Lower Penitencia Creek
Emergency Action Plan
Quick Guide

Lower Penitencia Creek Watershed EAP dated: November 2023

This document summarizes key information/guidelines as described in the Lower Penitencia Creek Watershed Emergency Action Plan and its Lower Penitencia Creek Appendix (EAP). Page numbers are referenced (in red) identifying the location in the EAP where full information and data can be found. This guide is a summary and does not replace the full EAP.

Purpose of EAP (Page 1)

- To enhance coordination and communication between Santa Clara Valley Water District (Valley Water) and other responsible jurisdictions regarding storm and flood events for Lower Penitencia Creek (Creek), which is a flood threat to the City of Milpitas (City).
- To provide guidance and an approach to ensure communications, planning, and implementation between the responsible agencies regarding threatened and actual flooding emergencies.
- To facilitate:
  1. Pre-incident planning prior to a storm/flood event.
  2. Response to potential, imminent or actual storm/flood events.
  3. Recovery actions following a storm/flood event.
  4. Collaboration and coordination with other responsible jurisdictions.

Lower Penitencia Creek Description (Pages 77-92)

Lower Penitencia Creek Watershed is located in the City of Milpitas and runs on the valley floor about 4.1 miles in length originating near Montague Expressway. It discharges into Coyote Creek near Interstate 880 and Dixon Landing Road interchange about 8.3 miles upstream of San Francisco Bay.

The creek is mostly a earth channel with some concrete lining. There are levees or floodwalls from the confluence with Coyote Creek for about 2.6 miles to just upstream of Sylvia Avenue. There is maintenance access along most of its length. Valley Water owns most of the creek except under Interstate 880. The City operates 6 local drainage pump stations that discharge into Lower Penitencia Creek.

Limitations of EAP

(Page 4)

The EAP shall not constrain the Incident Commander (IC) in the field or others when dealing with flooding on Lower Penitencia Creek. It does not replace or override existing plans, authorities, or responsibilities.

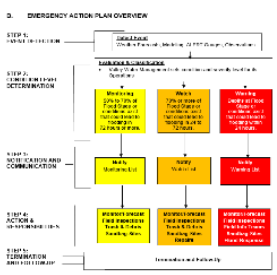
Instead this EAP will provide oversight and guidance and will not set precedent or commit resources without knowledge of the conditions that may occur, nor provide prescriptive lists of what to do during storm and flood monitoring and response. The conditions of the emergency dictate the response needs and availability of staff and resources as each emergency can be different and updates in stream management and control systems could vary the conditions.

Flood Threats

(Pages 92-94 and Table 2A-3A on Page 98)

Flood protection projects have been completed on Lower Penitencia Creek in 1955, 1962, 1965, 1984 and most recently in 2023. Lower Penitencia Creek should convey the 1% flow with freeboard downstream of the Berryessa Creek confluence. Upstream flooding from near the Great Mall Parkway would flow westerly towards I-880 and possibly commingle with floodwaters from Berryessa Creek and Upper Penitencia Creek and result in ponding in the neighborhoods. Step 2 and Tables 2A & 3A (page 98)describe the flood threat.

EAP Overview (Page 17)



Five steps in the EAP process:

1. Event Detection
2. Condition Level Determination
3. Notification & Communication
4. Actions & Responsibilities
5. Termination & Follow-up

EAP Personnel (Pages 9-11)

The EAP assigns functions and personnel as described in the Valley Water's Emergency Operations Plan following concepts of SEMS and NIMS. The personnel assigned the functions listed below may vary as condition levels change.

a. Management (includes EOC Director, Public Information Officer, and Elected officials)
b. Planning/Intelligence (P/I)
c. Operations
d. Logistics
e. Finance

Step 1 - Event Detection (Page 19)

This step describes the detection of an unusual or emergency event and provides information to assist Valley Water in determining the appropriate emergency level for the event. Unusual or emergency events may be detected by:

- **Weather Forecasts** - The National Weather Service (NWS) provides weather (e.g., precipitation) forecasts in advance of storm events and Valley Water contracts with a service provider for enhanced. During storm events, the NWS will host webinars with affected agencies and utilities to discuss forecasts and share information to enhance regional preparedness. In addition, the NWS maintains websites (Attachment 13) that provide forecasts and will issue public notices of forecasted flood threats on local television and radio programming.

