

# Standard Operating Guideline – Canal Safety

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## Standard Operating Guideline (SOG)

Title: **CANAL SAFETY**

District Name: \_\_\_\_\_

Date Prepared: \_\_\_\_\_ Date Revised: \_\_\_\_\_

### **OBJECTIVE:**

- Ensuring effective system-wide preventive and predictive maintenance actions
- Ensure periodic task accomplishment
- Identify potential/actual system problems
- Maintain optimum water flow/service to water customers

### **RATIONALE / PURPOSE:**

- Ensure mission capability
- Ensure system reliability
- Develop predictive maintenance programs
- Determine capital improvement budgeting
- Develop loss trend analysis
- Reduce property, liability, and injury/illness loss exposures
- Reduce revenue loss/or O&M cost

### **METHODS / PROCEDURES:**

**(Note: Listed procedures are intended as guidelines only, and may not be applicable for all districts or situations).**

#### **Safety**

- Maintain “No Trespassing” signs, gates, and fences to restrict unwanted public access where practical. Allow landowner access only where required or necessary.
- Post proper hazard signage if razor wire is used on access gates and fences.
- Maintain existing ladders, ropes, and buoys inside flowing canals to allow safe exit from water flows.

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### **Maintain hazard signs at siphons.**

- Install screens at siphons.
- Install pipes on top of energy dissipater to indicate underwater hazards.
- Use backhoes or similar equipment to reduce hazardous manual activity such as debris or board removal.
- Avoid driving on wet or otherwise slippery canal banks.
- At least one U.S. Coast Guard approved 30-inch life ring, with not less than 90-feet of 600-pound capacity line attached, shall be kept in a conveniently accessible place where employees work exposes them to the hazard of drowning, or each employee so exposed shall wear a U.S. Coast Guard approved personal flotation device.
- A second rope, suitable for securing a rescuer should also be in place. Each rope should be 150-feet long and 600-lb capacity. In the event of a rescue, the second person out of the water should be connected to the primary rescuer by means of the second rope.
- Any personal flotation device shall be approved by the United States Coast Guard as a Type I PFD, Type II PFD, Type III PFD, or their equivalent, and maintained in good condition.
- Single employees pulling debris from canals shall remain behind the guard rails.
- After dark, two or more employees will work together in removing trash from canals.
- Heavy accumulation of debris in the water shall be removed by backhoe or other mechanized equipment, if possible

### **Fall Protection**

***(As applicable for canals with high velocity flows, deep water, or other safety concerns or risks).***

- Install guard rails on elevated areas over water to allow handholds and fall protection anchor points. Guardrails should be installed over walkways, 42-inches high with a midrail.
- Fall arrest anchors in the form of static lines or rails with trolleys, are the preferred method of attachment to allow movement.
- If lanyards are used, they shall be adjusted to prevent falls and entry into the water.
- Use additional retrieval lines and winch (or other means of retrieval) shall be used. All equipment shall be approved for such use.
- Install slip proof decking on elevated areas over water to reduce the risk of slipping.

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- Employee's feet shall remain in contact with the walkway at all times when removing debris from the water.
- If guard rails are not present, employees shall use fall restraint or fall arrest system with backup person present.
- In dry canals, fall protection shall be provided at distances over 6-feet from the bottom of the canal.

### **INCIDENT RESPONSE:** [See Canal Failure Response SOG](#)

- Call 911 for drowning or severe injuries.
- Administer first aid and CPR.

### **SAFETY CONSIDERATIONS:**

An effective maintenance program can help to prevent damage to property, the environment, and injury to employees and the public, and will help to:

- Preclude system and equipment damage
- Preclude property and environmental damage
- Facilitate operations and maintenance personnel safety

Identification of safe work practices among employees should include:

- Train employees and document
- Fall protection equipment use, maintenance, and inspection
- Traffic control
- Canal safety
- Proper footwear
- CPR and first aid training
- Safe crane and heavy equipment operation
- Crane inspection and certification (if required)
- Crane operator training and certification (if required)

### **COST/ BENEFIT:**

- Reduce revenue losses
- Preventive maintenance and loss trend data would reduce facility, equipment, and system failures
- Avoid costly liability, property, and injury/illness losses
- Create a manageable capital improvement budget to support effective O&M practices

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## **INSPECTION FORMS / CHECKLISTS / DOCUMENTATION:**

- Training Log
- Canal Structure Inspection Form

## **REFERENCES:**

- U.S. Army Corps of Engineers, Levee Owner's Manual for Non Federal Flood Control Works, March 2006, Section 2.6.
- CCR, Title 8, Section 3389 (Life Rings and Personal Flotation Devices)
- MUTCD – Traffic Control Manual/Procedures