Carson River Geographic Response Plan

Draft

Alpine County, California
and
Douglas, Carson City, Lyon, Churchill Counties, Nevada

October 2005

Prepared by:
Carson & Walker Rivers Area Committee (CWRAC)

Acknowledgements

The Carson River Geographic Response Plan (CRGRP) was developed through a collaborative effort between the local, state, and federal government agencies listed below.

Local Government

- Carson City Fire
- Douglas County Emergency Management
- East Fork Fire and Paramedic District
- Lyon County Sheriff's Office
- Mason Valley Fire
- Mono County Conservation District

State Government

- California Department of Fish and Game, Office of Spill Prevention and Response
- California Office of Emergency Services
- Nevada Division of Emergency Management
- Nevada Division of Environmental Protection
- Nevada Highway Patrol

Tribal Government

- Washo Tribe

Federal Government

- U.S. Bureau of Land Management
- U.S. Department of Agriculture Carson Valley Conservation District
- U.S. Environmental Protection Agency (EPA) Region IX
    - U.S. EPA Region IX Superfund Technical Assessment and Response Team (START), Ecology & Environment, Inc.
- U.S. Fish and Wildlife Service

If this is an Emergency…

…Involving a release or threatened release of hazardous materials, petroleum products, or other contaminants impacting public health and/or the environment

Most important – Protect yourself and others!

Then:

1) Turn to the **Immediate Action Guide** (Yellow Tab) for initial steps taken in a hazardous material, petroleum product, or other contaminant emergency.

2) Make the initial notification to *Dispatch* by dialing 911. *Dispatch* will make the ***Mandatory Notifications***:

Dispatch will make the following Mandatory Notifications	
California State Warning Center (OES)	(800) 852-7550 or (916) 845-8911
Nevada DEM	(775) 687-4240 or (775) 688-2830
National Response Center	(800) 424-8802
Carson River Water Master *	(775) 782-9911**
Notify Downstream Agencies:	
❒ Alpine County Sheriff's Office	(530) 694-2231
❒ Douglas County Emergency Management	(775) 782-9911
❒ Carson City Emergency Management	(775) 887-2007
❒ Lyon County Emergency Management	(775) 463-6620
❒ Churchill County Emergency Management	(775) 427-5829

*Notify for all spills impacting or potentially impacting the Carson River
**Contact Douglas County and ask for the Carson River Water Master to be notified.

3) After the ***Mandatory Notifications*** are made, use **Notification** (Red Tab) to implement the notification procedures described in the **Immediate Action Guide**.

4) Use the **Carson River Corridor Maps** (Green Tab) to pin point the location and surrounding geography of the incident site.

5) Use the **River Response Site Strategies** (Blue Tab) to develop a mitigation plan.

6) Review the **Supporting Documentation** (White Tabs) for additional information needed during the response.

Carson River Geographic Response Plan
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Plan Overview

Purpose

1. The Carson River Geographic Response Plan (CRGRP) establishes the policies, responsibilities, and procedures required to protect the health and safety of the populace, the environment, and public and private property from the effects of hazardous materials incidents.

2. This plan establishes the emergency response organization for hazardous materials incidents occurring within the Carson River watershed. The plan is generally intended to be used for oil spills or chemical releases which impact or could potentially impact the Carson River, its tributaries, its reservoirs, as well as irrigation ditches and canals associated with the river.

3. The CRGRP is the principal guide for agencies within the Carson River watershed, its incorporated cities, and other local government entities in mitigating hazardous materials emergencies. This plan is consistent with federal, state and local laws and is intended to facilitate multi-agency and multi-jurisdictional coordination, particularly between local, state, and federal agencies, in hazardous materials emergencies.

4. This plan is an operational plan as well as a reference document. It may be used for pre-emergency planning and emergency response. Agencies having roles and responsibilities established by this plan are encouraged to develop standard operating procedures (SOPs) and emergency response checklists based on the provisions of this plan.

Plan Objectives

1. Describe the overall emergency response organization for hazardous materials incidents occurring within the Carson River response area.

2. Establish a prompt and efficient notification system that ensures that the appropriate local, state and federal response agencies are informed of oil spills and chemical releases impacting the river.

3. Identify river response strategies in advance, so that response personnel can more effectively deploy personnel and equipment.

