form may be disclosed without your consent as permitted by the Privacy Act (5USC552a(b)) to meet employment and medical requirements.

To be completed by employee:

Name (Last, First):_____ Where employed:_____

Height:_____ Weight:_____

Date test taken:_____ Test administered by:_____
(print name)

ICS position for which test is required (highest needed)_____

Performance level needed (circle one): Arduous Moderate Light

Type of test taken (circle one): Pack Test Field Test Walk Test

Work Capacity Test Descriptions:

	Pack Test	Field Test	Walk Test
Pack weight	45 lbs	25 lbs	None
Distance	3 miles	2 miles	1 mile
Time	45 minutes	30 minutes	16 minutes

To be completed by test administrator:

Test result time:_____

Employee passed test (circle one): yes / no

I certify that the work capacity test was administered according to Bureau guidelines.

_____ _____ _____
(Signature of Test Administrator) (Title) (Date)

Form 9213-1
(January 2003)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HEALTH SCREEN QUESTIONNAIRE

The purpose is to identify individuals who may be at risk in taking the Work Capacity Test (WCT) and recommend an exercise program and/or medical examination prior to taking the WCT.

Employees are required to answer the following questions. The questions were designed, in consultation with occupational health physicians, to identify individuals who may be at risk when taking a WCT. The information on this Health Screen is considered confidential and must be filed in the employee medical file.

Solicitation of this information is authorized by Title 5 CFR Part 339 – Medical Qualification Determinations, which provides for a determination of an individual's fitness-for-duty.

The information on this form may be disclosed without your consent as permitted by the Privacy Act (5USC552a(b)) to meet employment and medical requirements.

Circle the appropriate Yes or No response to the following question.

Yes	No		
Y	N	1)	During the past 12 months have you at any time (during physical activity or while resting) experienced pain, discomfort or pressure in your chest?
Y	N	2)	During the past 12 months have you experienced difficulty breathing or shortness of breath?
Y	N	3)	Are you currently under a doctor's care for a heart or lung related condition?
Y	N	4)	Have you ever been diagnosed with, and are you currently being treated for, high blood pressure?
Y	N	5)	Do you have a blood pressure with systolic (top#) greater than 140 or diastolic (bottom#) greater than 90?
Y	N	6)	Do you have a resting pulse greater than 100 beats per minute?
Y	N	7)	Do you have a bone or joint condition that could be made worse by a change in your physical activity?
Y	N	8)	Do you know of any other medical or physical reason you should not take the Work Capacity Test?
Y	N	9)	Do you have asthma, diabetes, epilepsy or elevated cholesterol?

A "Yes" answer will mean that a medical examination is required of the employee taking the WCT (Forms SF-78, Certificate of Medical Examination, and 1400-108, Physical Requirements for Firefighter and Smokejumper Positions). A doctor will then make a determination as to whether or not the employee should participate in a WCT. If the situation is being mitigated under the supervision of a doctor, the employee must provide a doctor's statement, to the Test Administrator, indicating that the employee can safely undergo the WCT.

I understand that if I need to be evaluated, it will be based on the fitness requirements of the position(s) for which I am qualified.

Participant_____ Administrator_____ Date_____

Firefighter Printed Name_____ Date Form Given to Firefighter_____

FEDERAL INTERAGENCY
ANNUAL MEDICAL HISTORY and CLEARANCE FORM
Wildland Firefighters (Arduous Duty)

****CAUTION****
THIS DOCUMENT CONTAINS CONFIDENTIAL MEDICAL INFORMATION AND IS SUBJECT TO THE PROVISIONS OF THE PRIVACY ACT (5 USC 552a)

This medical history form is to be completed every year unless the firefighter receives a baseline or periodic examination. This form must be completed *prior* to participating in the arduous duty work capacity test ("Pack Test").

***Fire Management Officer (FMO)*:** a) Fill-in the date on the top right corner when this form is given to the firefighter, b) On a computer generated label or typewriter, enter the Personnel Office's name, street address, city, state, zip code, telephone number, and e-mail address, c) On a computer generated label or typewriter, enter your name, street address, city, state, zip code, telephone number, and e-mail address, and d) Schedule an appointment for the firefighter through the Central Medical Consultant's secure webpage.

