

# CHAPTER 7

## EMERGENCY WORK

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## **EMERGENCY RESPONSE**

### DESCRIPTION

County roads and maintenance crews must respond quickly to fix damage to roadways and structures caused by storms, floods, and other events. Typical emergency response activities include: storm damage patrol; debris removal; emergency opening or closing of a road; and repairs to roads, slopes, and drainage facilities. County roads crews need to plan for emergency response scenarios to protect the public and ensure that appropriate measures are employed to protect the environment.

#### **Emergency is defined by our regulatory agencies as:**

“A situation which would result in an unacceptable hazard to life, a significant loss of property, or an immediate, unforeseen, and significant economic hardship if corrective action requiring a permit is not undertaken within a time period less than the normal time needed to process the application under standard.” **(COE Regulations);**

“A situation involving an act of God, disasters, casualties, national defense or security emergencies, etc., and includes response activities that must be taken to prevent imminent loss of human life or property.” **(ESA rules, 50 CFR 402.05);** and “A sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to, life, health, property or essential public services. Emergency includes such occurrences as fire, flood, earthquake, or other soil or geologic movements, as well as such occurrences as riot, accident, or sabotage.” **(CEQA 15359).**

### ENVIRONMENTAL CONCERNS

- Discharge of sediment, organic material, and other potential pollutants to streams, watercourses, or storm water drainage systems.
- Alteration of stream channels or destruction of riparian or aquatic habitat.
- Creation of a barrier to fish passage.

### BMP OBJECTIVES

- Prioritize maintenance for problematic areas to keep them from becoming an emergency.
- Reduce the amount of road-related and hillslope materials entering storm drain inlets and watercourses.
- Decrease or prevent sediment delivery to storm drains inlets and watercourses.
- Prevent the entry of spills into storm drains inlets and watercourses.

## BEST MANAGEMENT PRACTICES

- 1) Temporarily store materials (e.g. spoils) where they will not enter a stream or watercourse, and permanently store or dispose of materials at a properly designated permanent disposal site.
- 2) Prepare emergency action plans and provide training for crews for their role in various emergency response scenarios that include steps to:
  - o inspect and assess the site for potential hazards to workers, public safety and the environment,
  - o notify the appropriate public safety officials,
  - o notify appropriate agencies including San Luis Obispo County Public Works Environmental Staff.
  - o respond to emergencies in a safe manner.

***DANGER: Notify the County Office of Emergency Services (805) 781-4459, or the State Office of Emergency Services (OES) at 800-852-7550, or the local fire department when a hazardous materials spill occurs.***

- 3) When an emergency situation is significantly impacting, or could impact, a stream system (for example, if the natural flow of a watercourse is disrupted by a large flood or landslide), seek the advice of appropriate experts prior to performing permanent repair work, which may include:
  - o San Luis Obispo County Public Works Department Environmental Staff
  - o Hydrologists or Hydraulic Engineers
  - o Geologists
  - o Geomorphologists
  - o Geotechnical Engineers

- 4) When an emergency involves the discharge of hazardous substances or pollutants, implement Water Management BMPs and Water Quality Protection BMPs to contain pollutants and prevent them from entering drainage systems, streams, or watercourses.

5) During an emergency response that involves erosion, slope failure or embankment failure, implement Water Quality Protection / Sediment Control BMPs to control the discharge of sediment, and Upslope Erosion Control BMPs or Streambank Protection BMPs to prevent further damage and, if possible, restore the damaged area. In addition, water management BMPs should be implemented as needed to keep runoff from entering or leaving the repair area.

6) Use the following guidelines for modification or removal of large woody debris under emergency conditions:

- o If in doubt as to the best way to handle large woody debris in a stream, consult with San Luis Obispo County Public Works Environmental Staff.
- o Log jams on public property that are damaging or immediately threatening the integrity of roads, bridges, culverts and other public facilities or private developments during high flows may be modified to reduce or halt damage and direct flow toward a more desirable path.
- o Consider opportunities to modify the debris jam to halt damage and direct flow toward a more desirable path.. Only remove (as opposed to modify) logs and debris from streams as a “last resort” (i.e. failure to remove them will certainly cause damage to an essential county facility).
- o Take precautions to ensure that modifications of log or debris jams will not cause damage downstream to culverts and other structures.
- o When modifying log jams, leave trees, logs and/or stumps in the longest lengths and diameters practicable for removal and hauling. If logs must be cut from fallen trees, leave as much as possible of the main trunk (12 feet plus is desirable) attached to the rootball and only cut branches obstructing flow.
- o Limit modifications or removal to materials higher than approximately 2 feet above the streambed (i.e. above knee height) to preserve some instream habitat features, unless the log or debris jam is immediately upstream of a culvert or bridge, or if permit conditions require otherwise.
- o Incorporate large woody debris removed from water bodies into streambank repairs or cribbing at a nearby location, or transport to an approved storage site for later use.
- o Non-emergency debris maintenance can only be undertaken after the appropriate agency permits have been obtained. Refer to the permits section below for additional details.

