ACTIVITY HAZARD ANALYSIS

ACTIVITY: Entering excavations or trenches

ANALYZED BY/DATE: Bill Clevenger 13 April 2002

REVIEWED BY/DATE:

PRINCIPAL STEPS	POTENTIAL SAFETY/HEALTH HAZARDS	RECOMMENDED CONTROLS
Ensure work area is safe	*Injuries to head or feet, falls*	*Wear hardhat, safety-toed shoes and safety glasses. Use ladders for access or exit of excavations*
Entering excavations/trenches	*Slide slope failure. Shoring collapse*	*Excavation/trench sides should be sloped according to the OSHA Regulations concerning side slopes for excavations/trenches. Do **not** enter an excavation/trench unless you feel it is safe. all unsecured objects should be moved away from the edge of the excavation/trench. Assure that slopes are according to regulation or approved shoring and ladders are used. Reference EM385-1-1, Section 23.*
Briefly inspect excavation/trench side slopes or shoring	*Objects falling into excavation/trench*	*All materials should be moved at least two feet from the edge of the excavation*
Exit excavation/trench	*Falling off ladder*	*See JHA for "Using Ladders". Do **not** use a backhoe bucket to enter/exit an excavation/trench*

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Eye protection *Steel toe boots* *Hardhat* *Ladders*	*Insure proper shoring or sloping for excavations more than five feet deep*	*On the job training* *Using Ladders*

ACTIVITY HAZARD ANALYSIS

ACTIVITY: Entering manholes

ANALYZED BY/DATE: Bill Clevenger 13 April 2002

REVIEWED BY/DATE:

PRINCIPAL STEPS	POTENTIAL SAFETY/HEALTH HAZARDS	RECOMMENDED CONTROLS
Ensure that work area is safe	*Workers at the surface could trip over debris or tools and fall in the manhole*	*Place proper warning devices or barricades around manhole as required.*
Open manhole	*Muscle or back injury*	*See JHA for "Lifting". Use proper lifting procedures and two persons or lifting devices.*
Check for proper ventilation	*Inhalation of toxic gases or fumes*	*Ventilate manhole using forced air if necessary and take air samples if required.*
Enter manhole	*Falls, caught between or on hole, muscle strains*	*Use safety line and belt, station at least one person at the top*

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Warning devices *Barricades* *Forced air ventilators* *Air monitor/sampler* *Safety lines and harness*	*Monitor for air quality* *Insure proper ventilation*	*Confined Space Entry training* *Training on use of safety harness* *Training on proper lifting procedures*

ACTIVITY HAZARD ANALYSIS

ACTIVITY: General Office Work

ANALYZED BY/DATE: Bill Clevenger 13 April 2002

REVIEWED BY/DATE:

PRINCIPAL STEPS	POTENTIAL SAFETY/HEALTH HAZARDS	RECOMMENDED CONTROLS
Walking	*Slip, trip or fall.*	*Care should be taken when walking so as not to slip, trip or fall.*
Carry items to and from various office locations.	*Muscle or back injury.*	*Only carry as much as you can safely handle. Get assistance if necessary. (See JHA for "Lifting").*
Keep work area clean.	*Slips and trips can result from cluttered workspaces.*	*Keep work area clean and orderly. Good housekeeping and safety should be practiced.*

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
"Specialized"	*Insure good housekeeping practices* *Practice safety*	*Proper lifting procedures* "Specialized"

ACTIVITY HAZARD ANALYSIS

ACTIVITY: Guard post/sign post installation

ANALYZED BY/DATE: Bill Clevenger 13 April 2002

REVIEWED BY/DATE:

PRINCIPAL STEPS	POTENTIAL SAFETY/HEALTH HAZARDS	RECOMMENDED CONTROLS
Prepare site	*a. Chain saw operation (potential cuts, eye injuries from chips, hearing impairment, burns from exhaust, back and foot injuries from handling heavy trees and logs and puncture wounds from thorns and shop limbs).* *b. Snakes may be present in area creating potential snakebite hazard.*	*a. Personnel using chain saws must be trained and fully qualified in its operation. Chain saw operators must wear hard hats, steel toe shoes, gloves, chaps, eye and hearing protection. Proper lifting methods must be employed while felling and handling trees, logs and heavy brush. Care must be observed while handling thorns and brush.* *b. Use care when lifting logs and brush. Wear leather gloves. Check area as thoroughly as possible prior to under brushing.*
Load materials for transport to work site	*a. Size and weight of material (potential back injuries, cuts, scrapes and bruises).* *b. Splinters in lumber and material may produce puncture wounds.* *c. Sawdust, chips, dust and debris on material may cause eye injuries.* *d. Unsecured load may topple when moved.*	*a. Use adequate number of personnel and proper lifting methods to load materials on truck or trailer. Load material in such a manner to avoid shifting and topping. Wear steel toe shoes, hard hats and gloves.* *b. Exercise caution in handling material and wear gloves.* *c. Wear eye protection while loading material on truck.* *d. Secure all items properly prior to transporting.*
Transport material	*Load may shift (potential bruise or crushing injury).*	*Maintain speed that's reasonable and prudent for existing road conditions to avoid causing load to shift. Extreme caution must be used while securing loads that have shifted. Avoid standing beneath such loads. Wear hard hats, safety shoes and gloves.*
Unload material	*a. Stacked material may topple when unbound causing crushing injuries to hands, feet and body.* *b. Splinters in lumber and other material may cause puncture wounds.* *c. Size and weight of material may cause bruises, cuts and abrasions as well as back injuries.*	*a. Use extreme care when unbinding loads. Stand clear of load. Wear hardhat, steel toe shoes and gloves.* *b. Exercise care in handling and wear gloves* *c. Use adequate number of personnel and proper lifting methods to unload materials. wear proper personal protective equipment (hard hats, steel toe shoes, gloves).*
Dig holes	*Use of posthole and pry bar diggers may cause back injuries and/or cuts, bruises and abrasions.*	*Persons hand digging postholes should change off often to avoid over exertion. Workers should wear hard hats, steel toe shoes and gloves.*