***Firefighter*:** Complete ALL of pages 3 and 4 of this form, attend the medical screening appointment, and return the "Clearance Sheet" (page 6) to your FMO. If the FMO does not receive the "Arduous Duty Wildland Firefighter Clearance Form" you will not be allowed to take the Pack Test. All "Yes" answers in the medical history sections must be explained and may require further information from your personal physician(s).

***Local Health Care Professional*:** Review the requirements for an arduous duty wildland firefighter (page 2), review the firefighter's self disclosure responses (page 3 and 4), and complete the "Medical Screening" (page 5) and the "Arduous Duty Wildland Firefighter Clearance Form" (page 6). Provide the completed "Arduous Duty Wildland Firefighter Clearance Form" to the firefighter (page 6), unless directed otherwise. Forward pages 1 to 5 of this form via overnight courier (e.g. FedEx) to the address provided by the Central Medical Consultant. **All significant, abnormal findings are to be discussed with the firefighter.**

Personnel Office	**Fire Management Officer**
Name:_____	Name:_____
Street Address:_____	Street Address:_____
City, State, Zip:_____	City, State, Zip:_____
Telephone Number:_____	Telephone Number:_____
E-mail:_____	E-mail:_____

Central Medical Consultant
Comprehensive Health Services, Inc.
8229 Boone Blvd, Suite 700
Vienna, Virginia 22101
800-638-8083

PRIVACY ACT INFORMATION

The information contained in this form will be used to determine whether an individual considered for arduous level wildland firefighting can safely and efficiently perform those duties in a manner that will not unduly risk aggravation, acceleration, exaggeration, or permanently worsening a pre-existing medical condition. Its collection and use are consistent with the provisions of the 5 CFR 339 (Medical Qualification Determinations), 5 USC 552a (Privacy Act of 1974), 5 USC 3301 (Examination, Certification, and Appointment), and Executive Orders 12107 (Merit Systems Protection Board) and 12564 (Drug Free Federal Workplace). The information will be placed in your official Employee Medical File, and is to be used only for official purposes as explained and published annually in the Federal Register under OPM/GOVT-10, the OPM system of records notice.

ESSENTIAL FUNCTIONS AND WORK CONDITIONS OF AN ARDOUS DUTY
WILDLAND FIREFIGHTER

Time/Work Volume	Physical Requirements	Environment	Physical Exposures
May include:			
• long hours (minimum of 12 hour shifts) • irregular hours • shift work • time zone changes • multiple and consecutive assignments • pace of work typically set by emergency situations • ability to meet "arduous" level performance testing (the "Pack Test"), which includes carrying a 45 pound pack 3 miles in 45 minutes, approximating an oxygen consumption (VO_2 max) of 45 mL/kg-minute *And up to*: • 14-day assignments	• use shovel, Pulaski, and other hand tools to construct fire lines • lift and carry more than 50# • lifting or loading boxes and equipment • drive or ride for many hours • fly in helicopters and fixed wing airplanes • work independently, and on small and large teams • use PPE (includes hard hat, boots, eyewear, and other equipment) • arduous exertion • extensive walking, climbing • kneeling • stooping • pulling hoses • running • jumping • twisting • bending • rapid pull-out to safety zones • provide rescue or evacuation assistance	• very steep terrain • rocky, loose, or muddy ground surfaces • thick vegetation • down/standing trees • wet leaves/grasses • varied climates (cold/hot/wet/dry/humid/ snow/rain) • varied light conditions, including dim light or darkness • high altitudes • heights • holes and drop offs • very rough roads • open bodies of water • isolated/remote sites • no ready access to medical help	• bright sunshine/UV • burning materials • extreme heat • airborne particulates • fumes, gases • falling rocks and trees • allergens • loud noises • snakes • insects/ticks • poisonous plants • trucks and other large equipment • close quarters, large numbers of other workers • limited/disrupted sleep • hunger/irregular meals • dehydration

Federal Interagency Annual Medical History and Clearance Form
Wildland Firefighters (Arduous Duty)

