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AGASSIZ NATIONAL WILDLIFE REFUGE  
MIDDLE RIVER, MINNESOTA 56737

SAFETY MANAGEMENT PLAN

1988

NATIONAL WILDLIFE REFUGE SYSTEM  
Fish and Wildlife Service  
U.S. DEPARTMENT OF THE INTERIOR

SAFETY MANAGEMENT PLAN

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Agassiz National Wildlife Refuge  
Middle River, Minnesota 56737

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## TABLE OF CONTENTS

	<u>Page</u>
I. INTRODUCTION	1
A. Objectives	1
B. Service Policy	1
II. SAFETY ORIENTATION AND TRAINING	1
A. New Employees	2
B. Entire Work Force	2
C. Training, Certification and Test Requirements	2
III. DRIVING HAZARDS AND SAFE DRIVING PRACTICES	3
A. On Refuge	3
1. Graveled Roads	3
2. Non-graveled Roads	4
B. Off Refuge	4
IV. JOB HAZARDS AND SAFE JOB OPERATIONS	4
A. Animals (Poisons, Bites and Stings - 24 AM 9.8)	5
1. Insects	5
2. Birds	5
3. Mammals	5
B. Buildings and Structures	6
1. Residential	6
2. Headquarters	6
3. Maintenance Center	6
4. Flammable Storage Room	7
5. Sewer Lift Station	7
6. Water Control Structures	7
7. Bridges	7
C. Firearms	7
D. Explosives	8
E. Flame, Fire and Smoke	8
1. Forest and Marsh	8
2. Propane Exploders	8
3. Gas Pumps and Vents	9
4. Volatile Liquids	9
5. Battery Charging and Storage	9
F. Chemicals and Chemical Compounds	9
G. Clothing, Apparel, Shoes	9
H. Power Tools	10
1. Welding Equipment and Electric Grinders	10
2. Jacks and Hoists	10
3. Lawn Equipment	10
a. Lawn mowers	10
b. Weed eaters	10
4. Saws (circular, table, radial arm and bands)	10
5. Chain Saws	10
I. Plants, Trees, Vegetation	11
J. Weather	11

TABLE OF CONTENTS (cont.)

	<u>Page</u>
K. Vehicles and Equipment	11
1. Trailers	12
a. Flatbed semi-trailer	12
b. Boat trailers	12
c. Trailers for slip on fire tanks	12
d. Implement trailer	12
e. Airboat trailers	12
2. Agricultural	12
a. Grain elevator	12
b. Side-bar mower	12
c. Rear-mounted rotary mowers	12
d. Wheeled tractors	13
3. Light Vehicles	13
4. Heavy Equipment	13
a. Cranes	14
b. Dump truck (GMC)	14
c. Road grader (Champion)	14
d. Loader	14
e. Firetruck	14
f. Backhoe	14
5. Watercraft	14
a. Canoes and boats	14
b. Outboard motors	14
c. Airboat	15
6. Snowmobile	15
7. Bombardier	15
8. Three-wheeled Cycles	15
L. Stairways	16
M. Walking Surface (Natural)	16
N. Walking, Climbing, and Standing Surfaces	16
1. Observation tower	16
2. Lansing Parker observation deck	16
V. PERSONAL PROTECTIVE EQUIPMENT	16
A. Personal Flotation Devices	16
B. Seat Belts	16
C. Protective Headgear	16
D. Rubber Footgear	16
E. Safety Goggles and Face Shields	16
F. Respiratory Apparatus	17
G. Hearing Protectors	17
H. Steel-toes Boots	17
I. Disposable Coveralls	17
J. Eye Wash	17
K. Portable Oxygen Resuscitation Tanks	17
L. Fire Retardant Clothing/Fire Shelters	17
VI. PUBLIC SAFETY PRACTICES	17

## I. INTRODUCTION

### A. Objectives

The objectives of this SAFETY MANAGEMENT PLAN are to identify and define safety hazards that may be encountered on Agassiz Refuge and the procedures to be followed in meeting them. Included is emergency information, procedures for safety training and safe job operation, instruction for proper use of particular refuge tools and equipment, guidelines for use of personal protective equipment and guidelines to protect the public. The Plan will be particularly useful for indoctrinating new employees.

It must be recognized that a guide such as this cannot be all inclusive and it is impossible to list all hazards for every job on the area. Its principal value is identification of the most potentially dangerous job hazards, and the inclusion of information to help workers avoid these hazards when encountered. As new job hazards are identified, they will be listed within. A continual effort will be made to minimize and eliminate hazards on all jobs.

The foundation of our safety program is related to the safety attitude of its employees. The maintenance of a positive attitude toward safety by all employees will help this station maintain an excellent safety record. Supervisors and co-workers will provide the best incentive to new employees to perform duties in a proficient, efficient and safe manner.

### B. Service Policy

The policy of the Fish and Wildlife Service as stated in 24 AM 1.3 is: "To provide an occupationally safe and healthful environment for Federal, cooperative, contractual, youth programs' personnel, and the visiting public; to minimize unsafe acts and work related illnesses through education, training and the use of recognized management techniques; to identify and correct hazardous conditions; to minimize accidental property damage or loss; and to make safety and environmental health an integral part of every task."