Assemble sign	*a. Use of electric drill may cause puncture wound, eye injuries and/or electrical shock.* *b. Chain saw operation may cause cuts, eye injuries, hearing impairment and burns.*	*a. Exercise care when drilling through post to avoid making contact with drill bit. Drill motor shall be checked for serviceability prior to use (frayed cord, ground wire, power switch, etc.). Wear eye protection.* *b. Personnel using chain saws must be trained in its operation. Operators must wear hardhat, steel toe shoes, eye protection, hearing protection and gloves.*
Set sign	*a. Erecting sign could cause back injury or puncture wound from splinters.* *b. Use of hammer may cause eye injury or mashed finger.* *c. Use of sackcrete may cause back or eye injury.*	*a. Use adequate number of personnel and proper lifting methods to avoid serious strain while raising sign. Brace sign as soon as practical. Wear gloves to reduce possible injury to hands.* *b. Exercise care while driving nails to avoid striking fingers. Wear eye protection.* *c. Use proper lifting methods while handling bags of sackrete. Wear eye protection if windy conditions prevail.*
Paint post	*Paint may splatter causing eye injury.*	*Wear proper eye protection.*

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Eye protection *Hearing protection* *Steel toe boots* *Hardhat* *Gloves* *Chaps* *Snug fitting clothing* *Chainsaw* *Hammer* *Posthole diggers* *Pry bar* *Electric Drill*	*Check area thoroughly prior to under brushing.* *Insure loads are adequately secured* *Check plug for presents and condition of ground pin* *Check bits for condition and proper use* *Insure chuck key is removed*	*Training on proper lifting methods* *Chainsaw operator certification* *Defensive driving* *On the job training* *Be checked-out by a qualified, experienced person* *Obtain supervisor's/manager's authorization.*

ACTIVITY HAZARD ANALYSIS

ACTIVITY: Horse Usage For Equestrian Trail Inspection, etc.

ANALYZED BY/DATE: Paula Bennett 03-14-03

REVIEWED BY/DATE: Bill Clevenger 03-25-03

PRINCIPAL STEPS	POTENTIAL SAFETY/HEALTH HAZARDS	RECOMMENDED CONTROLS
Hook up Gooseneck Horse Trailer	*Backing into trailer properly*	*Tongue of trailer should be at an elevation sufficient to clear the bed of the truck and the ball for mounting the trailer. Secure tire trailer onto the ball by lowering the trailer with the attached trailer jack. Close the trailer hitch and ensure safety pin is in the hole. Attach safety chains of the truck to the safety brackets on the trailer. Return trailer jack handle to safety position. Connect lights and trailer brake hookup.*
	Back strain.	*Use caution when climbing in and out of the vehicle to secure tongue to trailer. Use proper lifting techniques*
Load Horses into trailer.	*Door closing on horse when horse goes into trailer.*	*Trailer should be parked on a level elevation and the door propped securely with a brace to ensure door does not close.*
	Gates close on horse as they enter in horse trailer.	*Insure all gates inside trailer are securely fastened.*
Perform safety checks of lights and brakes on trailer.	*Parking brake is not engaged Lights not working.*	*Insure parking brake is engaged before approaching rear of vehicle. Always carry extra fuses and know where they are position in the system schematics.*
Truck mirrors in right position for pulling trailer	*Trailer not visible in mirrors.*	*Position mirrors to see full trailer in view.*
Tire pressure on truck and trailer	*Tire pressure low*	*Put air in tires and carry portable compressor.*