(Print Only) **Firefighter's Name:**	**SSN:**
Name of Employing Agency:	**Date of Birth:**
Position/Job Title:	**Gender:** Male ☐ Female ☐
Home Address: **(Street or PO Box)** **(City, State, Zip)**	**Date of Last Physical Exam:**
Home Phone: ( )	**Work Phone: ( )**

Incomplete forms or missing information may result in a delay clearing you for firefighter duties and prevent you from taking the Pack Test. Submitting information that is misleading or untruthful may result in termination or failure to be cleared as a firefighter. This history form and review do not substitute for routine health care or a periodic health examination conducted by your physician. It is being conducted for occupational purposes only. I certify that all of the information I have provided on this form is complete and accurate to the best of my knowledge. I authorize release of information within this form to the Interagency Medical Standards Program Manager or their representatives for the purpose of medical clearance as an arduous duty wildland firefighter.

Firefighter's Signature:	**Current Date:**

MEDICAL HISTORY

Smoking History
This information is needed since smoking increases your risk for lung cancer and several other types of cancer, chronic bronchitis, emphysema, asbestos related lung diseases, coronary heart disease, high blood pressure, and stroke. Please check your smoking status and complete the associated section:

☐ Current Smoker

Number of cigarettes per day _____
Number of cigars per day _____
Number of pipe bowls per day _____
Total years you have smoked _____

☐ Former Smoker

Number of cigarettes per day _____
Number of cigars per day _____
Number of pipe bowls per day _____
Total years you smoked _____

☐ Never Smoked

Alcohol/Drug Use
What is your average alcohol consumption (number of drinks) in a week?

_____ Drinks (1 drink = 12 0z. beer, 1 glass wine, or 1.5 oz liquor)

If you drink, what is your usual pattern of drinking?

☐ Weekdays ☐ Weekends ☐ Both

Do you use recreational drugs? ☐ No ☐ Yes
(Describe fully)

Describe Your Physical Activity or Exercise Program Type of Activity or Exercise _____

Intensity: Low _____ Moderate _____ High _____
(*Examples: Walking Jogging, cycling Sustained heavy breathing and perspiration*)

Duration, in Minutes per Session _____

Frequency, in Days per Week _____

Medications (List all medications you are currently taking, including those prescribed and over-the-counter.)

Date of last Tetanus (Td) shot:

MEDICAL HISTORY (continued) Do you have, or have you ever had:	Yes	No	Every item checked "Yes" must be explained in the spaces below, specifying the number of the item. Copies of pertinent medical records also may be necessary.
1. Surgery, or advised to have surgery?			
2. Treatment by doctors, healers, or other practitioners for any problem other than minor illnesses?			
3. Treatment for a mental or emotional condition?			
4. Allergies? (If "Yes," describe in box on right)			
5. Any type of eye disease?			
6. Contact lenses? Hard or Soft (circle one)			
7. Any type of ear disease?			
8. Problem with dizziness or balance?			
9. Any type of skin disease (other than acne)?			
10. Varicose veins, blood clots, or swollen and painful veins?			
11. Anemia?			
12. High blood pressure?			
13. A stroke?			
14. Poor circulation in hands or feet?			
15. Heart disease, heart murmur, chest pain (angina), palpitations (irregular beat), or heart attack?			
16. Problem with passing out, fainting, or losing consciousness?			
17. Any type of lung disease?			
18. Asthma, bronchitis, or emphysema?			
19. A need to use inhalers?			
20. Tuberculosis or a positive TB skin test?			
21. Diabetes?			
22. A need for insulin shots?			
23. Unexplained weight loss or gain?			
24. Joint pain or arthritis?			
25. Loss of use of an arm, leg, finger, or toe?			
26. Back pain, back trouble, or injury?			
27. Tremors, shakiness, or seizures?			
28. Numbness or tingling in hands or feet?			
29. Frequent headaches or migraines?			
30. Any type of stomach or intestine disease?			
31. Hernia?			
32. Hepatitis?			
33. Any type of liver disease?			
34. Blood in the stool or vomited blood?			
35. Any type of kidney or bladder disease?			
36. Kidney stones?			
37. Difficulty or pain with urination?			