- **Hydrologic/Hydraulic Modeling** - If forecasts show a heightened possibility of flooding, it is possible that Valley Water will run hydrologic and hydraulic modeling to determine risk and impact areas for a specific storm event. The Valley Water Surface Water Data Portal at http://alert.valleywater.org has forecasts available for some creeks.

- **Gauge System** - Valley Water's Automated Local Evaluation in Real Time (ALERT) system can set alarms to automatically notify appropriate staff at predetermined stages. These gauges and alarms provide data in near real-time and can provide extra warning to determine the level of threat for flooding. A listing of all Valley Water gauges can be found at http://alert.valleywater.org.

- **Visual Observations**- As water levels increase in the creeks, rivers, and waterways, Valley Water Field Information Teams (FITs) are deployed to visually monitor and report back to a Department Operations Center (DOC) or Emergency Operations Center (EOC) and Operations & Maintenance (O&M) staff are in the field inspecting and repairing facilities. These field personnel can monitor facilities for potential damage, identify surface drainage issues, thoroughly document actual flooding, and report landslides/erosion affecting the adjacent land uses. Hotspots for FIT deployment in the Lower Penitencia Creek Watershed is shown in Attachment 14 (pages 59-66) and Lower Penitencia Creek site upstream of the Great Mall Parkway is shown on page 63.

Step 2 - Evaluation & Classification (Pages 21-22)

Evaluation—After detecting and gathering adequate intelligence regarding the situation, an evaluation of waterway conditions must be performed by appropriate personnel. The personnel evaluating the intelligence will generally be one or more Subject Matter Experts (SMEs) from P/I or Operations. In addition to flood situations, other events may be considered during high flows as listed in Attachment 1 (pages 25-26).

- **Classification**—Based on evaluation of the intelligence detected by SMEs, they may recommend ***Flood Condition Level*** (pages 7-8 and page 97) over a general area or for a specific creek and location. Condition levels above green/preparedness should also be noted on the main page of the Valley Water website (https://www.valleywater.org/). The recommendation for Lower Penitencia Creek ***Flood Condition Level*** is based on assessment by SMEs and, if appropriate, ***Flood Severity Level*** for Lower Penitencia Creek would be based on specific thresholds (Table 2A – page 98) and shown in the Valley Water Surface Water Data Portal for the Machado Avenue gauge at https://alert.valleywater.org/map?p=sensor&sid=5100.1&disc=f). Lower Penitencia Creek also has an on-site visual monitoring location at Machado Avenue that corresponds to a flood severity threshold (Table 3A – page 98). The decision for a change in condition level is typically made by EOC/DOC Management. Tables below describe the Flood Condition Levels and the Flood Severity Levels. These levels are consistent with those issued by the National Weather Service.