Driving to Bardwell Lake and destination of the Equestrian Trail.	*Potential road hazards.* *Flat tire.*	*Be alert and drive at a safe speed for towing a trailer.* *Have a spare tire for the truck and the trailer. Trailer jack and truck jack are essentials.*
Parking and unloading at the designated site.	*Door closing on horse when horse is unloading from trailer.*	*Trailer should be parked on a level elevation and the door propped securely with a brace to ensure door does not close.*
Orientation of horses to new environment.	*Horses seeing sights for first time.* *Horses are still excited after orientation of new area.* *Uneven terrain.* *Fall Hazards.*	*Tie horses to trailer and let them settle into the sights and sounds of the new place.* *Work Horses on long line with saddle and tack on then ride horses around the area for a few minutes until they settle down before going onto the trail.* *Progress slowly on the trail so the horses will be surefooted and riot spook to new encounters with others on the trail or other animals.* *Give horses enough time to adjust to the new sounds of the surrounding area. Warm them up with lounging and riding in the area before starting on the trail.*
New rider orientation	*Person riding horse has not been on this horse before. The horse and rider are unfamiliar with the others expectations.*	*Orient the new rider to the cues used with the horse. Have the rider get to know the horse prior to going on the trail. On the trail, stay close together so in the event the riders have problems or forget the cues he can be reminded.*

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	
Vehicle, gooseneck trailer	*Inspect lights, mirrors, brakes, and tires of both trailer and vehicle for operating status.*	*Experience in driving a large vehicle pulling a gooseneck trailer.* *Fuse schematics and reading the operation manual of the vehicle prior to use.*
Saddles and tack.	*Saddles, tack inspection of signs of wear and tear.*	*Replace worn or torn equipment.*
Horses	*Saddle and tack not properly adjusted on horse* *Soundness of the horses.* *Check for all shoes to be properly attached and horses are groomed so that no burrs exist in their coat.*	*Insure that all equipment is properly attached and adjusted to the animal.* *Horses education, riding and experience of trail riding and the hazards involved in horseback riding.*

ACTIVITY HAZARD ANALYSIS

ACTIVITY: Ladder usage **ANALYZED BY/DATE:** Bill Clevenger 16 April 2003 **REVIEWED BY/DATE:**

PRINCIPAL STEPS	POTENTIAL SAFETY/HEALTH HAZARDS	RECOMMENDED CONTROLS
Select proper type ladder for task to be accomplished	*a. Ladder may be unsafe or used incorrectly.* *b. Injuries to the head, hands, face and back may occur while handling heavy ladders.* *c. Metal ladders may contact power lines or live electrical circuits.* *d. Boards used from top of one stepladder to another will be unstable.* *e. Makeshift ladders may not meet strength criteria.* *f. Ladder may be too short for task to be performed.* *g. Use of light household type ladders or the wrong type of ladder may promote unsafe conditions on work sites.*	*a. The construction, installation and use of ladders shall conform to the latest edition of the Safety Codes* *i. Portable Wood Ladders, ANSI A 14.1* *ii. Portable Metal Ladders, ANSI A 14.2* *iii. Fixed Ladders, ANSI A 14.3* *iv. Job Made Ladders, ANSI A 14.4* *b. Wear hardhat, steel toe shoes and gloves. Use proper lifting techniques.* *c. Do not use metal ladders for electrical work, around live electrical circuits, equipment or places where they come in contact with such circuits, or where they may come in contact with electrical conductors.* *d. Never place planks or boards on the top of stepladders.* *e. Do not use makeshift ladders, such as chairs, boxes or cleats fastened across a single rail. Job fabricated ladders shall meet the requirements of the Safety Code for Portable Wood Ladders ANSI A14.1.* *f. Select a ladder that will provide adequate height to avoid overreaching and the necessity of working on the top two rungs of the ladder.* *g. Use only construction grade ladders on jobsites. Only use ladders for their intended purposes.*
Inspect ladder prior to use.	*a. Safety feet may be damaged or missing.* *b. Ladder may have components that are defective.* *c. Rungs and side rails may have slippery substances on them.* *d. Auxiliary equipment may be defective.* *e. Ladders may have been painted.*	*a. Do not use a portable ladder unless safety feet are in good state of repair.* *b. Check ladder for missing, broken or weakened rungs, side rails and cleats. Repair if possible, otherwise discard ladder.* *c. Clean oil, grease or any other substance from ladder rungs and side rails to prevent slipping.* *d. Make sure that auxiliary equipment such as rope, pulleys and locks are in good repair.* *e. Do not use a ladder that has been painted in such a manner that defects cannot be detected.*