7) Emergency repairs should be thoroughly inspected after the emergency is over, and final repairs should be made using the appropriate Upslope Erosion Control BMPs or Streambank Protection BMPs. Remedial actions should include biotechnical designs where practicable.

8) Photo-document emergency actions for after-the-fact consultations.

## **BMP TOOLBOX**

### Culvert BMPs

- Culvert Hydraulics Diagram
- Culvert Plugging Diagram
- Energy Dissipater

### Erosion Control BMPs

- Blankets/Geotextile Fabrics
- Coir Log/Roll
- Mulching
- Planting
- Plastic Covering
- Rock Breast Wall
- Seeding
- Silt Mat
- Surface Roughening & Soil Tracking
- Stepped or Terraced Slope
- Straw Log/Roll

### Sediment Management BMPs

- Asphalt Berm
- Check Dam – Rock
- Check Dam – Straw Bale
- Concrete Containment
- Concrete Washout
- Rolling Dip
- Sedimentation Sump
- Silt Fence
- Siltation Pond/Settling Pond
- Storm Drain Inlet Protection
- Sweeping
- Turbidity Curtain

### Streambank Protection -Bioengineering BMPs

- Brushmattress
- Fabric Reinforced Earth Fill with Brush Layering
- Large Woody Debris
- Live Fascine
- Live Stakes

Streambank Protection -Hardscape BMPs

- Boulder/Riprap
- Streambed Gravel

Water Management BMPs

- Aqua Barrier
- Cofferd Dam
- Dewatering
- Diversion Berm
- Fish Exclusion
- Sandbag
- Slopedrain temporary
- Slopedrain overside
- Stream Bypass (water diversion)
- Rolling Dip

Sediment Management BMP's

- Storm Drain Inlet Protection
- Sand Bag
- Sedimentation Sump
- Silt Fence
- Siltation Pond/Settling Pond
- Sweeping
- Turbidity Curtain

**PERMITS**

<b>EMERGENCY SLIDE AND WASHOUT REPAIR</b>	
<b>Activity or Condition</b>	<b>Required Permit or Limitation</b>
Emergency instream work	<ul style="list-style-type: none"><li>• DFG must be given written notification of emergency work within 14 days after work begins, according to the Fish and Game Code.</li><li>• COE post-project 404 permit.</li><li>• RWQCB post project 401 permit.</li><li>• Consult with DFG and NOAA biologists before performing work on fish bearing streams</li><li>• Consult with San Luis Obispo County Public Works Environmental Staff.</li></ul>

## EMERGENCY SLIDE AND WASHOUT REPAIR

### DESCRIPTION

Slides and washouts or slip outs are typically caused by the impact of heavy rainfall, subsurface water, loss of support, loss of vegetation, concentrated runoff or freeze /thaw conditions on unstable or saturated soils. Slides and washouts can be caused by the events described, but those events are often only the trigger at improperly designed or constructed road features. Many of our County roads are poorly located historically and fraught with design problems . Slides and washouts can be caused by cutbank failures, ditch diversion and over the bank runoff due to improper or infrequent maintenance of ditches, culverts, and road surface (slope and grading). Slides and washouts can often be prevented with proper design and construction maintenance BMPs. For example, frequent slides and washouts along a particular stretch of road can be helped by cleaning ditches, and culverts, or eliminated by installing additional road features such as rolling dips, ditch relief culverts, or upgraded stream crossings with critical dips.



Emergency slide or washout repair activities may include: removal of slide/washout material from the road right of way; backfilling or stabilizing the slope, reestablishment of damaged roadway features; repairing and cleaning drainage system, and revegetating, and/or armoring with rock.

Slides and washouts are treated as emergencies if their impact could result in an unacceptable hazard to life, a significant loss of property, or an immediate, unforeseen, and significant economic hardship if corrective action is not immediately taken. Long term repair of major slides is generally a large project with an extensive planning and design component, and is not covered in this manual.