Flood Condition Levels

Green	**Preparedness** This is the base stage of readiness that will be the typical condition throughout most of the year. It is defined as: • Flood stage (Minor Flooding or greater) or 90% to 100% of Design Flow stage is not estimated within the next 72 hours, or • Measured stream depth is below 50% of flood or 70% of Design Flow stage.
Yellow	**Monitoring**— This condition is variable and requires more intense monitoring and a heightened level of alertness. Minimal staff in the Emergency Operations Center (EOC) or in Watersheds Departmental Operations Center (DOC) may be activated. An informal EOC/DOC Action Plan (AP) could be initiated. This condition is defined as: • Stream depth is estimated to reach flood or 90%-100% of Design Flow stage in 72 hours or more, or • Measured stream depth is at 50% to 70% of flood or 70% to 90% of Design Flow stage, or • For areas that are controlled purely by storm drain runoff (flashy systems), the stream depth is estimated to reach flood or near Design Flow stage within 24 hours.
Orange	**Watch**— The EOC/DOC may be opened if not already operating. A formal EOC/DOC AP may be drafted if they are active. This condition would be set if: • Stream depth is estimated to reach flood or greater than Design Flow stage within 24 to 72 hours, or • Measured stream depths are at 70% to 100% of flood stage, or • Measured stream depths are at 90% to 100% of Design Flow stage, or • For areas that are controlled purely by storm drain runoff (flashy systems), the stream depth is estimated to reach flood or greater than Design Flow stage within 6-12 hours.
Red	**Warning**— The EOC will typically have been activated and would be closely monitoring the situation, providing notifications and responding according to a written AP. Often for smaller watersheds with flashy creeks, an EOC may not be opened until the storm event is occurring. • Flood stage or greater than Design Flow stage is occurring or is estimated to occur within 24 hours, or • Measured stream depths are 100% or greater than flood stage, or • Measured stream depths are greater than Design Flow stage, or • For areas that are controlled purely by storm drain runoff (flashy systems), the stream depth is estimated to reach flood or greater than Design Flow stage within minutes/hours or is occurring.

Lower Penitencia Creek Flood Severity Levels

Action (Yellow)	An established gauge height which when reached by a rising stream, lake, or reservoir represents the level where action is taken in preparation for possible significant hydrologic activity.
	• **Lower Penitencia Creek**
	  ○ The Machado Ave. stream gauge is near or expected to be at or near 5.5 feet.
	  ▪ Creek is flashy and fed primarily with storm drains and pump stations. Watch water level near Great Mall Parkway

Minor Flooding (Orange)	Minimal or no property damage, but possibly some public threat (e.g., inundation of roads).
	• **Lower Penitencia Creek**
	  ○ The Machado Avenue stream gauge is near or expected to be from 5.5' – 7.5'.
	  ▪ Overtopping just south of Great Mall Parkway on the east bank, flooding South Abel Street. Possible localized flooding from urban flooding.

Moderate Flooding (Red)	Some inundation of structures and roads near stream, evacuations of people and/or transfer of property to higher elevations.
	• **Lower Penitencia Creek**
	  ○ Machado Ave. stream gauge is near or expected to be at or greater than 8.0'.
	  ▪ Spills occur around S. Abel Street, flowing westward along West Capitol Avenue toward I-880 and ponding in the neighborhoods.

Disclaimer: This table is current as of the publishing of this document. The most current flood severity thresholds are at https://alert.valleywater.org/map?p=map.	

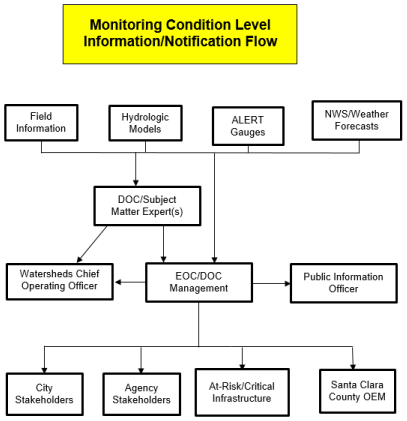
Lower Penitencia Creek On-Site Monitoring Thresholds

ID#	MONITORING LOCATION	FLOODING DESCRIPTION	FLOOD THREAT STAGE AT MONITORING LOCATION			PHOTO
			50% Capacity	70% Capacity	100% Capacity	
1	**Machado Avenue**	Overtopping just south of Great Mall Parkway on east bank and near South Abel Street. Floodwater flows westward along West Capitol Avenue towards I-880 and ponds in the neighborhoods.	4.5'-5.5'	5.5'-7.5'	7.5-8.0'	

Disclaimer: The flooding thresholds in this table are current as of the publishing of this document. They are based on hydraulic modeling results calibrated with data collected during historical flood events. Hydraulic modeling results may be preliminary and should be used for general analysis purposes. Information is accurate within the model limitations and assumptions/data used for model development. The most current flooding thresholds are at https://alert.valleywater.org/map?p=sensor&sid=5100.1&disc=f. Use care while interpreting results.