Position Ladder	*a. Ladder may slide as it is being raised.* *b. Distance between wall and ladder base may be hazardous.* *c. The top of straight ladder does not extend three feet above landing to be used.* *d. Extension ladder must be fully extended to reach area of work.* *e. Ladders placed in an unstable manner may cause or contribute to falls.* *f. Placing a ladder in front of a door opening, passageway, drive, or any location that interferes with other ongoing work may contribute to an accident.*	*a. When raising a ladder, brace the lower end of the ladder against the wall to be climbed so that the ladder cannot slide.* *i. Raise the top of the ladder and proceed raising while grasping the rungs as you walk forward.* *Ii, When erect, lean the ladder forward and place for proper balance.* *b. The pitch of a portable ladder should be such that the distance of the base from the supporting wall is not more than 1/4th the length of the distance from the floor to the top support. (L/4=D).* *c. Do not use a straight ladder that will not extend three feet above the landing. The ladder should extend at least 3 feet above the point of contact.* *d. To keep the joint strong on two-section extension ladder, the minimum overlap of the sections should be at least three feet.* *e. The supports on which a ladder rests (both top and bottom) shall be rigid, capable of supporting the loads to be imposed and such that lateral displacement cannot occur.* *i. Never place a ladder on an unstable base such as a barrel or box to gain additional height.* *Ii. After a ladder has been set in place, check to see that the footing is firm and secure.* *iii. When the repeated use of a ladder at one location will be for more that ten feet, the ladder should be securely lashed in position close to the top of the ladder.* *f. If work to be performed is in front of a door, which swings toward the ladder, the door should either be blocked open or locked shut; do not place ladders in passageways, drives or locations where ladder work may be displaced by other work unless protected by barricades or guards.*

Work from ladder	*a. While ascending or descending ladder, falls may occur.* *b. Falls may occur while reaching from a ladder.* *c. Ladder may shift while being used.* *d. Metal ladder may result in electric shock.* *e. While working from top two rungs, ladder may become unstable.* *f. Ladders placed against window sashes or panes are unsafe.* *g. Step ladder may collapse when used.* *h. Extension ladder may collapse when used.*	*a. When you climb up and down any ladder, face the ladder and use both hands to hold the side rails. Do not carry tools or materials in your hand while climbing up or down a ladder. Only one person should use ladders at a time.* *b. Climb down off the ladder to move it each time you need to reach a new area. Do not lean from a ladder. Never reach more than an arms length.* *c. Secure the ladder by using a rope or other suitable line to lash it to the point where the ladder touches the surface it is leaning against. Never reposition a ladder while you are standing on it. Do not straddle the space between a ladder and another object. Do not work from a ladder during high wind.* *d. Never use a metal ladder near live electrical wires or power lines. Use caution when carrying a metal ladder keeping it away from electrical wires or power lines.* *e. Always stay below the top two ladder rungs of portable ladders.* *f. Ensure secure footing and stable support when placing a ladder.* *g. Check to assure that a stepladder is fully open and the metal spreader is locked prior to use of ladder.* *h. Adjustment of extension ladders should only be made by the user when standing at the base of the ladder so that the user may observe and be certain that the locks are properly engaged.*
Put ladder away	*a. Ladder may have been broken or damaged* *b. Wooden ladder may not be in good condition.* *c. Ladder may be damaged in storage or present a trip hazard or attractive nuisance.*	*a. Remove broken or damaged ladder from service immediately and destroy.* *b. Treat wooden ladders periodically with a wood preservative, **but never** paint a wooden ladder.* *c. Wooden ladders will not be left out in the weather; all ladders will be stored in a laying or hanging position, never free standing.*

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Steel toe boots *Hardhat* *Gloves* *Construction grade stepladders* *Construction grade metal ladders* *Construction grade wood ladders* *Construction grade portable ladders* *Construction grade straight ladders* *Construction grade extension ladders* *Auxiliary equipment: rope, line, pulleys, and locks*	*Ensure ladder is proper type for task to be accomplished* *Examine all ladders for mechanical defects before use.* *Clean ladder before/after using.* *Inspect auxiliary and safety equipment for defects*	*Training on proper use of ladders* *Training on proper lifting methods* *On the job training* *Be checked-out by a qualified, experienced person* *Obtain supervisor's/manager's authorization.*

ACTIVITY HAZARD ANALYSIS

ACTIVITY: Moving office furniture

ANALYZED BY/DATE: Bill Clevenger 14 April 2002

REVIEWED BY/DATE:

PRINCIPAL STEPS	POTENTIAL SAFETY/HEALTH HAZARDS	RECOMMENDED CONTROLS
Inspect route to be used	*Obstruction or spills in route to truck or new location could cause slipping or tripping injuries*	*Remove all obstructions that could cause workers to trip or strike against. If adequate clearance cannot be made, an alternate route shall be selected. Clean up all spilled substances that would present a slip hazard.*
Inspect item to be moved	*a. Sharp edges on item to be moved may cause cuts and abrasions.* *b. Oil or grease on item to be moved may cause it to slip from worker's hands.* *c. Drawers and/or doors may cause out-of-balance condition.* *d. Item to be moved may have glass doors or tops causing potential cuts.*	*a. Check item for sharp edges, remove if possible, wear gloves.* *b. Remove all oil, grease, and/or wet surfaces from item to be moved prior to lifting.* *c. Lock drawers and/or doors if possible. As an alternative, drawers and/or doors shall be taped or tied to prevent accidental opening.* *d. Tape all glass members to avoid glass shattering. Handle with extreme care.*
Position truck/equipment furniture is to be loaded on.	*Haulage equipment when parked may accidentally roll into other objects*	*Parking brake shall be set (if equipped) to prevent accidental movement and at least one wheel chocked if parked on an incline.*
Lift item to be moved	*a. Lifting heavy or bulky items may result in back injury.* *b. Team lifting of heavy items may become unbalanced and fall if proper coordination is not maintained*	*a. Heavy or bulky items shall be moved by mechanize handling equipment where possible. If manual handling is required, and adequate number of persons will be used to safely lift and move item. All personnel involved will use proper lifting techniques. Use extreme care not to make twisting motions while lifting heavy load. Wear gloves, steel-toe shoes and hardhat.* *b. Team lifting must be under the direction of one person to assure that lift is made in unison.*
Carry item to be moved	*Carrying heavy or bulky item may cause visibility to be obscured for some or all who are helping.*	*Team carrying must be under the direction of one person to safely negotiate doorways and other obstacles. Wear hard hats, steel-toe shoes and protective gloves. "In step" movement of carrying load helps to keep load from bouncing and makes it easier to handle.*
Load item on truck or set in new location	*Setting item down may cause back injuries or mashed fingers and hands*	*Use extreme care in lowering item. Lowering operation shall be coordinated to insure that all involved lower item in unison.*

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Truck *Haulage equipment* *Gloves* *Steel-toe shoes* *Hardhat* *Mechanize handling equipment*	*Inspect route to be used* *Inspect item to be moved*	*Training on proper lifting techniques* *Defensive driving* *On the job training* *Be checked-out by a qualified, experienced person* *Obtain supervisor's/manager's authorization.*

ACTIVITY HAZARD ANALYSIS

ACTIVITY: Oxygen/acetylene torch usage

ANALYZED BY/DATE: Bill Clevenger 14April 2002

REVIEWED BY/DATE:

PRINCIPAL STEPS	POTENTIAL SAFETY/HEALTH HAZARDS	RECOMMENDED CONTROLS
Check oxygen/acetylene equipment for condition	*a. Cylinders may be accidentally knocked over.* *b. Cylinder may not be equipped with a pressure regulator.* *c. Oxygen/acetylene regulators may show signs of damage or may not function properly when the cylinder valve is opened.* *d. Hose and connections may show signs of damage.* *e. Torch may not be equipped with flashback device.*	*a. Secure cylinders to approved rack or tie-down location.* *b. Do not use a cylinder of compressed gas without a pressure regulator attached to the cylinder valve. Use regulators and pressure gauges only with gases for which they are designed and intended. Do not "crack" a fuel gas cylinder valve near sparks, open flame or other possible sources of ignition. Keep oxygen cylinders and fittings away from oil and grease.* *c. Do not use a faulty pressure regulator. Do not attempt to repair or alter pressure regulators, this work should only be done by the manufacture.* *d. Test hoses and connections for leaks by closing torch valves and open oxygen cylinder valve and adjusting to operating pressure. Using soapy water or approved leak test solution, check connections for leaks. Hose may be tested by passing it through a soapy water solution and observing for bubbles. Repair all leaks found.* *e. Do not use torches without approved flashback device.*
Lay out material for cutting.	*a. Cuts, abrasions and puncture wounds from sharp edges and bursts on metal.* *b. Head and foot injuries may be incurred while handling heavy metal.* *c. Back injuries may be incurred from handling heavy metal.*	*a. Exercise care while handling metal bars, pipe, angle, and plate material. Wear leather gloves.* *b. Use extreme care with handling heavy metal materials. wear hardhat and steel toe shoes.* *c. When practical, use material handling equipment to move heavy metal. if manual handling is necessary, assistance should be attained when weight or size of object renders it unsafe to handle. Use good lifting techniques at all times.*

Set-up oxygen/acetylene equipment; open cylinder valves and adjust regulators.	*Cylinder valves may not be properly opened.*	*With all torch valves closed, slowly open oxygen cylinder valve fully. Open torch oxygen valve, turn in pressure adjusting screw on oxygen regulator to desired pressure, then close oxygen torch valve. Next, open acetylene cylinder valve (1-1/2 turns maximum) and, with torch acetylene valve closed, turn in pressure adjusting screw on acetylene regulator to desired pressure.*
Purge each line individually.	*None*	*None*
Don personal protective equipment.	*a. Distorted lens in cutting goggles or face shield may impair vision.* *b. Exposed skin surfaces will receive severe burns from radiant energy and/or sparks, slag and hot work pieces.* *c. Radiant energy, cutting slag and splatter will cause serious eye injury.* *d. Torch cutting overhead may allow hot sparks and slag to enter ear canal.* *e. Cutting on metals coated with or containing materials that emit toxic fumes; i.e., lead, cadmium, zinc, mercury, beryllium, and galvanized.*	*a. Check shaded lens. cover lens and/or shaded face shield lens. Clean or replace as necessary to maintain good visibility.* *b. Wear protective clothing - leather gauntlet gloves, high steel toe shoes, welding jacket, apron and chaps as needed. Button shirt collar and pocket flaps and wear cuffless trousers to avoid entry of sparks of slag.* *c. Wear eye protection. Use appropriate shade filter lens for cutting operations.* *d. All overhead cutting or cutting in confined areas will require use of ear protection.* *e. Heat producing operations will not be permitted on these and other toxic coatings unless the coating has been removed, the area is well ventilated, local ventilation is used or the operator and other exposed persons wear air supplied respirators.*