### ENVIRONMENTAL CONCERNS

- Delivery of sediment, organic debris, asphalt, and other potential pollutants into the stream or storm water drainage system.
- Damage to stream or riparian habitat from the slide itself or from heavy equipment use instream or in the riparian zone.

### BMP OBJECTIVES

- Reduce delivery of sediment into streams, storm drains and watercourses.
- Protect water quality and stream habitat by removing slide material and restoring streamflow.

### BEST MANAGEMENT PRACTICES

- 1) Comply with general emergency response standards
- 2) Set up the work area in such a way to reduce mud and debris tracking.
- 3) Protect storm drain inlets and watercourses using Water Quality Protection / Sediment Control BMPs.
- 4) During the emergency response, concentrate on controlling runoff flowing into and out of the repair area to the extent feasible using Water Management BMPs. Decrease sediment leaving the repair area using Water Quality Protection / Sediment Control BMPs. Stabilize the slide or washout using Upslope Erosion Control BMPs or Streambank Protection BMPs to prevent further damage and, if possible, restore the damaged area. Remedial actions should include bioengineering designs where practicable.
- 5) Implement erosion and sediment control BMPs on or around stockpiles to keep materials from eroding into a stream or watercourse. Remove debris for proper long-term storage or disposal once the emergency is under control

6) If fish-bearing streams are impacted, follow Water Management BMPs for water diversion and fish exclusion to the maximum extent practicable during the emergency repair. Consult SLO County Public Works Environmental Division, as well as a hydrologist or fish biologist with DFG or NOAA Fisheries prior to performing the work. (See Permits below for notification requirements.)

7) Temporarily store materials where they will not enter a stream or watercourse, and permanently store or dispose of materials at a properly designated permanent disposal area.

8. Emergency repairs should be thoroughly inspected after the emergency is over, and final repairs should be made using the appropriate Upslope Erosion Control BMPs or Streambank Protection BMPs. Remedial actions should include biotechnical designs where practicable.

## **BMP TOOLBOX**

### Culvert BMPs

- Culvert Hydraulics Diagram
- Culvert Plugging Diagram
- Energy Dissipater

### Erosion Control BMPs

- Blankets/Geotextile Fabrics
- Coir Log/Roll
- Mulching
- Planting
- Plastic Covering
- Rock Breast Wall
- Seeding
- Silt Mat
- Surface Roughening & Soil Tracking
- Stepped or Terraced Slope
- Straw Log/Roll

### Streambank Protection -Bioengineering BMPs

- Branchpacking
- Brushmattress
- Joint Planting
- Large Woody Debris
- Live Fascine
- Live Stakes
- Fabric Reinforced Earth Fill with Brush Layering

Streambank Protection -Hardscape BMPs

- Boulder/Riprap
- Streambed Gravel

Water Management BMPs

- Aqua Barrier
- Cofferd Dam
- Dewatering
- Diversion Berm
- Rolling Dip
- Sandbag
- Slope Drain – Temporary
- Slope Drain – Overside
- Stream Bypass (Water Diversion)
- Fish Exclusion

Sediment Management BMPs

- Storm Drain Inlet Protection
- Sand Bag
- Sedimentation Sump
- Silt Fence
- Siltation Pond/Settling Pond
- Sweeping
- Turbidity Curtain