Step 3 - Notification & Communication (Pages 21-23)

Notification: After the condition levels and severity have been determined, appropriately communicating the situation to responsible agencies, staff, and other identified individuals and groups is critical. Depending on the condition level, responsibilities for notifications and who is notified would vary. The charts shown below show the flow of information for the three flood threat condition levels and the contact list is Attachment 9 (Pages 49-50).



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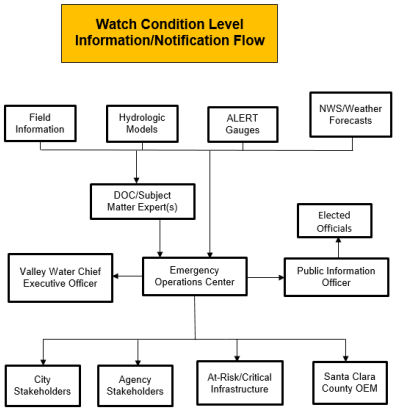

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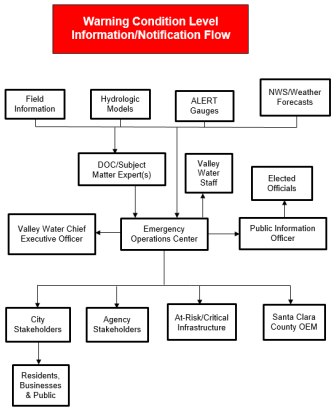

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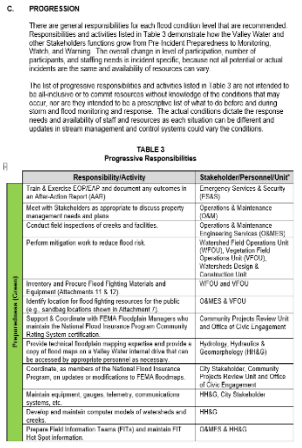
Step 4 - Actions & Responsibilities (Pages 12-16)

As the weather conditions change, the responsibilities of the City, District and other Stakeholders adjust. The list of responsibilities provided in Table 3 illustrate in general terms what actions are needed at each threat level, and who has lead responsibility. Specific responsibilities for personnel are included in Attachments 3-8 (Pages 29-47).



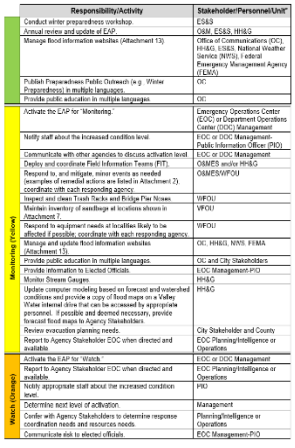
C. PROGRESSION

There are general responsibilities for each flood condition level that are recommended. Responsibilities and activities listed in Table 3 demonstrate how the Valley Water and other Stakeholders functions grow from Pre Incident Preparedness to Monitoring, Watch, and Warning. The overall change in level of participation, number of participants, and staffing needs is incident specific, because not all potential or actual incidents are the same and availability of resources can vary.