Light torch and begin cutting	*a. Torch cutting may expose others in area to eye hazards.* *b. Cutting on material coated with or containing materials that emit toxic fumes may endanger others in area.* *c. Cutting operations may ignite nearby combustible and flammable materials.* *d. Gas leaks in confined spaces can seriously displace the supply of oxygen.* *e. Vapors from chlorinated solvents can be decomposed to form highly toxic phosgene gas and*	*a. Use a separate room or enclosed bay if possible to isolate cutting operations. In open areas, surround the operation with low reflecting, non-combustible screens or panels. Other personnel in area will be required to wear eye protection.* *b. Remove toxic coatings by sandblasting or grinding 4" each side of cut line to reduce emission of toxic fumes, dust and mist. Use adequate ventilation and local exhaust to move air contaminants to outside air.* *c. Be aware that flying sparks or falling slag can pass through cracks, along pipes through windows and doors and through wall and floor openings out of sight of the torch operator. Remove combustible and flammable material from immediate vicinity (35' recommended) prior to that cannot be moved and openings where sparks and slag could pass with non-rigid barriers. Firewatcher must be standing by with a suitable fire extinguisher during and for some time after if there are possibilities that combustibles may be ignited.* *d. Do not take gas cylinders into confines spaces.* *d. Do not torch cut or weld where solvent vapors can be drawn into cutting/welding atmosphere or where the radiant energy can penetrate to atmospheres containing even minute amounts of trichloroethylene or perchloroethylene.*
Turn off torch oxygen/acetylene valves and secure area	*a. Operator may be burned by freshly cut materials.* *b. Chipping slag on cut materials may cause eye injuries.* *c. Leaking torch valves may "load" area with concentration of acetylene or oxygen.*	*a. Use care in handling materials that have been cut. Wear leather gloves.* *b. Wear eye protection.* *c. If use of the torch is not to be resumed within a short period of time, close oxygen and acetylene cylinder valves, open torch valves to relieve hose and regulator pressure and then close torch valves.*

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Oxygen/acetylene torch *Gas cylinders* *Leather gloves* *Eye protection* *Leather gauntlet gloves* *High steel toe boots* *Welding jacket* *Apron* *Chaps* *Button shirt collar and pocket flaps* *Cuff less trousers* *Eye protection. Use appropriate shade filter lens* *Ear protection*	*Inspect immediate vicinity, remove combustible and flammable material* *Ensure adequate ventilation and local exhaust* *Ensure other personnel in area are protected* *Inspect material to be cut for toxic coatings* *Inspect torch and cylinders*	*Training on proper lifting techniques* *On the job training* *Be checked-out by a qualified, experienced person* *Obtain supervisor's/manager's authorization.*

JOB HAZARD ANALYSIS

JOB SERIES: 0025	JOB TITLE: Volunteer Park Hosts - Maintenance	
EMPLOYEE NAME (Please Print):	OFFICE SYMBOL: CESWF-OD - BR	
EMPLOYEE SIGNATURE:		DATE:
ANALYZED BY (Immediate Supervisor): Dorie Nicholson		DATE:
REVIEWED BY (Safety Office):		DATE:

	YES	NO
Is employee in the Medical Surveillance Program?		X
Is employee required to wear personal protective equipment (i.e., safety boots or glasses, respirators, hearing protection, etc.)?	X	
Does employee require safety training (i.e., HTRW, confined space, HAZCOM, respirator, electrical, hearing)?	X	

ACTIVITY	LOCATION	HAZARD	CONTROLS
Park Patrols/First Aid Rescue/Office Work/ Visitor Center/Wildlife Control/Vehicle Operation	Project / Field Locations Water/ Vehicle	Office Work	Ensure proper lighting. Ensure computer monitor and document copy stand are at approximately the same height and distance. Reduce computer screen glare by installing anti-glare/anti-static screens.
		Wrist strain	Ensure computer keyboards are adjusted so that the elbows are at a 90 degree angle and arms and hands are parallel to the floor. Use wrist rests or other support so that wrists are maintained in a neutral position.
		Neck/shoulder fatigue	Ensure video display terminals are properly adjusted so that the top of the screen is slightly below eye level and the screen is between 18 and 28 inches away. Document or copy holders should be at the same height and distance as the screen.
		Slips/trips/falls	Use good housekeeping practices. Be observant of walking/working surfaces. Secure tripping hazards (cords) to floor. Do not leave file drawers open when unattended.