## II. SAFETY ORIENTATION AND TRAINING

A safe working environment just doesn't HAPPEN; it is CAUSED. Consequently, the burden of creating a positive attitude toward safety must be created by the supervisor(s). Their ability to relate safety principles through example(s), formal and informal meetings and development of a safe working environment, will all contribute toward program success. The supervisors ability to identify training needs and work and health hazards will ultimately be reflected in the attitude and performance of subordinate employees. The influence of a safety oriented supervisory staff will help create an atmosphere where all strive to identify and correct unsafe conditions about them.

### A. New Employees

When a new employee is assigned to Agassiz Refuge, every effort will be made to instill a safety conscious attitude. A good start can be made on initial contact while explaining methods and policies that are practiced on this area. As many job hazards as possible will be pointed out to the new employee, even though some of these may appear obvious. All employees are to point out both safe job practices and job hazards when teaching a new employee how to use and operate a particular tool or piece of equipment. Local road hazards and safe driving procedures will be brought to the attention of the new employee when he is given the driving test. Finally, the new employee will read and study this Safety Management Plan to become informed of job hazards and safety practices at Agassiz Refuge.

### B. Entire Work Force

It is the supervisor's responsibility to identify all possible job hazards and then to plan the work to avoid as many of these hazards as possible. Informal safety meetings will be held periodically and preferably once a month. Advantage can be taken of coffee breaks, travel time, and other slack time periods, to stress safety at the individual level. Sources of information for meetings have been Family Safety magazines, training films and VCR tapes. The supervisor is encouraged to use ingenuity and stimulate interest in safety topics. Experiences which have happened to persons from the local community can be especially valuable in stimulating interest and active participation by all employees. As stated, safety meetings should be informal with active participation by all employees. The Safety Management Plan will be reviewed annually by all employees and the review sheet initialed and dated.

### C. Training, Certification and Test Requirements

There is increased effort to provide employees with proper training and certification before they operate high risk equipment or engage in high risk activities. On Agassiz this includes:

1. All heavy equipment including bulldozers, draglines, backhoes, motor cranes, payloaders and forklifts.
2. All ATV's.
3. All prescribed burning participants must have taken fire training and must pass the step test annually.
4. Persons responsible for refuge herbicide use shall be tested and certified annually by the State of Minnesota.
5. All staff subjected to working around loud noises will be given audiometric examinations annually.

### III. DRIVING HAZARDS AND SAFE DRIVING PRACTICES

The Agassiz Refuge seeks to avoid unnecessary waste of manpower and equipment resulting from careless operation of motorized vehicles. Most motorized vehicle accidents can be avoided provided the equipment is in good operating condition and the operator is properly trained and constantly vigilant. The Service seeks to avoid accidents and injuries by making it MANDATORY to use seat belts by ALL drivers and passengers at ALL times. Additionally, all new employees are required defensive driving training conducted by the National Safety Council or its equivalent prior to or within 90 days after issuance of the SF-46 (U.S. Government Motor Vehicle Operator's Identification Card). Agassiz will comply with the above policies and will further assure that the eight-hour refresher training in defensive driving will be given to each employee during each successive three-year issuing period of the SF-46 (24 AM 1.7B4).

#### A. On Refuge

##### 1. Graveled Roads

Refuge roads provide a number of hazards to the motor vehicle driver. Marshall County 7 runs through the refuge from east to west and has a gravel surface. Although generally well maintained, "frost boils," "washboard" and "chuckholes" are present in certain areas or during certain seasons. These can cause a vehicle to swerve or "fishtail." The road shoulders in places are extremely narrow and require caution when a vehicle is stopped, whether for repairs or observation of wildlife. Since traffic is sparse some drivers tend to operate under the sense of "highway aloneness." Excessive speeds and road hogging should be avoided at all times. Loose or wind-rowsed gravel is especially dangerous following grading of the road. This material can cause a car to swerve out of control and into an oncoming vehicle or into the ditch.

Other refuge roads have additional hazards. All of them are narrow and often drop off abruptly into a relatively deep water-filled ditch. One must reduce speeds when traveling these roads, especially when meeting or passing another vehicle. When this occurs, it is best for one of the vehicles to pull over and stop while the other passes. At spring breakup or following a heavy rain, many of these roads become hazardous due to the development of frost boils, washouts, ruts, "chuckholes," and slippery surfaces. During these periods, the use of road-holding 4-wheel drive vehicles driven at reduced speeds are recommended.

Because of the remoteness of many refuge roads, and because radio contact with refuge headquarters is not always possible, it is advisable to always carry at least one dependable jack, chain and shovel in your vehicle. Other emergency equipment normally in each vehicle includes first aid kit and some hand tools.

The driver should be alert at all times for the presence of deer and moose. This is especially necessary during the fall and spring months, just before sundown and after sunrise when these animals are most

active. If an animal should run across the road, driving speed should be greatly reduced because it is common for other animals to be following. An animal "frozen" by headlights may be scared off the road by blowing the vehicle's horn or by flashing the headlights.

## 2. Non-graveled Roads

Precautions should be taken when driving grassed roads, trails and dikes. Heat generated from catalytic converters can be a fire hazard, particularly during the spring and fall when grass is cured. Dikes around pools may have rodent burrows or slumps. Many are extremely steep. Often shoulders are soft and the water in the ditches deep. If possible avoid non-graveled roads after rain storms or when frost first goes out in the spring as they can be extremely soft and easily rutted.