4. Delineate the responsibilities of local, state, and federal agencies in the event of a hazardous materials incident within the Carson River response areas

5. Establish lines of authority, coordination and notification for hazardous materials incidents.

6. Facilitate mutual aid to supplement local resources.

7. Describe procedures for accessing outside funding (e.g., state and federal funding) for the mitigation of, and recovery from, hazardous materials incidents.

Incident Objectives

For emergency response personnel to evaluate hazardous materials and take appropriate emergency actions in order to save lives, reduce injuries, and prevent or minimize damage to the environment and property, the following actions should be taken:

1. Securing the *affected* area, isolating the hazard, and denying the entry of unauthorized persons into the area.

2. Identification of the hazardous material.

3. Providing rapid and effective warning, information, and instructions to threatened populations.

4. Providing means to access technical resources to stabilize the affected area and return to normal conditions as quickly as possible.

5. Train and equip emergency response personnel (hazmat team members as well as first responders) to efficiently and effectively mitigate hazardous materials incidents.

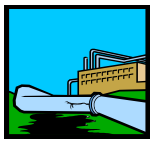
How to Use the Immediate Action Guide

IF YOU ARE NOT QUALIFED TO ACTIVATE THIS PLAN:
DIAL 911 AND ASK FOR ASSISTANCE

Complete the following steps to activate the Carson River Geographic Response Plan.

Make Initial Mandatory Notifications

Review General Information Regarding HazMat Response



Railroad, Roadway, and Fixed Facility Incidents

- And/Or -

Abandoned/Unknown Containers and WMD

Public Information/Press Release

This is only a guide:
Nothing in this section shall supersede the experience, initiative, and ingenuity of the responders in overcoming the complexities that existing under actual emergency conditions.

Make Immediate Notifications

Collect the following information whenever there is a threat or actual discharge of hazardous materials, petroleum products or other contaminants into a waterway*.

* *A waterway is defined as any river, stream, tributary, creek, ditch, canal, storm drain or sewer that is part of, connected to or has the ability to discharge into the Carson River.*

Provide the following information to Dispatch making initial ***Mandatory Notifications***:

- Type of Incident (Rail, Motor Transport, Fixed Facility, etc.)
- Date and time of Incident
- Location where the incident happened
- Number of Injuries
- Product Name (if known)
- Type of Release
  Solid Liquid Gas
- Size of spill
  - Quantity_____
- Location where the product entered or will enter the waterway
- Area threatened

Refer to the Red Tab for the Emergency Notification Guide and the Contact Number List to make additional notifications

Review General Information Regarding HazMat Response

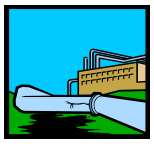
First Responder

1. Approach incident location from an upwind, uphill, and/or upstream direction.
2. Position vehicle heading away from the incident location.
3. If available wear full protective clothing (i.e., turnouts-pants, coat, hood, gloves, boots, helmet) and positive-pressure, self-contained breathing apparatus (SCBA).
4. Avoid “rushing” into the area.
5. Avoid entering or approaching vapors or smoke and contact with product.
6. Confine exposed victims for emergency decontamination.
7. Consider all unidentified containers or released products (including smoke) as a hazardous material until it is positively identified as non-hazardous.

Incident Command and Scene Security

1. Establish an Incident Command Post and fully implement ICS.
2. Isolate the scene and deny entry to all unauthorized personnel, vehicles, and equipment (establish a perimeter).
3. Notify appropriate emergency response agencies (**Notification -** Red Tab).
4. Ensure qualified personnel perform the items on the checklist.
5. Review the following checklist:

	Immediate Action Checklist	Date/Time
1.	Establish Incident Command	
2.	Determine Isolation Zones	
3.	Establish Exact Incident Location	
4.	Determine Lead Agency	
5.	Identify Product	
6.	Determine the Size of Exclusion Zone	
7.	Determine Level of Response	
8.	Determine if Additional Resources are Required	
9.	Established Size of Spill and Spill Potential	
10.	If spill can reach a waterway, begin Downstream Notifications	
11.	Establish Evacuation Routes	
12.	Determine Medical Needs	
13.	Determine Entry Level (PPE)	
14.	Determine Communications Needs	
15.	Make Appropriate Notifications	
16.	Determine exposures	
17.	Develop Incident Action Plan	



Railroad, Roadway, and Fixed Facility Incidents

Responder

1. Notify Local Emergency Dispatch – Activate 911.
2. Isolate and deny entry to the area.
3. Shutdown all possible ignitions sources (Stop ALL vehicle traffic).
4. Establish Parameters.
5. Attempt to identify the material.