ACTIVITY	LOCATION	HAZARD	CONTROLS
		Lifting	Use proper lifting techniques. Get assistance when necessary. When lifting, keep the load close to the body and lift with the legs.
		Electrical shock	Do not reconfigure wiring in systems. Ensure equipment is properly maintained and grounded and has GFCI protection. Ensure all extension cords are the correct type and are protected from damage. Ensure equipment is locked/tagged out before any work is begun.
		Walking	Be alert of walking surface,.
		Cutting tools	Cut in the direction away from hands and body.
		Physical assault from irritated, distraught, or intoxicated individuals	Knowledge of non-threatening communications. Know how to get assistance. Knowledge of self-defense and avoidance procedures.
		Compressive foot injuries	Wear appropriate safety shoes/boots that meet ANSI Z 41.
		Ankle injuries	Wear proper field boots with ankle height of at least 4 inches.
		Head injuries	Wear hard hat when exposed to overhead hazards. Hard hats are required to be worn at all times when in Hard Hat Areas. Wear helmets when operating a motorized or non motorized bike.
		Eye injuries	Wear appropriate eye protection as necessary.
		Hand injuries	Wear appropriate gloves as necessary.
		Chainsaw cuts	Wear protective clothing (headgear, goggles, hearing protection, gloves, boots, and leg guards). Use proper cutting techniques.
		Noise	Wear proper hearing protection devices.
		Falling on slippery or rugged terrain	Wear proper field boots and be observant of terrain. Use safety lines when necessary.
		Snake bites	Wear proper field boots or snake chaps. Do not harass/kill snakes.
		Animal bites	Wear proper clothing. Do not approach animals. Use caution and composure when encountering animals.
		Insect bites and stings	Knowledge and avoidance of such insects. Caution and knowledge of any allergies to such bites or stings. Do not wear perfume or cologne. Know where to obtain first aid.
		Tick bites	Wear proper clothing. Light colored long sleeved shirts tucked inside pants. Make frequent checks for the presence of ticks and use proper removal techniques if found.
		Poisonous plants	Knowledge and avoidance of such plants. Wash after contact.

ACTIVITY	LOCATION	HAZARD	CONTROLS
		Fumes and dust	Ensure proper ventilation and wear respirator if necessary.
		Hazardous/flammable chemicals	Obey manufacturer's handling, storage, and use recommendations. Read Material Safety Data Sheet for specific hazards before use.
		Moving equipment	Keep alert and out of the way of heavy equipment.
		Exposure to the elements	Wear proper clothing. Be aware of exposure duration and limit duration if necessary. Be knowledgeable of the symptoms of exposure related illnesses.
		Burns/smoke	Use appropriate fire fighting techniques. Wear proper protective clothing (fire suit, gloves, respirator, etc.) and equipment.
		Cuts and bruises	Wear proper clothing. Use caution.
		Brush cutting	Maintain safe distance from equipment. Stay clear of flying objects. Wear appropriate personal protective equipment.
		Prolonged standing, walking, lifting, bending, and pushing	Be in good physical condition. Take breaks as required.
		Exposure to diseases	Wear proper protective clothing. Wash hands/skin immediately after contact. Dispose of infected waste in appropriate containers.
		Entanglement in lines	Worn or damaged lines will not be used. Avoid pinch points and stay clear of lines under strain.
		Entanglement in moving machinery	All points requiring lubrication during operation shall have fittings so located or guarded as to be accessible without hazardous exposure and all moving parts shall be guarded when exposed to contact.
Vehicle Operation		Motor vehicle accidents	Obey traffic laws. Adjust vehicle operation to road and weather conditions. Employ defensive driving techniques.
		Uneven surfaces	Reduce speed appropriately.
		Deer and other wildlife	Stay alert, use caution, and drive defensively.
		Dust	Drive with windows closed.
		Reduced visibility	Ensure windows/mirrors are free from snow and ice. Drive with headlights on. Reduce speed appropriately.
		Slick, snowy, or icy roads	Use studded or chained tires, reduce speed, and increase following distances.
Cleaning of Restrooms	Park/Office Restrooms	Skin irritation	Wear provided gloves while cleaning.
		Exposure to human waste	Wear Protective clothing such as gloves and safety goggles.