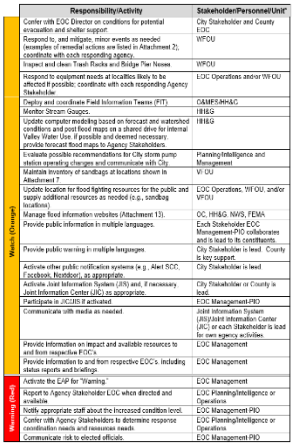
The list of progressive responsibilities and activities listed in Table 3 are not intended to be all-inclusive or to commit resources without knowledge of the conditions that may occur, nor are they intended to be a prescriptive list of what to do before and during storm and flood monitoring and response. The actual conditions dictate the response needs and availability of staff and resources as each situation can be different and updates in stream management and control systems could vary the conditions.

TABLE 3
Progressive Responsibilities

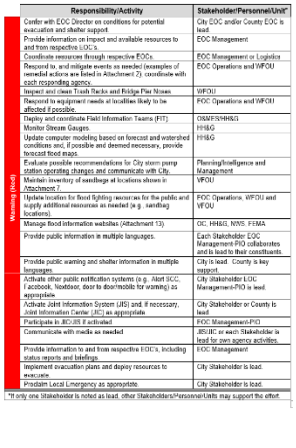
	Responsibility/Activity	Stakeholder/Personnel/Unit*
Preparedness (Green)	Train & Exercise EOP/EAP and document any outcomes in an After-Action Report (AAR)	Emergency Services & Security (ES&S)
	Meet with Stakeholders as appropriate to discuss property management needs and plans	Operations & Maintenance (O&M)
	Conduct field inspections of creeks and facilities.	Operations & Maintenance Engineering Services (O&M/ES)
	Perform mitigation work to reduce flood risk.	Watershed Field Operations Unit (WFOU), Vegetation Field Operations Unit (VFOU), Watersheds Design & Construction Unit
	Inventory and Procure Flood Fighting Materials and Equipment (Attachments 11 & 12)	WFOU and VFOU
	Identify location for flood fighting resources for the public (e.g., sandbag locations shown in Attachment 7).	O&MES & WFOU
	Support & Coordinate with FEMA Floodplain Managers who maintain the National Flood Insurance Program Community Rating System certification.	Community Projects Review Unit and Office of Civic Engagement
	Provide technical floodplain mapping expertise and provide a copy of flood maps on a Valley Water internal drive that can be accessed by appropriate personnel as necessary.	Hydrology, Hydraulics & Geomorphology (HH&G)
	Coordinate, as members of the National Flood Insurance Program, on updates or modifications to FEMA floodmaps.	City Stakeholder, Community Projects Review Unit and Office of Civic Engagement
	Maintain equipment, gauges, telemetry, communications systems, etc.	HH&G, City Stakeholder
	Develop and maintain computer models of watersheds and creeks.	HH&G
	Prepare Field Information Teams (FITs) and maintain FIT Hot Spot information.	O&MFS & HH&G



	Responsibility/Activity	Stakeholder/Personnel/Unit*
Preparedness (Green)	Conduct winter preparedness workshop.	ES&S
	Annual review and update of EAP.	O&M, ES&S, HH&G
	Manage flood information websites (Attachment 13)	Office of Communications (OC), HH&G, ESES, National Weather Service (NWS), Federal Emergency Management Agency (FEMA)
	Publish Preparedness Public Outreach (e.g., Winter Preparedness) in multiple languages.	OC
	Provide public education in multiple languages.	OC
Monitoring (Yellow)	Activate the EAP for "Monitoring."	Emergency Operations Center (EOC) or Department Operations Center (DOC) Management
	Notify staff about the increased condition level.	EOC or DOC Management-Public Information Officer (PIO)
	Communicate with other agencies to discuss activation level.	EOC or DOC Management
	Deploy and coordinate Field Information Teams (FIT).	O&MES and/or HH&G
	Respond to, and mitigate, minor events as needed (examples of remedial actions are listed in Attachment 2), coordinate with each responding agency.	O&MES/WFOU
	Inspect and clean Trash Racks and Bridge Pier Noses.	WFOU
	Maintain inventory of sandbags at locations shown in Attachment 7.	VFOU
	Respond to equipment needs at localities likely to be affected if possible, coordinate with each responding agency.	WFOU
	Manage and update flood information websites.	OC, HH&G, NWS, FEMA
	Provide public education in multiple languages.	OC and City Stakeholders
	Provide information to Elected Officials.	EOC Management-PIO
	Monitor Stream Gauges.	HH&G
	Update computer modeling based on forecast and watershed conditions and provide a copy of flood maps on a Valley Water internal drive that can be accessed by appropriate personnel. If possible and deemed necessary, provide forecast flood maps to Agency Stakeholders.	HH&G
	Review evacuation planning needs.	City Stakeholder and County
	Report to Agency Stakeholder EOC when directed and available.	EOC Planning/Intelligence or Operations
Watch (Orange)	Activate the EAP for "Watch."	EOC or DOC Management
	Report to Agency Stakeholder EOC when directed and available.	EOC Planning/Intelligence or Operations
	Notify appropriate staff about the increased condition level.	PIO
	Determine next level of activation.	Management
	Confer with Agency Stakeholders to determine response coordination needs and resources needs.	Planning/Intelligence or Operations
	Communicate risk to elected officials.	EOC Management-PIO