## B. Off Refuge

For operation of government-owned vehicles over the road, the operator should be aware of both State and Department of Transportation regulations. Regulations pertaining to the operation of vehicles, especially trucks and trailers, both intra and inter-state, will be made available to truck drivers who travel off refuge. In addition, all drivers should be aware of, and adhere to, the following rules of safe driving:

1. Practice preventative maintenance inspection before leaving the refuge to protect against accidents and emergency situations. This should include a check of gasoline, oil, battery, radiator and tire pressure.
2. Assure that all material to be hauled is well secured and protected by tarp, rope or chains as the situation requires. Lug bolts on the tractor/trailer, dump trucks and grain trucks should be checked periodically.
3. Red reflectors should also be carried in trucks driven over the road and deployed to both front and rear of the vehicle whenever stopping for emergency repairs on the highway.
4. In winter, families of resident refuge personnel (when applicable) should formulate a Travel Plan before leaving the refuge on trips. This plan should include their expected route of travel and their departure and arrival times. Once their destination is reached, a call should be made to refuge headquarters indicating same. Before embarking on the return trip to the refuge, these people should again call headquarters and indicate their time of departure. By following these procedures, possible serious consequences resulting from an emergency enroute can be avoided. Should these people be overdue on either end, help can be sent out early.

## IV. JOB HAZARDS AND SAFE JOB OPERATIONS

In the performance of most jobs, few hazards are encountered. As the number of these hazards increases, there is a consequent increase in job

risks. Each individual should identify potential hazards before starting every job. He can then go proceed with a minimum of risk.

In this section, identification of the most serious hazards encountered on Agassiz Refuge was done. Again, no attempt was made to identify all hazards for all jobs. There are many obvious hazards to which an alert worker will be cautioned by his common sense. The hazards listed here are only those that may not be so obvious, and if encountered by the uninformed, could result in an accident or serious injury.

A. Animals (Poisons, Bites and Stings - 24 AM 9.8)

1. Insects - bites of bees, wasps, mites, ticks, etc. Watch particularly for bee hives in and around refuge buildings. Most people generally suffer only slight discomfort. Individuals who are aware that they are allergic to bites and stings should carry appropriate first aid kits and know how to use them. Repellents are available at headquarters for protection against deer flies, horse flies and mosquitoes.

Lyme disease or "Lyme arthritis" is a recently discovered disease which is spread by the bite of an infected tick. Employees should do their best to prevent tick bites. If a bite occurs, they should review the lyme disease symptoms and watch for them.

2. Birds - a group of related viruses transmitted by birds cause a disease loosely known as ornithosis. It is an air-borne respiratory infection. Persons handling birds in banding operations should take precautions to avoid contacting this disease, primarily when large numbers of birds are concentrated in an area with little or no air circulation. A face mask should be worn if such conditions exist. The fungus disease Histoplasmosis causing pneumonitis is a potential danger at Agassiz Refuge. The organism proliferates in bird feces soil where concentrations occur. Waterfowl banding and feeding sites, swallow, blackbird, and sparrow concentration areas near headquarters are likely places of contacting this disease. A person becomes infected by inhaling the fungus spores. A simple histoplasmosis test can be given to Service employees at Government expense. For persons handling birds in banding operations, an additional hazard is scratch and puncture wounds. If they occur, treat these wounds as any other for prevention of infection.

In the event of a botulism outbreak, several precautions should be taken by employees disposing of effected birds. Rubber gloves should be worn when birds are handled. All birds should be put in plastic bags and burned at a disposal site. Avoid contact with the smoke during incineration. The boat and equipment should be steam cleaned when operations are complete.

3. Mammals - Workers and refuge visitors should be cautioned against the rare possibility of encountering sow bears or cow moose with young. These adult females are potentially very dangerous if they feel their young are threatened and should be avoided when encountered. Bull moose also should not be trusted while in the fall rut.

Employees should be on the alert for symptoms of rabies and tuleremia, and take precautions to avoid becoming infected. If it is necessary to handle dead animals, rubber gloves should be worn. Rabies can occur in any warm blooded animals at any season of the year. Dogs, foxes, skunks, cats, bats and cows are possible vectors. Any animal bite should be considered a potential source of rabies infection. Wild animals showing no fear of man and wandering during daylight hours are candidates for suspicion.

A recommended precaution to avoid the spread of this disease is to have all domestic animals of refuge personnel immunized. If someone is bitten, a physician, local health officer, and veterinarian should be contacted immediately. The offending animal should be captured alive and confined if possible. Care should be taken to avoid damaging the brain or skull since the most rapid diagnostic tests are based on microscopic examination of the brain tissue of the animal in question.

Tuleremia is a widespread rodent disease that may be transmitted to man. Refuge personnel or trapper permittees may come in contact with the disease by handling, skinning or dressing infected rodents or rabbits.

Personnel working with mammals on the refuge should be reminded of the various parasite and disease hazards and to take all necessary precautions. Preventive inoculations may be obtained from local doctors.

#### B. Buildings and Structures

1. Residential - All electrical wiring and fixtures were inspected and discrepancies corrected during summer 1973. Quarters furnance systems will be inspected each fall before the heating season. This inspection will include soaping all fittings, vacuuming and oiling motors. Chimneys will be inspected and cleaned monthly during the heating season when wood burning stoves and fireplaces are being used. Clothes, papers and other combustible materials should be kept away from all the gas-heated hot water furnaces and wood burning stoves. It is also important to clean dust from these furnaces periodically since fire has been known to start in this combustible material.
2. Headquarters - All combustible materials should be kept away from the furnace and hot water heater. Dust should be periodically vacuumed around these units.
3. Maintenance Center - Nine of the 16 overhead doors at the maintenance center are opened manually. Proper lifting techniques should be used when opening and closing these doors.