Firefighter Name (Print Only)_____

MEDICAL SCREENING

Screening Item	Result	Qualifying Standard	Comments
1. Height (inches)		None	
2. Weight (pounds)		None	
3. Blood Pressure (mm Hg)	/	Less than or equal to 140/90	
4. Pulse (beats per minute)		None	
5. Hearing (without hearing aids) Whispered word at 1 foot from ear (opposite ear should be covered) Spoken word at 1 foot from ear (opposite ear should be covered)	Heard? Right Whisper ☐ Left Whisper ☐ Right Spoken ☐ Left Spoken ☐	Threshold shift not greater than 40 dB in the speech frequency range. Whisper = about 30 dB Spoken = about 60 dB (Need to hear a whisper)	
6. Vision Uncorrected far: (Soft contact lense wearers can leave contacts in) Corrected far: Color (Red/Green/Yellow)	Right -20/_____ Left -20/_____ Right -20/_____ Left -20/_____ Can see: Red ☐ Green ☐ Yellow ☐	Uncorrected far vision of 20/100 or better in each eye *AND* Corrected far vision of 20/40 or better in each eye *AND* Can see red/green/yellow	

Findings:

☐ **A. No Significant Findings** – The firefighter meets the qualifying medical standards listed above. The firefighter appears capable of performing the functional requirements of an arduous duty wildland firefighter (see page 2). **Note:** This includes the ability to safely participate in arduous duty performance testing, consisting at a minimum of carrying a 45 pound pack a distance of 3 miles in a period of 45 minutes over level ground (the "Pack Test").

☐ **B. Significant Finding (Uncorrected Far Vision ONLY)** – The firefighter does not meet the uncorrected far vision standard listed above. An acceptable accommodation is to require the possession during duty hours of a second set of corrective lenses. With this accommodation, the firefighter appears capable of performing the functional requirements of an arduous duty wildland firefighter (see page 2). **Note:** This includes the ability to safely participate in arduous duty performance testing, consisting at a minimum of carrying a 45 pound pack a distance of 3 miles in a period of 45 minutes over level ground (the "Pack Test").

☐ **C. Significant Medical Findings** - The firefighter does not meet one or more of the qualifying medical standards listed above, OR is not considered capable of performing the functional requirements of an arduous duty wildland firefighter (see page 2), OR is not considered able to safely participate in arduous duty performance testing, consisting at a minimum of carrying a 45 pound pack a distance of 3 miles in a period of 45 minutes over level ground (the "Pack Test").

☐ **D. Final Determination Cannot be Made Based on Available Medical Information** - The following results **(Please List)** were inconclusive and require that further information be provided to the Interagency Medical Review Officer from the firefighter's personal health care provider. The firefighter and their Fire Management Officer should contact their Agency representative for further direction. Final recommendation for participation as an arduous duty wildland firefighter cannot be made at this time.

_____ (Print Only)Name - Local Health Care Professional

_____ Signature – Local Health Care Professional

_____ Date

_____ (Print Only) Address

_____ License/Certification Number

_____ License/Certification State

_____ (Print Only) City, State, Zip

(____)_____ Telephone Number

Firefighter Name (Print Only)_____

ARDUOUS DUTY WILDLAND FIREFIGHTER CLEARANCE FORM

Local Health Care Professional: Complete the information required below, then detach and provide this page to the firefighter at the end of the medical screening.

Firefighter: You must return this page to the Fire Management Officer prior to taking the Pack Test.

Firefighter Name:_____

Agency, Unit, and Location:_____

☐ Employee **CLEARED** for Arduous Duty Wildland Firefighting and the Pack Test (*Findings **A** or **B** were marked on page 5*)

☐ Second set of corrective lenses (glasses) to meet uncorrected vision standard is required. *(Finding **B** was marked from page 5)*

☐ Employee ***NOT CLEARED*** for Arduous Duty Wildland Firefighting and the Pack Test. Further evaluation is necessary. **Findings discussed with firefighter.** (*Findings **C** or **D** were marked on page 5*)

(Print Only)Name - Local Health Care Professional	Signature – Local Health Care Professional	Date
(Print Only) Address	License/Certification Number	License/Certification State
(Print Only) City, State, Zip	(_____)_____ Telephone Number	

Appendix C—Informed Consent

The agency having jurisdiction may require that candidates sign an informed consent form. Here is a sample form suitable for photocopying.