	Responsibility/Activity	Stakeholder/Personnel/Unit*
Watch (Orange)	Confer with EOC Director on conditions for potential evacuation and shelter support.	City Stakeholder and County EOC
	Respond to, and mitigate, minor events as needed (examples of remedial actions are listed in Attachment 2), coordinate with each responding agency.	WFOU
	Inspect and clean Trash Racks and Bridge Pier Noses.	WFOU
	Respond to equipment needs at localities likely to be affected if possible; coordinate with each responding Agency Stakeholder.	EOC Operations and/or WFOU
	Deploy and coordinate Field Information Teams (FIT).	O&MFS,HH&G
	Monitor Stream Gauges.	HH&G
	Update computer modeling based on forecast and watershed conditions and post flood maps on a shared drive for internal Valley Water Use. If possible and deemed necessary, provide forecast flood maps to Agency Stakeholders.	HH&G
	Evaluate possible recommendations for City storm pump station operating changes and communicate with City.	Planning/Intelligence and Management
	Maintain inventory of sandbags at locations shown in Attachment 7.	VFOU
	Update location for flood fighting resources for the public and supply additional resources as needed (e.g., sandbag locations).	EOC Operations, WFOU, and/or VFOU
	Manage flood information websites (Attachment 13).	OC, HH&G, NWS, FEMA
	Provide public information in multiple languages.	Each Stakeholder EOC Management-PIO collaborates and is lead to its constituents
	Provide public warning in multiple languages.	City Stakeholder is lead. County is key support.
	Activate other public notification systems (e.g., Alert SCC, Facebook, Nextdoor), as appropriate.	City Stakeholder is lead
	Activate Joint Information System (JIS) and, if necessary, Joint Information Center (JIC) as appropriate.	City Stakeholder or County is lead.
	Participate in JIC/JIS if activated.	EOC Management-PIO
	Communicate with media as needed.	Joint Information System (JIS)/Joint Information Center (JIC) or each Stakeholder is lead for own agency activities.
	Provide information on impact and available resources to and from respective EOC's.	EOC Management
	Provide information to and from respective EOC's, including status reports and briefings.	EOC Management
Warning (Red)	Activate the EAP for "Warning."	EOC Management
	Report to Agency Stakeholder EOC when directed and available.	EOC Planning/Intelligence or Operations
	Notify appropriate staff about the increased condition level.	EOC Management-PIO
	Confer with Agency Stakeholders to determine response coordination needs and resources needs.	EOC Planning/Intelligence or Operations
	Communicate risk to elected officials.	EOC Management-PIO