Caution should be taken when operating the 5 automatic overhead doors (#1, 5, 12-14) to ensure the area is cleared before closing. Employees should not run or drive under doors that are in motion.

During the winter months snow should be cleaned off of foot gear before entering the maintenance center. The smooth concrete floors are extremely slippery if the soles of the shoes are covered with snow. Rubber door mats are located at each entry so foot gear can be cleaned.

4. Flammable Storage Room - Flammable liquids such as paint, turpentine and thinners have a tendency to be scattered about. These substances should be placed, and stored, in the flammable storage room at the maintenance center. The fan should be turned on before entering to clear any fumes that may be present. No smoking is allowed in this room.

Gasoline should be contained in red cans only. These cans should be plainly labeled "GASOLINE." When not being used, the metal can used to store oily rags should have its lid firmly in place.

5. Sewer Lift Station - The sewer lift station is located behind the 3-stall garage at the headquarters. The exhaust fan will be turned on before raising the doors to clear the station of methane gas. No one will enter the lift station alone. If someone must enter the lift station in an emergency, a life line will be attached to the waist.
6. Water Control Structures - Structures range in size from 36 inch culverts to 14 foot radial gates. When possible, this work should be done by two people in the event one should fall into the water. An emergency life ring with an attached rope should be purchased and carried by the water management crew. The large Ditch #11 and Thief River controls are especially dangerous, as these structures are quite high, the water is deep, and there is generally a strong current of water through them. When working on these two controls, it is advisable for the two workers to wear life vests. While cleaning debris from around the gates, a life line should be attached to the waist. This line should be held by the helper.
7. Bridges - All bridges on the refuge, except those on Marshall County #7, are one lane and narrow. Caution should be exercised when walking across these bridges because they do not have guard rails. The narrow and relatively high bridge over the Madsen spillway is most dangerous in this respect. Wheel guards are present on all bridges and reflectorized markers are on all but the Madsen spillway. The approaches to all bridges should be examined periodically for washouts. The supports should also be examined to detect any weakening due to the movement of floating ice during the spring break-up.

#### C. Firearms

The Refuge has one firearm - a .22 caliber Harrington-Richardson pistol, model 999. Refuge employees with law enforcement authority have been issued a .357 magnum Smith and Wesson pistol. Standard firearm safety procedures will be followed. Each refuge officer has been issued hearing protectors for firing at the range.

#### D. Explosives

The explosives used on the Refuge are prima-cord and Kinepak, blasting caps and rocket-net charges. These are stored 1.5 miles north of refuge headquarters (in the old dump woods) in aluminum containers. The magazines are well marked, secured and kept free of flammable materials.

It is recommended that no purchases of dynamite be made unless the need for blasting is well justified and the material is to be used within a short period of time, preferably 30 days (Refuge Notice dated October 18, 1971, subject "Storage of Explosives").

In view of the instability of dynamite, it will be the policy of this Refuge to use Kinepak explosives. The advantages are based on safer handling qualities, insensitivity to impact or friction and storage can be indefinite. (Refer to Incentive Awards Flyer dated July 19, 1973, subject Kinepak Explosive).

Rocket netting of waterfowl presents some unique hazards. A survey of rocket-net usages during 1979-1985 was conducted by the Office of Migratory Bird Management. As a result of this survey, several potential hazards were identified and 24 AM 5, Exhibit 1, was amended 24 July 1987 to ensure proper and safe use of rocket net charges. Exhibit 1 provides detailed instruction on 1) loading of rockets, 2) hook-up to power supply and firing, 3) placement and use, and 4) safety rules. All personnel should carefully review this release, regardless of their involvement with banding and rocket net usage.

#### E. Flame, Fire and Smoke

1. Forest and Marsh - Combustible materials on the forest floor, and dried vegetation along Marshall County #7 are particularly vulnerable to fire. Regular surveillance of these areas should be made during periods of high public use and dry conditions. It may prove desirable to place signs and fire prevention posters.

During periods of high fire risks, all Refuge fire fighting units will be in standby status. Each unit will be equipped with shovels, rakes and drip torches. Torches will have a sufficient quantity of mixing fuel for refilling torches for backfiring purposes. Refuge personnel will be briefed by the "Fire Boss" as designated by the Project Leader. Further information can be found in the Station Fire Management Plan.

2. Propane Exploders - Scare devices of this type might be used in refuge depredations control work. Caution must be exercised in the deployment of these exploders. Make certain they are not placed in, or with the barrel facing dry vegetation. The flash from the exploding gases, as the gun fires, can start a field fire. Also do not permit anyone to stand in front of the barrel since they could be burned or receive ear injury when the gun discharges.

3. Gas Pumps and Vents - Do not smoke in the vicinity of the vents of the gas pump or around the pumps. Fumes emitting from this vent could be ignited and result in an explosion in the underground storage tank. No smoking signs are posted at these points.
4. Volatile Liquids - At all points where transfer of volatile liquids are made, all necessary preventions of bonding and grounding should be taken to preclude the possibility of electric sparks occurring as a result of static electricity. All engines and motors will be turned off before fueling.
5. Battery Charging and Storage - All batteries will be stored and charged in a heated and well-ventilated area away from open flames, such as pilot lights, welders and electric motors.