INFORMED CONSENT FOR WORK CAPACITY TESTS

- I have read the information on this form and understand the purpose, instructions, and risks of the job-related work capacity test.
- I have read and understand, and have truthfully answered the health screening questionnaire.
- I have no personal or medical knowledge of any physical reason that would prohibit me from safely carrying out the assigned duties of the position.
- I believe I have the physical ability to complete the test and carry out the assigned duties of a wildland firefighter.

Test to be taken: ❒ Pack ❒ Field ❒ Walk

Date_____

Print name_____

Signature_____

Witness_____

Location_____

Pack test—Intended for those involved in arduous duties (defined in NWCG 310–1 as requiring an aerobic fitness level of 45, lifting more than 50 pounds, and occasional demand for extraordinarily strenuous activities). The 3-mile test with a 45-pound pack in 45 minutes is strenuous, but no more so than the duties of wildland firefighting.

Field test—Intended for those with moderately strenuous duties (requires a maximum VO_2 of 40, lifting 25 to 50 pounds, and occasional demand for moderately strenuous activity). The 2-mile test with a 25-pound pack in 30 minutes is fairly strenuous, but no more so than field duties.

Walk test—Intended for those whose duties involve light work with occasional field activity (required maximum VO_2 of 35). The 1-mile walk in 16 minutes is moderately strenuous, but no more so than the duties assigned.

Risks—There is a slight risk of injury (blister, sprained ankle, sore leg), especially for those who have not practiced and trained for the test.

For active individuals, the risk of a serious cardiovascular event is small. However, for inactive (sedentary) individuals, the risk is 56 times greater.

Be certain to warm up and stretch before taking the test and to cool down afterward. The risk of more serious consequences (such as respiratory or heart problems) is diminished if you complete the health screening questionnaire truthfully.

WARNING:

If you have not been involved in regular physical activity, you are at an elevated risk for cardiovascular complications during exertion. You should not begin training for a work capacity test until you have made a gradual transition from inactivity to regular physical activity. If you have been sedentary, you should engage in 4 or more weeks of moderate activity (walking 30 to 60 minutes, 3 to 5 days per week) before you begin more vigorous training for a test or the job.

Appendix D—Sample Work Capacity Test Data Sheet

WORK CAPACITY TEST DATA SHEET

Agency_____ Date_____

Unit_____ Crew_____

Test administrator_____

Initials*	Participant's name	Test P=Pack F=Field W=Walk	Time (min:sec)	Comments
			:	
			:	
			:	
			:	
			:	
			:	
			:	
			:	
			:	
			:	
			:	
			:	
			:	
			:	
			:	
			:	
			:	
			:	
			:	
			:	

*Candidate's initials indicate completion of the health screening questionnaire.

REMARKS: Document test site conditions such as temperature, relative humidity, windspeed, elevation, and so forth.

Appendix E—Training for the Work Capacity Test

After completing the health screening questionnaire (or medical history) and medical examination (if indicated), you are ready to begin training for the work capacity test.

WARNING:

If you have not been involved in regular physical activity, you are at an elevated risk for cardiovascular complications during exertion. You should not begin training for a work capacity test until you have made a gradual transition from inactivity to regular physical activity. If you have been sedentary, you should engage in 4 or more weeks of moderate activity (walking 30 to 60 minutes, 3 to 5 days per week) before you begin more vigorous training for a test or the job.

You are responsible for your physical condition and your health. No amount of health screening or medical examination can ensure your safety during a work capacity test or during fire duties. If you are uncertain about the condition of your health, have been inactive, or are seriously under or overweight, you should consult your personal physician before beginning training, taking a work capacity test, or engaging in wildland firefighting.