Dispatcher

1. Determine the following information
   - Type of Incident (Rail, Motor Transport, Fixed Facility, etc.)
   - Date and Time of Incident
   - Location where the incident happened
     - Mile Marker
     - Accessibility
     - Latitude/Longitude
   - Number of Injuries
   - Product Name (if known)
   - Type of Release
     Solid Liquid Gas
   - Size of spill
     - Quantity_____
     - (If quantity is unknown, describe size of the leaking container)
   - Has the spill ignited? Yes____ No____
   - Any information on rail car or container
   - Has the spill been contained? Yes____ No____
   - Has the spill impacted the surface water? Yes____ No____
   - Description of exposures
     - Occupied buildings
     - Important buildings or structures
     - Proximity to roadway, bridges, drainage structures, waterways
2. Make the initial ***Mandatory Notifications*** (**Notification** – Red Tab)
3. Contact the owner and/or potentially responsible party
   - Union Pacific Railroad
   - Shipper
   - Fixed Facility Emergency Coordinator
4. Request local hazardous materials response team.
5. Provide updates to all Notified Agencies as new information becomes available.

Abandoned/Unknown Containers and WMD

Responder

1. Notify Local Emergency Dispatch – Activate 911.
2. Isolate and deny entry to the area.
3. Shutdown all possible ignitions sources (Stop ALL vehicle traffic).
4. Establish Parameters.
5. Attempt to identify the material. DO NOT MOVE THE CONTAINER OR DETERMINE IF IT IS FULL.
6. For WMD or NBC Device, determine if there are secondary devices.
7. Treat location as a *possible crime scene*!

Dispatcher

1. Determine the following information
   - Location of the container
   - Date and Time of discovery
   - Number of Injuries
   - Product Name (if known)
   - Has the container been breached? Yes____ No_____
   - Type of Release
     Solid Liquid Gas
   - Size of spill
     - Quantity_____
     - (If quantity is unknown, describe size of the leaking container)
   - Has the spill ignited? Yes____ No____
   - Can the spill be contained? Yes____ No____
   - Has the spill impacted the surface water? Yes____ No____
   - Description of exposures
     - Occupied buildings
     - Important buildings or structures
     - Proximity to roadway, bridges, drainage structures, waterways

2. Request local hazardous materials response team

3. Make the initial ***Mandatory Notifications*** (**Notification** – Red Tab)

4. Provide updates to all Notified Agencies as new information becomes available.

Public Information/Press Release

To release information to the public/media:

1. Establish a Public Information Officer (PIO).

2. Determine the following information for inclusion into a press release and/or press conference.
   - Nature of the incident
   - Precautions for the public and possible symptoms of exposure (High Hazard)
   - Date and time of incident
   - Approximate location where the incident happened (city, county, state)
   - Hotline number for public inquiries
   - Traffic patterns affected by spill
   - Number of injuries and property damage
   - Product name and normal uses
   - Response agencies involved
   - Any mitigation efforts underway
   - Evacuation instructions if incident is considered High Hazard
   - Mass care information if High Hazard

3. The following example statement can be used.

Hazardous Material Incident - Summary Statement for Media

At approximately (time) a.m./p.m. today, a spill/release of a potentially hazardous substance was reported to this office. Emergency services personnel were immediately dispatched to cordon off the area and direct traffic.

The material was later determined to be (substance), a (hazardous/harmless) chemical/substance/material/gas that, upon contact, may product symptoms of (list symptoms). Precautionary evacuation of the (location) area surrounding the spill was (requested/required). Approximately (number) of persons were evacuated.

Clean up crews from (agency/company) were dispatched to the scene, and normal traffic was resumed by (time), at which time residents were allowed to return to their homes. There were no injuries reported – OR – (number) persons, including (number) of emergency personnel, were treated at area hospitals for (injuries/symptoms) and (all/number) were later released. Those remaining in the hospital are in (condition). Response agencies involved were (list agencies).

Carson River Geographic Response Plan
Notification Overview

The chart below shows the flow of notifications that must be made in a hazardous material, petroleum product, or other contaminant emergency.