Care must also be exercised when charging batteries in vehicles to assure that batteries are not frozen.

The proper method for jump-starting a dead vehicle battery should be followed to prevent a possible battery explosion and fire. A sticker showing the correct sequence to attach clamps is located near the battery in each vehicle (refer also to May 17, 1982 Safety memo on subject).

#### F. Chemicals and Chemical Compounds

Material Safety Data Sheets covering all hazardous chemicals commonly used on the refuge are referenced as an attachment to this safety plan. This list is to be kept current and reviewed annually, or as necessary, by employees to assure proper use and storage of all hazardous chemicals occurs.

Such compounds as fertilizers, pesticides or herbicides can be dangerous to man as well as other living things.

All chemicals that require storage in heated buildings will be kept in the warehouse at the maintenance center. The remaining chemicals will be kept within the rodent-proof storage bin in stall 6. Chemicals will only be applied by certified applicators. Rubber gloves, respirators, goggles and disposable coveralls are available for use as recommended by label instructions when chemical applications are made.

#### G. Clothing, Apparel, Shoes

Knee and hip boots, waders and hard hats are provided for use by Refuge personnel. Make certain that good grips are maintained on the soles and heels of the boots and that the hard hats are serviceable and located in a conspicuous location. It is wise to have several pair of extra work gloves on hand and to encourage their use by the maintenance crew.

Clothing such as scarves, loose-hanging coats, parkas and long shirt sleeves should not be worn near equipment with power takeoffs or augers, or any other revolving gears or belts which could possibly entangle clothing and cause serious bodily harm or death.

## H. Power Tools

The maintenanceman or equipment operator will instruct all employees in the use of any power hand tool before use is authorized. Employees should be familiar with the tool, keep blade guards in place, use the right tool for the right job, use personal protective equipment when applicable, keep work areas clean and disconnect tools when the job is completed.

1. Welding Equipment and Electric Grinders - see that a protective hat and glasses are always conspicuously placed near these machines. A warning sign placed over the machines will serve as a reminder to individuals to use the protective devices before beginning work.
2. Jacks and Hoists - serious accidents may be caused by vehicles rolling off supporting jacks. Personnel working near or beneath vehicles on jacks should be encouraged to use one safety jack for each axle. It is also wise to place blocks behind the wheels at the lower end of the vehicle. The overhead and floor hoists in the vehicle service room should only be operated by those familiar with the equipment and those that have been instructed in the proper use by the maintenanceman.
3. Lawn Equipment
  - a. Lawn mowers - several hand pushed and riding power mowers are available for use on the Refuge grounds. It is not unusual for the rotary blade on these mowers to throw hard objects (stones, sticks, bones, etc.) laterally with great force. Therefore, before mowing the operator should see that all shields are in place, and that no one is in the vicinity. The hand pushed mowers should not be pulled backwards, for it is easy to pull it onto the operator's feet. Steel-toed shoes, long shirts and pants will be worn while mowing. Do not engage mowers while the deck is in the full elevated position.
  - b. Weed eaters - eye and ear protectors, as well as gloves, long pants and shirts and heavy shoes will be worn when operating the monofilament line cutters. The spinning line is capable of throwing dirt and dust into the eyes as well as objects into the legs and feet.
4. Saws (circular, table, radial arm and bands) - this piece of equipment should be used with care. Saw blades should be kept sharp. Dull blades may cause the saw to jump through material and pull the operator's hand into the blade. The metal protective guards will always be kept in place when the saw is in use. Pull the power cord when deactivating the saw and place the guide over the blade.
5. Chain Saws - the greatest potential hazard of chain saw operations is the inexperienced operator. The supervisor will assure that any personnel assigned to such a project will be trained, experienced and properly equipped with safety hard hats and chaps. The most common injury types sustained in chain saw operations are lacerations to the legs from the chain and injuries resulting from improper falling of trees. Operator must always be alert to the possibility of the tree kicking back at the operator or being struck by the tree being felled.

## I. Plants, Trees, Vegetation

1. Briars, thorn apple, nettles, poison ivy, and certain fungi (mushrooms) - these are refuge plants which may cause trouble unless they are recognized and avoided. Refuge visitors, especially, should be cautioned about coming in contact with these plants, particularly poison ivy and poisonous mushrooms. If poison ivy becomes established in areas where visitors are likely to come in contact with it, the plants will be removed. People should avoid testing unfamiliar mushrooms.
2. Pollen - a variety of Refuge plant species can produce pollen which cause allergic reactions. The various species of goldenrod and ragweed are most troublesome in this respect.

## J. Weather

Since a great deal of refuge work is done in the field, radiation from the sun may at times create problems. Personnel who may be particularly sensitive or frequently exposed to bright light and glare should consider wearing prescription ground sunglasses. Personnel should be cautioned about wearing sunglasses unnecessarily, for prolonged and excessive use tends to reduce their tolerance to bright light.

To avoid severe sunburn, heat exhaustion, heat cramps and heat or sunstroke while in the field, personnel should wear light, loose clothing and a hat. Ample use should be made of drinking water and liberally salted foods.