Begin training at least 6 to 8 weeks before you report for duty. Train by hiking or power walking, using the footwear you will use in the test. Increase the distance until you can hike 3 miles without a pack. When you can cover 3 miles in less than 45 minutes, wear a pack with about 25 pounds on your training hikes. Increase the pack's weight until you can hike 3 miles in 45 minutes with a 45-pound pack. Also:

- Hike hills (with a pack) to build leg strength and endurance.
- Jog the flat course (without a pack) to build aerobic fitness.
- Hike or jog longer distances for stamina.
- Cross-train (mountain biking, weight lifting).

Finally, do job-specific tasks and training to prepare for the coming season. Wear work boots on extended hikes. Work with handtools to prepare your trunk and upper body muscles for prolonged work. This job-specific work hardening ensures that the hands, feet, muscles, tendons, and ligaments you use on the job are tough and ready to go. For more information, refer to *Fitness and Work Capacity: Second Edition,* (Sharkey 1997 NFES 1596).

Appendix F—Sample Job Hazard Analysis for Work Capacity Tests

FS-6700-7 (11/99)

U.S. Department of Agriculture Forest Service	1. WORK PROJECT/ACTIVITY Work Capacity Tests (WCT)	2. LOCATION National Forest	3. UNIT Ranger District
JOB HAZARD ANALYSIS (JHA) References-FSH 6709.11 and -12 (Instructions on Reverse)	4. NAME OF ANALYST	5. JOB TITLE AFMO	6. DATE PREPARED 01-23-2003

7. TASKS/PROCEDURES	8. HAZARDS	9. ABATEMENT ACTIONS Engineering Controls * Substitution * Administrative Controls * PPE
FIRE FIGHTER WORK CAPACITY TESTING	PHYSICAL EXERTION	1. Follow test guidelines and procedures as found in the WCT *Test Administrator's Guide 2003 edition* and the January 2003 *Implementation Guide*. A Certified WCT Administrator shall conduct each WCT.
		2. Provide prospective test participants' information about the specific test required and how to prepare for it at least 4 weeks ahead of time.
		3. Prospective test participants shall complete the *Health Screening Questionnaire* to evaluate their suitability for training for and taking the WCT. A physical exam is required based on the March 26, 2001 letter and conditioning will not occur until after a review by a medical authority. No testing or training is allowed prior to medical review of the HSQ. **Participant shall only take that test necessary for their red-carded position**
		4. Brief test participants about the test just prior to testing. Answer any questions concerning the requirements and expectations of the tests. Inform test subjects to discontinue the test and seek assistance from a test administrator posted along the course if they begin to experience adverse discomfort or illness during the test.
		5. Provide prospective test participants official time (3 hours per week) for fitness training where policy permits.
		6. Schedule test when environmental conditions are most favorable.
		7. Test administrators shall monitor test participants for signs of stress and fatigue during and after execution of the test.
		8. Terminate testing for participants struggling to carry the pack or maintain an adequate pace that would ensure a safe and successful completion of the test.
		9. A certified EMT will be on site with appropriate equipment during testing.
		10. Have current medivac plan in place and ensure test administrators know how to activate it. Use guidelines on last page of JHA.
		11. Ensure test participants do not exceed a walking pace. (No jogging).
		12. Ensure test participants are properly hydrated.
		13. WCT participants must be visible 100% of the time while on the course.

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U.S. Department of Agriculture Forest Service	1. WORK PROJECT/ACTIVITY Work Capacity Tests (WCT)	2. LOCATION National Forest	3. UNIT Ranger District
JOB HAZARD ANALYSIS (JHA) References-FSH 6709.11 and -12 (Instructions on Reverse)	4. NAME OF ANALYST	5. JOB TITLE AFMO	6. DATE PREPARED 01-23-2003