	Responsibility/Activity	Stakeholder/Personnel/Unit*
Warning (Red)	Confer with EOC Director on conditions for potential evacuation and shelter support.	City EOC and/or County EOC is lead.
	Provide information on impact and available resources to and from respective EOC's.	EOC Management
	Coordinate resources through respective EOCs.	EOC Management or Logistics
	Respond to, and mitigate events as needed (examples of remedial actions are listed in Attachment 2), coordinate with each responding agency.	EOC Operations and WFOU
	Inspect and clean Trash Racks and Bridge Pier Noses.	WFOU
	Respond to equipment needs at localities likely to be affected if possible.	EOC Operations and WFOU
	Deploy and coordinate Field Information Teams (FIT).	O&MFS/HH&G
	Monitor Stream Gauges.	HH&G
	Update computer modeling based on forecast and watershed conditions and, if possible and deemed necessary, provide forecast flood maps.	HH&G
	Evaluate possible recommendations for City storm pump station operating changes and communicate with City.	Planning/Intelligence and Management
	Maintain inventory of sandbags at locations shown in Attachment 7.	VFOU
	Update location for flood fighting resources for the public and supply additional resources as needed (e.g., sandbag locations).	EOC Operations, WFOU and VFOU
	Manage flood information websites (Attachment 13).	OC, HH&G, NWS, FEMA
	Provide public information in multiple languages.	Each Stakeholder EOC Management-PIO collaborates and is lead to their constituents
	Provide public warning and shelter information in multiple languages.	City is lead. County is key support.
	Activate other public notification systems (e.g., Alert SCC, Facebook, Nextdoor, door to door/mobile for warning) as appropriate.	City Stakeholder EOC Management-PIO is lead.
	Activate Joint Information System (JIS) and, if necessary, Joint Information Center (JIC) as appropriate.	City Stakeholder or County is lead.
	Participate in JIC/JIS if activated.	EOC Management-PIO
	Communicate with media as needed.	JIS/JIC or each Stakeholder is lead for own agency activities.
	Provide information to and from respective EOC's, including status reports and briefings.	EOC Management
	Implement evacuation plans and deploy resources to evacuate.	City Stakeholder is lead.
	Proclaim Local Emergency as appropriate.	City Stakeholder is lead.

*If only one Stakeholder is noted as lead, other Stakeholders/Personnel/Units may support the effort.

Step 5 - Valley Water Termination & Follow-up (Page 24)

After this EAP has been activated at a level of Monitor, Watch or Warning and then returned to Preparedness, EAP operations must be terminated and follow-up procedures completed.

a. Termination Responsibilities

In a Watch or Warning, the DOC or EOC Director, is responsible for terminating EAP operations and directing that this decision is relayed to each person notified during the original event.

DOC or EOC Management will ensure that all forms for Action Planning, Situational Reports, or others utilized during the event are collected and organized chronologically as determined appropriate. If electronic documentation was utilized, these could be saved on a storage device that could be retrievable or could be printed and saved as a hard copy in the file.

b. Follow-Up Responsibilities

The Operations & Maintenance Engineering Support Unit (if DOC is activated), or the Emergency Services & Security Unit (if EOC was activated), will prepare an After-Action Report (AAR) of the event and will track implementation of appropriate recommendations in the AAR.

The City or other stakeholders will be responsible for damage assessment to homes and businesses and any permit requirements required to reoccupy structures and to promote flood mitigations measures during any reconstruction.

Maintenance of EAP (Page 6)

O&M will work with Office of Emergency Services Unit, Hydrology Hydraulics & Geomorphology Unit and other appropriate stakeholders to review and, if needed, update the EAP at least once each year. The EAP annual review should include the following:

- Verify that the phone numbers and persons in the specified positions are current and revise if any of the contacts have changed,
- Verify and, if necessary, update flood maps and flood thresholds,
- Verify the locally available resources and equipment are current, and/or
- Incorporate appropriate recommendations from any AAR prepared after training or activation of the EAP.

Attachments (Pages 25-67)