When working afield in wintertime, refuge personnel should take precautions to avoid snow blindness. Direct or reflected glare from snow surface, particularly on bright, clear days is especially dangerous.

Hypothermia can affect employees anytime of the year but more commonly from late fall through early spring. Employees that get wet during this time of year should be aware of the symptoms and hazards of hypothermia and take preventative actions immediately if such conditions exist.

## K. Vehicles and Equipment

Employees using refuge vehicles or equipment should be familiar with the safe operation before use. Training and certification as an operator is required for ATV's, tractors and all heavy equipment. The manufacturer's operating manual guidelines for operation should always be followed. As recommended, all equipment with parts or accessories lowered by gravity or hydraulic levers, such as shovels, buckets and bulldozer blades, will have parts or accessories resting on the ground and the controls in neutral position when shut down. Operators should wear prescribed personal protective equipment.

Wheels on several vehicles are equipped with multi-piece rims including the flatbed trailer, motor crane, grader, dump truck, fire truck and Hough loader. Wheels on these vehicles will be serviced by qualified local tire repair dealers and not by refuge employees.

All power take offs, rotating shafts and mowers will be properly guarded. No guards will be removed except during repairs.

## 1. Trailers

- a. Flatbed semi-trailer and a pintle hitch flatbed trailer, both with tandem axle dual wheels, are used for hauling heavy equipment. The loading ramps are very heavy and may require two people to raise or lower them. Feet should not be under the ramp when lowered and fingers kept away from the hinge when raised. The bed of the semi-trailer is wide and a special permit is required before use on a public road.
- b. Boat trailers - use caution when manually handling trailers. The frame and hitch may bounce up when the load is shifted rapidly to the rear. The trailer may also whip to the side if one wheel should fall into a hole or rut. A safety chain will be attached between the hitch and the vehicle bumper.
- c. Trailers for slip on fire tanks - even when empty of water these 150 gallon fiberglass tanks are extremely heavy and impossible to move manually. Jacks are attached to trailer tongues to facilitate hitching and unhitching. Safety chains will always be attached to the bumper.
- d. Implement trailer - wheels should be locked before equipment is loaded or unloaded on the trailer. Only trained employees should use this piece of equipment.
- e. Airboat trailers - these trailers are equipped with wheeled jacks to prevent unnecessary back strains when hitching or unhooking from vehicles. The jacks also protect toes from being pinned under the frame when unhitched. Due to risk of back injury, airboat trailers will not be stored in areas where lifting the tongue to gain clearance of the propeller cage is required.

## 2. Agricultural

- a. Grain elevator - keep hands and feet away from auger mechanism whenever machine is in operation. Shut off motor to clear any obstruction in the auger. Two people should be present when moving this piece of equipment for it can easily become unbalanced.
- b. Side-bar mower - the greatest dangers involved in the operation of this piece of equipment are the removal of vegetative materials that frequently pile up on the blade, and repair work to the mowing mechanism. Before any work of this sort is done, it must be made certain that the power takeoff has been completely disengaged.
- c. Rear-mounted rotary mowers -

John Deere, Model 609 - this mower should not be operated in the vicinity of people. Like other rotary mowers, it quite frequently picks up hard objects from beneath the machine and thrusts them with great

force laterally. The tractor should not be dismounted until the blade has completely stopped.

Bush Hog, Model 406- this mower is used primarily for brush control. Greatest risk is to observers being struck by flying debris. All gyromower or brush mowing tractors are equipped with protective screens to protect operator from flying debris. The tractor should not be dismounted or mower approached until the blades have stopped rotating.

- d. Wheeled tractors - the refuge presently has 5 wheeled agricultural tractors; John Deere 4630 and 4010 and Massey Ferguson 285, 255 and 245. These tractors will only be operated by qualified and experienced operators. New employees will be familiar with the operating manuals, trained and tested by the equipment operator or maintenanceman before use. All tractors are equipped with roll over protection, seat belts and other safety features. Engines will only be started from the operator's seat with the transmission in neutral or park. Never start an engine while standing on the ground by shorting across the starter terminals. The machine will start in gear and move if normal starting circuitry is bypassed.

### 3. Light Vehicles

- a. All 4-wheeled drive vehicles - NEVER allow these vehicles to roll backward while in any forward gear as damage to the 4-wheel drive unit could occur. The same holds true when in reverse. The operator should remember to disengage the unit when the vehicle is being operated on the open road.
- b. All refuge pickups are equipped with roll bars, and protective screens for the rear cab window (24 AM 4.12C).
- c. All refuge-owned trucks and passenger vehicles will be operated in accordance with the requirements set forth in 24 AM 4.11A-4.12G.

### 4. Heavy Equipment

Probably the greatest dangers encountered when operating the tractors occur when the machines are being used in brush or timber. It is not unusual for trunks, limbs and stems to fly or whip-up and strike the operator a severe or fatal blow. To avoid a severe injury, the operator should make certain that the metal cab shield is always in place when working in brush or timber. A hardhat and goggles will always be worn when operating these pieces of heavy equipment to protect the operator from flying debris. Ear protection is also required. All tracked equipment is equipped with roll bars and seat belts (24 AM 4.7J).

Care should be taken when mounting or servicing the tractors in the winter. The tracks are extremely slippery when foot gear or the tracks are covered with snow.