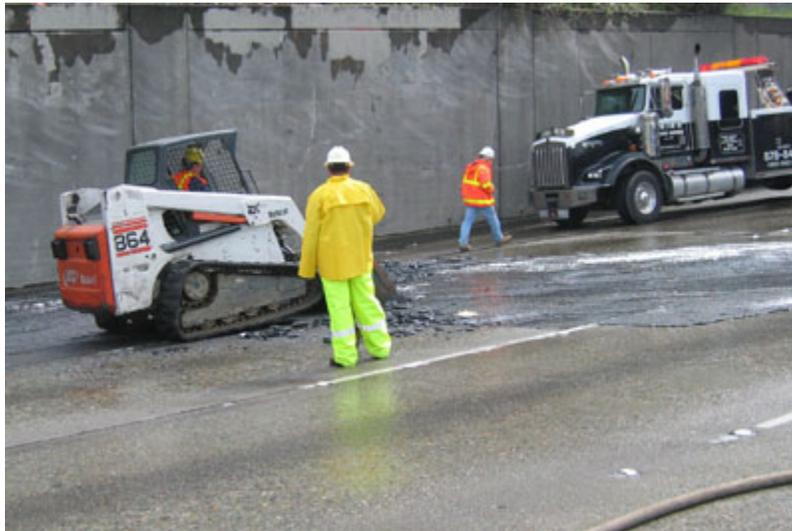
**PERMITS**

<b>EMERGENCY SLIDE AND WASHOUT REPAIR</b>	
<b>Activity or Condition</b>	<b>Required Permit or Limitation</b>
Emergency instream work	<ul style="list-style-type: none"><li>• DFG must be given written notification of emergency work within 14 days after work begins, according to the Fish and Game Code.</li><li>• COE post-project 404 permit.</li><li>• RWQCB post project 401 permit.</li><li>• Consult with DFG and NOAA biologists before performing work on fish bearing streams</li><li>• Consult with San Luis Obispo County Public Works Environmental Staff.</li></ul>

## **ACCIDENT CLEAN UP**

### **DESCRIPTION**

County road and maintenance crews may have to respond to accidents on county roads involving spills of debris or hazardous materials. The accident may be due to: a) county activity, or b) activity by a non-county entity or individual, which the county is assisting in cleaning up. Activities include: hazard assessment, traffic control, isolation, containment, identification, and proper removal and disposal of spilled substances on the road right-of-way.



### **ENVIRONMENTAL CONCERNS**

- Discharge of spilled materials into streams or watercourses.
- Damage to aquatic habitat at the site of the spill and downstream.
- Lethal impact to fish and aquatic organisms.
- Damage to riparian areas during clean up.
- Pollutants from equipment entering the streams or watercourses.

### **BMP OBJECTIVES**

- Prevent spilled materials from entering streams or watercourses
- Reduce sediments entering storm drain inlets and watercourses.

## BEST MANAGEMENT PRACTICES

- 1) Response to accidents should be addressed by and comply with a local spill contingency plan and emergency operations plan. County personnel responding to accidents should be periodically trained in accident response and automotive fluid spill clean up. Work should comply with the general emergency response standards .
- 2) Only specially trained and equipped response teams should respond to hazardous materials or hazardous waste spills. County maintenance personnel should be trained in the appropriate notification requirements if they suspect that a hazardous materials or hazardous waste spill has occurred, and they should stay clear of the area pending further instructions from responding agency personnel.
- 3) County maintenance crews can assist emergency response personnel (i.e., the CHP, Sheriff or fire department) with vehicle accident cleanup or traffic control, and should take direction from these agencies for their work. In the event that county personnel are the first to have knowledge of the accident, appropriate authorities must be immediately notified and consulted. (See Permits below.)
- 4) County staff should have available and be trained to use emergency spill response equipment such as absorbent spill kits, and oil skimmers ,at all maintenance yards and other strategic spill response sites. Sufficient equipment should be available to cleanup or contain at least a moderate petroleum product or non-hazardous spill (1-50 gallons).
- 5) Contain spilled material and prevent it from entering drain inlets and watercourses using Walter Quality Protection / Sediment Control BMPs. Containerize absorbent and spilled material for removal from the site as soon as possible.



## **BMP TOOLBOX**

### Planning and Prevention BMPs

- Small Spill Kit
- Large Spill Kit
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### Erosion and Sediment Control BMPs

- Asphalt Berm
- Diversion Berm
- Silt Fence
- Siltation Pond/Settling Pond
- Storm Drain Inlet Protection
- Sand Bag
- Sweeping
- Turbidity Curtain

### Valuable References

- County or State Spill Contingency Plan
- County Emergency Operations Plan
- DFG Pollution Response Manual (1998), Sacramento
- Spill Responses Training Manual, DFG – Office of Spill Prevention and Response (OSPR), Sacramento
- Upper Sacramento Spill Contingency Plan (Resources Agency & DFG) – based on experience of the toxic “Cantara Spill”: by Southern Pacific Railroad

## **PERMITS**

<b>ACCIDENT CLEAN - UP</b>	
<b>Activity or Condition</b>	<b>Required Permit or Limitation</b>
Emergency clean up	<ul style="list-style-type: none"><li>• Follow notification protocols established by San Luis Obispo County Office of Emergency Services.</li><li>• Notify and consult with San Luis Obispo County Public Works Environmental staff.</li></ul>

## **EMERGENCY UTILITY REPAIRS**

### DESCRIPTION

County maintenance crews may be called upon to repair irrigation lines, sprinklers or valves, as well as broken waterlines, sewer lines or storm drain lines that are damaged, could pollute streams or cause flooding or erosion. In some cases, significant work beyond the repair of sewer, water or storm drain lines may be needed just to stabilize the emergency – for example, a failing bank that threatens a pump station. Such emergency repairs may require significant excavation, construction of temporary access, bank stabilization, dewatering, and so on. Please refer to other sections of this manual for environmental protection BMPs associated with ancillary activities.