7. TASKS/PROCEDURES	8. HAZARDS	9. ABATEMENT ACTIONS Engineering Controls * Substitution * Administrative Controls * PPE
	STRAINS AND SPRAINS	1. Provide information to test participants describing how to train for tests at least 4 weeks prior to the test.
		2. Provide time intervals at posted distances to help test participants adjust walking pace if needed.
		3. Ensure test participants have comfortable footwear and socks that provide adequate support and protection to the feet and ankles.
		4. Give test participants time to properly adjust packs for comfort and positioning prior to beginning the test.
		5. Allow adequate time for test participants to warm up and stretch prior to beginning the test.
		6. Make sure test participants do not exceed a walking pace.
		7. Have test participants cool down properly and stretch after the test.
	HEAT STRESS	1. Ensure test administrators understand the effects of exercising in heat extremes and can recognize the signs and symptoms of heat stress and know how to assist participants if necessary.
		2. Schedule tests during favorable environmental conditions. Use the Heat Stress Chart found on page (29) of *Fitness and Work Capacity* and in figure 4 of the *Work Capacity Test Administrator's Guide* (March 2003).
		3. Inform prospective test participants to dress for ambient conditions. Include this information in the pre-test briefing.
		4. Ensure prospective test participants are aware of the need for acclimatization.
		5. Test administrators shall include heat stress information in the pre-test briefing.
		6. Provide water at key points along the test course as necessary.
		7. Test administrators shall monitor all test participants for signs and symptoms of heat stress and be prepared to provide assistance.
	COLD EXTREMES	1. Ensure test administrators can recognize the signs and symptoms of frostbite and hypothermia and understand how to prevent and treat cold injuries.
		2. Inform prospective test participants of the need to dress for ambient conditions. Include this information in the pre-test briefing.
		3. Locate an indoor facility suitable for testing if outside conditions warrant.
		4. Postpone testing if adverse conditions exist.
	SLIPPERY COURSE CONDITIONS	1. Locate suitable test route with a walking surface free of hazards.
		2. Postpone testing if hazards cannot be eliminated.
		3. Test participants shall wear footwear with good support and traction.

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7. TASKS/PROCEDURES	8. HAZARDS	9. ABATEMENT ACTIONS Engineering Controls * Substitution * Administrative Controls * PPE
	TRAFFIC	1. Select a course route with no motor vehicle conflicts.
		2. Arrange for traffic control to eliminate or abate recognized traffic hazards.
		3. Brief test participants about known traffic hazards and the abatement measures that have been implemented prior to beginning pack test.
	PACK RUBBING OR CHAFFING	1. Ensure test participants have practiced with a pack configured to actual test pack and have become conditioned to carry this pack.
		2. Recommend upper body clothing to protect from pack rub. Configure test packs with appropriate straps and padding to minimize rubbing and chaffing.
		3. Ensure test participants have an opportunity prior to testing to check pack fit and comfort and make needed adjustments.
		4. Permit test participants to use personal packs that meet prescribed test pack configuration and weight requirements.

10. LINE OFFICER SIGNATURE Corey Stewart	11. TITLE: District Ranger	12. DATE 01-23-2003

JHA Instructions (References-FSH 6709.11 and .12)

The JHA shall identify the location of the work project or activity, the name of employee(s) involved in the process, the date(s) of acknowledgment, and the name of the appropriate line officer approving the JHA. The line officer acknowledges that employees have read and understand the contents, have received the required training, and are qualified to perform the work project or activity.

Blocks 1, 2, 3, 4, 5, and 6: Self-explanatory.

Block 7: Identify all tasks and procedures associated with the work project or activity that have potential to cause injury or illness to personnel and damage to property or material. Include emergency evacuation procedures (EEP).

Block 8: Identify all known or suspect hazards associated with each respective task/procedure listed in block 7. For example:

a. Research past accidents/incidents.

b. Research the Health and Safety Code, FSH 6709.11 or other appropriate literature.

c. Discuss the work project/activity with participants.

d. Observe the work project/activity.

e. A combination of the above.

Block 9: Identify appropriate actions to reduce or eliminate the hazards identified in block 8. Abatement measures listed below are in the order of the preferred abatement method:

a. Engineering Controls (the most desirable method of abatement). For example, ergonomically designed tools, equipment, and furniture.

b. Substitution. For example, switching to high flash point, non-toxic solvents.

c. Administrative Controls. For example, limiting exposure by reducing the work schedule, establishing appropriate procedures and practices.

d. PPE (least desirable method of abatement). For example, using hearing protection when working with or close to portable machines (chain saws, rock drills, and portable water pumps).

e. A combination of the above.