ACTIVITY HAZARD ANALYSIS

ACTIVITY: Periodic Inspections

ANALYZED BY/DATE: Bill Clevenger 15 April 2002

REVIEWED BY/DATE:

PRINCIPAL STEPS	POTENTIAL SAFETY/HEALTH HAZARDS	RECOMMENDED CONTROLS
Inspect embankment.	*Losing balance on slopes. Possible traffic on dam crest.*	*Be aware of steep slopes. Be alert to traffic on crest. Wear reflective vest when working near traffic.*
Inspect riprap.	*Shifting rocks, sharp edged rocks.*	*Be aware of loose rocks, tripping hazards and watch footing.*
Inspect intake structure.	*Steep stairways, confined areas, machinery.*	*Use handrails, use secondary lighting when necessary, and watch for sharp edges on machinery.*
Inspect gate and conduit.	*Slippery conditions. Falls.*	*Wear rubber-soled/safety boots and a hard hat. Be aware of poor footing.*
Inspect operating/inspection gallery.	*Same as 4.*	*Same as 4.*
Inspect stilling basin.	*Swift-moving currents, slippery conditions, debris.*	*Beware of poor footing. Wear rubber-soled safety boots. Be aware of debris around the basin.*
Inspect outlet channel.	*Same as 6.*	*Same as 6.*
Inspect spillway and channel.	*Slip or fall due to slick or wet conditions.*	*Stabilize footing.*

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Fall Protection *Rubber-soled safety boots* *Hardhat* *Reflective vest*	*"Specialized"*	*Confined Space Entry* *Control of Hazardous Energy* *"Specialized"*

ACTIVITY HAZARD ANALYSIS

ACTIVITY: Push mower operation **ANALYZED BY/DATE:** Bill Clevenger 15 April 2002 **REVIEWED BY/DATE:**

PRINCIPAL STEPS	POTENTIAL SAFETY/HEALTH HAZARDS	RECOMMENDED CONTROLS
Become familiar with mower operation	*Personnel who are not trained in operation of mower may be required to use it.*	*Require those persons who will use this mower to read the Operator's Manual prior to its use.*
Check mower for condition	*a. Mower may inadvertently be started during check.* *b. Blade may be loose or damaged.* *c. Guard on ejection port may be damaged or missing.* *d. Nuts, bolts or components on mower may be loose.*	*a. Detach spark plug wire before starting check.* *b. Make sure blade is in serviceable condition, that blade-retaining nuts are tight and no foreign object is caught underneath.* *c. Repair or replace guard as needed. Do not operate the mower without either the guard or the grass catcher.* *d. Check entire mower for loose nuts, bolts and parts. Tighten and/or replace as needed before use of mower.*
Service mower as required	*a. Fire may occur while refueling mower.* *b. Engine damage may result if oil level is not maintained at an adequate level.*	*a. Do not permit smoking or open flame within 50 feet of fuel dispensing operation. Do not refuel a hot engine - allow it to cool prior to refueling.* *b. Check out level prior to starting and frequently during use. Add oil as needed.*
Check and set cutting height to desired level.	*Cutting height may be improperly set if attempted on rough or uneven ground.*	*Set cutting height on a level, firm surface, such as a sidewalk, always with engine off. Should it become necessary to change cutting height while mowing, stop engine and detach spark plug wire before making change.*
Inspect area to be mowed	*a. Stones, sticks, wire and other foreign objects may be struck and thrown by mower.* *b. Pipes, stumps and other immovable objects may damage mower if struck during operation.*	*a. Inspect area to be mowed and remove stones, sticks, wire, bottles and all foreign objects that could be thrown by mower.* *b. Flag any object that is not clearly visible.*
Replace plug wire and start mower	*a. Carbon monoxide will be produced when engine is running.* *b. Engine will produce noises that can be detrimental to hearing.* *c. Projectiles may be thrown from mower during operation that would cause eye injuries.* *d. Foot injuries may occur while mowing.*	*a. Do not run mower indoors or in an enclosed area where carbon monoxide fumes can collect.* *b. Wear hearing protection while operating power mowers.* *c. Wear eye protection while operating power mower.* *d. Wear steel toe shoes with good gripping soles while running mower.*

Mow area to be moved	*a. Mower will be unstable when operated on steep slopes.* *b. Operating engine at excessive speed may cause engine damage.* *c. Guard on ejection port may become loose or damaged.* *d. Mower may begin to vibrate after a period of use.* *e. Other personnel in area may be struck by objects thrown from mower.*	*a. Do not operate at more that 15-degree angle of bank. On slopes, mow across rather than up and down. (Most small engines do not lubricate properly at more than 50-degree angle of bank.)* *b. Do not over speed the engine or alter governor settings. Excessive speed is dangerous and shortens mower life.* *c. Do not operate mower without the discharge guard of grass catcher.* *d. If mower vibrates excessively or starts to sound differently; stop! Remove spark plug wire and look underneath for grass build-up, string on blade shaft or for something loose or bent.* *e. Keep area clear of all nonessential personnel.*
Clean mower and place in storage area	*None*	*None*

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Push mower	*Inspect mow area* *Check mower for readiness and condition*	*Read the Operator's Manual*