Note: Regular permit requirements always apply for non-emergency work. Please carefully distinguish bona fide emergency work according to emergency permit requirements. (See Permit sections in this chapter.)

### ENVIRONMENTAL CONCERNS

- Flooding or pollution of streams from discharges associated with broken water and sanitary sewer utilities .
- Excessive erosion caused by discharges associated with broken utilities.
- Sedimentation or pollution caused by repair work during emergencies.
- Lethal impact to fish and aquatic organisms.

### ENVIRONMENTAL BMP OBJECTIVES

- Prevent accidents, damage to infrastructure or harm to public health that may be caused by discharges flowing from broken utilities.
- Prevent pollution caused by discharges from broken sanitary sewer utilities.
- Prevent erosion and sediment delivery to streams caused by discharges from broken water and sanitary sewer utilities, non-functional drainage systems or soil disturbance during utility repair.
- Contain any spill associated with broken pipe.
- Restore proper drainage.

## BEST MANAGEMENT PRACTICES

- 1) Shut off utility or drainage system to prevent further damage to roadway or structure. Contact utility company, city or local utility district to do this if necessary.
- 2) Notify proper authorities immediately, including Public Works Environmental staff for appropriate review. Effluent from sewer lines is considered a health hazard. Local fire department or Hazardous Material Response Team (HMRT) and the County Department of Environmental Health should be notified immediately to determine the proper protocol for management of sewage leaks.
- 3) Identify and protect drain inlets and watercourses using appropriate Water Management, Erosion Control and Sediment Management BMPs. County Public Works may be able to help you locate drain inlets or determine their drainage configuration so the spill can be stopped before it reaches a water body.
- 4) Set up the work area in such a way that vehicles will not track mud and debris in and out to the maximum extent practicable.
- 5) Implement Erosion Control and Sediment Management BMPs on or around excavation areas and stockpiles to keep materials from eroding into a stream or watercourse. Reuse soil as backfill or remove for proper long-term storage or disposal once the emergency is under control .
- 6) When containing a spill associated with a broken pipe, it may be necessary to implement Large Spill Kit BMPs, which include use of absorptive materials and provisions for containment to prevent the spill from reaching nearby water bodies (e.g. use of temporary bladders in stream to limit spill dispersion” ]
- 7) Once the utility is repaired, identify any damage caused by erosion to slopes or impacts to streams and apply appropriate Erosion Control BMPs or Streambank Protection BMPs to prevent further erosion and repair the damage. (See Emergency Slide and Washout Repair for additional guidance.)
- 8) Monitor the repaired utility periodically until you are confident the repair was effective.

## **BMP TOOLBOX**

### Water Management BMPs

- Diversion Berm
- Sandbag
- Slope Drain – Temporary
- Slope Drain – Overside

### Sediment Management BMPs

- Storm Drain Inlet Protection
- Sandbag
- Silt Fence

### Planning and Prevention

- Large Spill Kit
- Small Spill Kit

### Useful Information

- Storm Drain System Maps or GIS

### Valuable References

- County or State Spill Contingency Plan
- County Emergency Operations Plan
- DFG Pollution Response Manual (1998), Sacramento
- Spill Responses Training Manual, DFG – Office of Spill Prevention and Response (OSPR), Sacramento

## PERMITS

<b>EMERGENCY UTILITY REPAIRS</b>	
<b>Activity or Condition</b>	<b>Required Permit or Limitation</b>
Releases from sewer pipes	Follow notification protocols established by the San Luis Obispo County Office of Emergency Services, and notify and consult with San Luis Obispo County Public Works Environmental staff.
Emergency instream work	DFG must be given written notification of emergency work within 14 days after work begins.
	COE post project CWA section 404 permit. The Corps Emergency Permit defines "emergency" consistent with the CEQA and NEPA definitions. The COE limits remediation allowed under the emergency permit to the minimum necessary to stabilize the situation. Otherwise, you <i>must</i> follow normal permit routes.
	RWQCB post project CWA Section 401 permit.