Block 10: The JHA must be reviewed and approved by a line officer. Attach a copy of the JHA as justification for purchase orders when procuring PPE.

Blocks 11 and 12: Self-explanatory.

Emergency Evacuation Instructions (Reference FSH 6709.11)

Work supervisors and crewmembers are responsible for developing and discussing field emergency evacuation procedures (EEP) and alternatives in the event a person(s) becomes seriously ill or injured at the worksite.

Be prepared to provide the following information:

a. Nature of the accident or injury (avoid using victim's name).
b. Type of assistance needed, if any (ground, air, or water evacuation).
c. Location of accident or injury, best access route into the worksite (road name/number, identifiable ground/air landmarks).
d. Radio frequencies.
e. Contact person.
f. Local hazards to ground vehicles or aviation.
g. Weather conditions (wind speed & direction, visibility, temperature).
h. Topography.
i. Number of individuals to be transported.
j. Estimated weight of individuals for air/water evacuation.

The items listed above serve only as guidelines for the development of emergency evacuation procedures.

JHA and Emergency Evacuation Procedures Acknowledgment

We, the undersigned work leader and crew members, acknowledge participation in the development of this JHA (as applicable) and accompanying emergency evacuation procedures. We have thoroughly discussed and understand the provisions of each of these documents:

SIGNATURE	DATE	SIGNATURE	DATE

Appendix G—Commercially Available Weight Vest

Sources for weight vests to use during work capacity training tests include:

Weight vest:
Weightvest.com
1397 North 1700 East
Sugar City, ID 83448
Phone: 888–909–5473
Web site: *www.weightvest.com*

Pack test training vest:
The Bagmaker
4464 Chinden Blvd., Suite A
Boise, ID 83714
Phone: 208–377–0405 or 800–293–0405
Fax: 208–377–3078
Web site: http://www.bagmaker.com

Notes

Notes

About the Authors

Chuck Whitlock is the safety and health specialist at the Missoula Technology and Development Center. He has worked on the Cleveland, Plumas, Fremont, and Wallowa-Whitman National Forests. Before coming to MTDC in 1998, Chuck was a zone fire management officer on the Wallowa-Whitman National Forest.

Brian Sharkey an exercise physiologist with MTDC, has done research and development work on fitness tests and programs, heat stress, hydration, nutrition, protective clothing, tools, fatigue, work/rest cycles, and employee health (wellness). His work has been honored with USDA Superior Service and Distinguished Service Awards, and a Forest Service Technology Transfer Award. He is a researcher, author of several books, and past president of the American College of Sports Medicine.

Library Card

Whitlock, Chuck; Sharkey, Brian. 2003. Work capacity test: administrator's guide. NWCG PMS 307 NFES 1109. Boise, ID: National Wildfire Coordinating Group, National Interagency Fire Center. 28 p.

Outlines procedures for administering the pack, field, and walk tests. These tests were developed as an alternative to the 5-minute step test that had been used to screen candidates for wildland firefighting. The pack test, for workers with arduous duties, requires carrying a 45-pound pack for 3 miles in 45 minutes. The field test, for workers with moderately strenuous duties, requires carrying a 25-pound pack for 2 miles in 30 minutes. The walk test, for workers with light duties, requires walking 1 mile in 16 minutes. Supersedes *Work Capacity Tests for Firefighters: Test Administrator's Guide* (9851–2810–MTDC).

Keywords: fire fighters; fire fighting; firefighting; physical fitness; testing

0351–2805–MTDC

Additional copies of this document (NFES 1109) may be ordered from:
National Interagency Fire Center (NIFC)
Attn: Great Basin Cache Supply Office
3833 South Development Ave.
Boise, ID 83705–5354
Fax: 208–387–5573

An electronic copy of this report will be available on the Internet at:
http://www.nwcg.gov/pms/pubs/pubs.htm

For further technical information, contact Chuck Whitlock or Brian Sharkey at the USDA Forest Service, Missoula Technology and Development Center.

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