- a. Cranes - two of these machines are available for refuge projects --crawler 1.5 cubic yard Lima and a crawler 1.5 cubic yard Linkbelt. As in starting the D-7 tractor, the crank on the starting motor of the Linkbelt may whip rapidly to the rear should an engine backfire occur. To avoid injury to the fingers, wrist, or forearm, by this crank, the operator should not "thumb around" on the crank handle and should be prepared to jerk his arm clear. The Lima is equipped with an automatic starter.
  - b. Dump truck (GMC) - unlatched end-gates may pose a danger should they close while the operator's hands are between an end-gate and the truck bed. Hands, therefore, should be kept away from these open end-gates at all times. In addition, whenever working on this truck's hydraulic system, the dump box should be blocked to prevent it from slipping down on the repairman.
  - c. Road grader (Champion) - a high step is necessary to enter or leave through the door of this unit. The operator should take a firm grip on the door handles and be alert to avoid falling. When working on the machine's hydraulic system, the blade should always be blocked-up when off the ground. Employees should avoid standing near the wing when it is attached.
  - d. Loader - the Hough Payloader has a high step to encounter when entering or leaving the operator's seat. Caution must be exercised when entering or leaving to avoid fall-type injuries. This machine is equipped with a three-way hydraulic bucket. EXTREME CAUTION must be exercised when working on the hydraulic system. The loader should be adequately blocked to prevent the worker from being pinned under or being struck by a falling bucket. Unless it is necessary for the loader to be running, the refuge policy will be to shut the machine down when making repairs.
  - e. Fire truck - the bed on the fire truck is extremely high. The side ladders should be used when entering or leaving to avoid falling.
  - f. Backhoe - the levers should only be operated while sitting in the drivers seat -- never from the ground. Be sure the area is clear before raising or lowering the stabilizing arms.
5. Watercraft - Section 8 of 24 AM is a ready reference on this topic.
- a. Canoes and boats - three watercraft are owned by the Refuge, a 15 ft. Grumman sportboat, a 14 ft. Alumacraft, and a 14 ft. Sears flat bottom. Cracked and peeled-back metal should be watched for on the aluminum type boats. Sharp edges on this metal can cause cuts, especially on the hands and arms. All occupants WILL wear coast guard approved life preservers when using this equipment. While operating boats, be particularly alert for steel pilings, stumps and rocks in Refuge pools and ditches.
  - b. Outboard motors - Johnson Outboard Motor (5.5 hp) and Evinrude Outboard Motor (9.5 hp) - the operator must take precautions to prevent the motor propeller and shaft from striking submerged objects

such as boulders and stumps. These submerged hazards are common in the pools at Agassiz. If such objects are struck, the propeller can very easily be broken, and the force of the impact may jerk the motor's steering handle out of the operator's hands and cause the craft to veer sharply. This could toss an occupant out of the craft and into the water, or cause the craft itself to capsize.

- c. Airboat - the airboat will only be operated by trained personnel who have thoroughly reviewed the airboat safety manual. Personal protective equipment including helmet, ear muffs and life jackets are required. A portable radio will always be carried in the boat. The propeller will be checked for cracks or breaks before each use and the area behind the propeller will be cleared before starting. The deck and gunnels can be slippery even though non-skid tape has been placed at these locations. All turns, even while idling, must be made under power. Failure to do so may result in a wake overtopping and sinking the boat. A safety check for hull cracks, gas, oil and loose items that could be sucked into the propeller will occur routinely before every airboat use. Special caution is required while nightlighting to band waterfowl. Two persons are involved in this activity and there is no opportunity to radio for help should an accident occur. The nightlighting team must leave a schedule of the pools they might visit.
6. Snowmobile - operations of snowmobiles will be in accordance with Administrative Manual Release 24 AM 4, Appendix B, "Guidelines for Safe Operations of Snowmobiles." All personnel operating such equipment WILL wear protective headgear. Injuries and accidents resulting from snowmobile operations usually result from poor judgment of the operator. Care and reduced speed must be exercised while operating the machine on ice. Excessive speed on ice could cause the machine to slid uncontrollably and ultimately throw the operator off. A general safety policy on snowmobiles is that slow operating speeds results in the prevention of most accidents. Another hazard is buildup of cattail fuzz under the snowmobile hood which occurs when driving through wetland vegetation. This buildup poses a fire hazard and requires frequent checking and careful monitoring when conditions are "right."
7. Bombardier - this all-terrain vehicle is very versatile for getting into remote areas. Its primary use is to carry a tank/pumper unit during prescribed burning activities. The greatest hazard in the operation of this machine is dropping into peat burnouts, attempting to climb steep embankments or traveling over ice. Areas that have a potential for thin ice such as control structures and beaver lodges should be avoided. All operators must thoroughly review the operator's manual and be checked out in their operating procedures.
8. Three-wheeled Cycles - the Refuge has 2 Yamaha 125's. The use of personal protective equipment, particularly helmets, is required (24 AM 4.15). Personnel should be familiar with the operation of the machine before use and be certified. These machines can tip in rough terrain or on steep slopes.

#### L. Stairways

Office stairway - the stairway to the upstairs office space and storage area is extremely steep. Hand rails are provided and should be gripped firmly when using these stairs. In descending, do not have arms full. Care must be used to avoid stumbling and falling.

#### M. Walking Surface (Natural)

Care should be taken to avoid falling or wading into deep holes in borrow pits on the Refuge, or into deep ditches along the Refuge roads.

Thin ice, in winter, can pose a real danger near water control structures, spillways and beaver dams. These areas should be avoided by individuals on foot, or in ATV's during those months.

#### N. Walking, Climbing, and Standing Surfaces

1. Observation tower (100 ft. metal) - steps have been taken to make this structure as safe as possible to the visiting public. Regular surveillance is required to make certain that all caution signs are in place, that no damage is done, and that all litter is kept picked up and off the structures' stairway.
2. The Lansing Parking observation deck is approximately 14 ft. high. The stairway is steep and requires the use of the hand rails. Caution must be exercised by individuals using the deck to avoid stumbling and falling down the steps.

### V. PERSONAL PROTECTIVE EQUIPMENT

Guidelines for use of personal protection equipment are described in 24 AM 3. Personnel should be aware that the following protective equipment is available at the station and should be used as conditions warrant:

- A. Personal Flotation Devices - Life jacket or float coats will be used when operating or riding in watercraft.
- B. Seat Belts - They will be worn while operating any government-owned vehicle.
- C. Protective Headgear - Hardhats will be worn on jobs where danger of head injuries exists. Crash helmets will be worn when operating the snowmobile, 3-wheeled cycles and airboat.
- D. Rubber Footgear - Rubber knee boots, hip boots, and waders are available for use during wet weather or when working in the shallow waters.
- E. Safety Goggles and Face Shields - These are conspicuously located adjacent to grinding and welding machines. It is mandatory that they be worn whenever working with these machines.

- F. Respiratory Apparatus - This is available for working in dusty conditions and chemical applications.
- G. Hearing Protectors - Ear muffs will be used while operating the airboat. Muffs and/or plugs are also available when operating tractors, mowers and heavy equipment.
- H. Steel-toed boots - Boots, when needed, have been purchased from station funds for appropriate personnel.
- I. Disposable Coveralls - Are available for use during chemical spraying or other similar situations.
- J. Eye Wash - An eye wash station is located at the maintenance center and is available for immediate use if needed. It will be flushed weekly to insure eye damaging bacteria do not become established in the tank.
- K. Portable Oxygen Resuscitation Tanks - Two portable oxygen tanks are available, one at headquarters and one at the maintenance center. They are available for use at any time as the need requires.
- L. Fire Retardant Clothing/Fire Shelters - Fire retardant shirts, gloves and pants, as well as fire shelters, are available during prescribe burning operations.

In addition to these furnished items, employees should be encouraged to wear those items of personal clothing and equipment which will make their work more enjoyable and safe. Especially important here are good work boots, protective gloves, and clothing to meet existing weather and work conditions.

## VI. PUBLIC SAFETY PRACTICES

Every effort will be made to guarantee protection to the visiting public in accordance with 24 AM 4.41 as regards to traffic control. Refuge regulations restrict the activity of most visitors to the self-guided auto drive and Marshall County #7 which passes through the Refuge and Refuge Headquarters area. The auto drive is open during daylight hours, 7 days a week, from late April (dependent on road and water conditions) to mid-November. The only possible hazards that could be encountered on the auto drive would be problems related to road conditions and the water control structures. The Refuge staff must assure that the auto drive road conditions are safe and passable. The trail will be closed during adverse travel conditions. The control structures have guard rails and protective grates to help prevent possible visitor accidents. Visitors must remain in their vehicles while using the trail except when walking the short foot trail. If regulations are followed, no problems should arise as a result of the water structure locations.

The most serious potential hazard near headquarters is the 100 foot metal observation tower. Periodic checks will be made to assure signs are in place at the base of this structure and the tower is in good repair. A

padlocked chain link fence restricts access by the public to those who check out a key from refuge headquarters during office hours (Monday-Friday, 7:30 a.m.-4:00 p.m.).

Special precautions must be taken by Refuge personnel when conducting Refuge tours for educational and scientific purposes. Refuge-owned vehicles, equipped with seat belts, will be used only to the extent of providing transportation for the number of passengers that can be safely transported. No passengers will be authorized to ride in pickup or stake truck beds.

In those instances when visitors may go out on their own, they should be supplied with Refuge maps to prevent their becoming lost. A time of departure and return should be decided upon, so a search can be started if they do not report in when expected.

It should also be remembered that visitors accompanying Refuge personnel are governed by the same rules as the employees.

Prior to the deer hunting season, safety items will be included in the information provided to the local radio stations to serve as a warning to deer hunters who will be on the area. Hunters should be encouraged to practice good gun safety, to use extreme caution in walking on ice, to carry a compass and map and to contact Refuge Headquarters as soon as possible should a serious accident occur.

Regular surveillance of the area will be made by Refuge personnel during the hunting season to see that hunters are complying with the laws and regulations, and to watch for hunters who may be in dangerous situations. Someone should be in the headquarters area at all times throughout the open season to provide assistance should an emergency arise.

Traffic control will comply with 24 AM 4.41. Traffic patterns here do not present any noteworthy problems with the exception of the auto drive which passes through Refuge Headquarters. Extreme caution must be used while conducting day-to-day work operations as it relates to public safety.

All gates have been well marked and are highly visible. All hazards associated with bridges, curves and parking areas have been corrected for visitor protection. All Refuge signing requirements will be thoroughly incorporated into the Refuge Sign Plan.