First On-Scene
(Fire, Law, EMS, etc.)

*will notify local **Dispatch** (via radio)*

↓

Dispatch will make the following ***Mandatory Notifications***

California State Warning Center (OES)	(800) 852-7550 or (916) 845-8911
Nevada DEM	(775) 687-4240 or (775) 688-2830
National Response Center	(800) 424-8802
Carson River Water Master *	(775) 782-9911**
Notify Downstream Agencies:	
❒ Alpine County Sheriff's Office	(530) 694-2231
❒ Douglas County Emergency Management	(775) 782-9911
❒ Carson City Emergency Management	(775) 887-2007
❒ Lyon County Emergency Management	(775) 463-6620
❒ Churchill County Emergency Management	(775) 427-5829

*Notify for all spills impacting or potentially impacting the Carson River
**Contact Douglas County and ask for the Carson River Water Master to be notified.

To ensure that all affected agencies/organizations are notified:

1) First On-Scene will notify Dispatch.
2) Dispatch will make the ***Mandatory Notifications.***
3) Use the **Emergency Notification Guide** (Notification – Red Tab) to contact additional agencies/organizations.
4) Use the **Contact Number List** (Notification – Red Tab) to find emergency phone numbers.

For updates to the contact information, contact Tom Dunkelman at (775) 687-9480 or dunkelman.tom@epa.gov.

Emergency Notifications are made in accordance with the area plan developed by the appropriate County's Office of Emergency Services.

Use the following checklist as a guide to contact additional agencies/organizations not listed in the table above:

- Document the Time of Contact and Estimated Time of Arrival (ETA) in the space provided.
- The agencies within the outlined areas may be mandatory or may have priority.
- Consider notifying other agencies listed when appropriate.
- Checklist may be used to identify agencies that can provide additional resources.

Local Agencies

Time Contacted	ETA		Time Contacted	ETA	
		Local Fire			Red Cross / Salvation Army
		Local Law			School Superintendent
		Hospital(s)			Local Government
		Property Owner(s)			Water Authorities
		Bordering Jurisdictions			Sewer Districts
		Airport			USA Underground
		Water Districts			Chemtrec or other product info sources
		Homeowner's Associations			Water Master
		News Media			Ditch Owners/Users
		Public Works			Other:
		Railroad			Other:
		Public Utilities			Other:

Continue on next page for further notifications

County Agencies

Time Contacted	ETA	Agency	Time Contacted	ETA	Agency
		Sheriff's Office			Air Quality Control Board
		Environmental Health			Other:
		Office Emergency Services			Other:
		Agriculture Commissioner			Other:
		Health Officer			Other:
		Road Department			Other:

State of California Agencies

Time Contacted	ETA	Agency	Time Contacted	ETA	Agency
		Highway Patrol			Dept. of Justice
		State Emergency Warning Center			Lahontan RWQCB
		Fish and Game			Dept. of Forestry
		CalEPA/DTSC			State Historic Preservation Office
		CalOSHA			Other:
		CalTrans			Other:

Continue on next page for further notifications

State of Nevada Agencies

Time Contacted	ETA	Agency	Time Contacted	ETA	Agency
		Highway Patrol			Dept. of Justice
		Div. of Emergency Management			Div. of Water Planning
		Dept. of Wildlife			Div. of Forestry
		Div. of Environmental Protection			State Historic Preservation Office
		Div. of Industrial Relations			Other:
		Dept. of Transportation			Other:

Tribal Governments

Time Contacted	ETA	Agency	Time Contacted	ETA	Agency

Federal Agencies

Time Contacted	ETA	Agency	Time Contacted	ETA	Agency
		National Response Center			Bureau of Reclamation-Dams
		BLM			Army Corps of Engineers
		USEPA			FBI
		USFWS			Other:
		USFS			Other:

Contact Number List

Agency	Emergency No.	Business No.	Comments
Alpine County Sheriff (Markleeville, CA)	(530) 694-2231		
American Red Cross	(775)856-1000	(530) 582-4137	
California Department of Fish and Game	(916) 358-1300	(916) 445-9338 8-5PM	**NORCOM Dispatcher**
California Department of Fish and Game - Bishop	(760) 872-1171		
California Department of Forestry	(530) 477 5761	(530) 477-0641	
California Department of Parks and Recreation	(916) 358 1310		
California EPA/DTSC	(800) 260-3972	(800) 852-7550	
California Highway Patrol	(530) 582-7500		
California Highway Patrol - Bridgeport	(760) 932-7995		
California Occupational Safety and Health Agency	(916) 263-2800	(800) 963-9424	
California Office of Emergency Services	(800) 852-7550	(916) 845-8911	
California Public Utilties Commission	(800) 755-1447	(415) 703-2782 (8-5PM)	
California State Historic Preservation Office	(916) 653-6624		
CalStar (Air Ambulance)	530) 477-5761	(530) 887-0569	
CalTrans - District 10 (Alpine County)		(209) 948-7543	
CalTrans - Bridgeport	(760) 932-7055		
Carson City Combined Dispatch	(775) 887-2007		
Carson City Emergency Management	(775) 887-2007	(775) 887-2068	
Carson River Water Master	(775) 782-9911		**Contact Douglas Co and ask for Watermaster to be notified**
Carson Tahoe Hospital	(775) 356-4040		
Carson Valley Conservation District		(775) 782-3661 ext 102	
Carson Valley Medical Center	(775) 782-1600		
Chemical Transport Emergency Center	(800) 424-9300		
CHEMNET	(800) 424-9300		
CHLORREP	(800) 424-9300		
Churchill County Emergency Management	(775) 427-5829	(775) 423-4188	
Churchill Community Hospital	(775) 423-3151		
Churchill County Ambulance	(775) 423-3151 ext. 4911		
Douglas County Emergency Management	(775) 782-9911	(775) 782-9977	
East Fork Fire and Paramedic (Douglas County)	(775) 782-9911	(775) 782-9040	
Fallon Emergency Management	(775) 427-5356	(775) 423-1345	
Fernley Fire Department (Volunteer Fire Department)	(775) 575-3383		
H2O Environmental	(866) 426-6770	(505) 751-3688	

Verified -

Contact Number List

Agency	Emergency No.	Business No.	Comments
Incline Village Health Center	(775) 833-4100		**Recording w/options**
Kinder Morgan	(775) 358-6971	(775) 358-6971	
KOLO Television	(775) 858-8880		
KVLV Radio	(775) 423-2243		
Lahontan Regional Water Quality Control Board	(530) 542-5400		**recording after 5PM**
Lead TV EAS (Nevada)	(775) 858-8888		
Lead TV Radio EAS (Nevada)	(775) 325-9178		
Lyon County Fire District	(775) 577-5006	(775) 575-5337	
Lyon County Office of Emergency Management	(775) 463-6620		
Lyon County Public Works	(775) 577-5030	(775) 246-6220 (8-5PM)	**roll-over to ER# (775)720- 7353**
Lyon County Sheriff's Office	(775) 463-6620	(775) 463-6600	
Minden Dispatch	(775) 883-5995		
Minden Medical Center	(775) 782-8181		
Mono County Sheriff (Bridgeport, CA)	(760) 932-7549		
Mono County Conservation District		(775) 782-3661 ext 112	
National Response Center	(800) 424-8802		
National Weather Service	(775) 673-8100		
Nevada Department of Transportation	(775) 888-7000		
Nevada Division of Emergency Management	(775) 688-2830	(775) 687-4240	
Nevada Division of Environmental Protection - Spill Report	(775) 687-9485	(888) 331-6337	**24 Hour Numbers**
Nevada Division of Forestry	(775) 883-5995	(775) 849-2500 (8-5PM)	
Nevada Division of Water Resources	(775) 684-8641	(775) 687-4380 (8-5PM)	
Nevada Department of Wildlife	(775) 423-3171		
Nevada Emergency Response Commission		(775) 687-6973 (8-5PM)	
Nevada OSHA	(775) 687-5240	(775) 824-4600	
Nevada Highway Patrol	(775) 688-2510		
Nevada Natural Heritage		(775) 684-2900	
Nevada State Historic Preservation Office		(775) 684-3448	
Northern Nevada Medical Center (Sparks)	(775) 331-7000		**rollover to ER # after 5:30PM**
Nuclear Regulatory Commission	(301) 816-5100	(301) 951-0550	
Paiute Gas	(775) 882-0148		
PG & E	(800) 743-5000		**Recording**
Radiological Assistance - USDOE Response Center	(202) 586-8100		
REMSA - Ambulance	(775) 858-6005		

Contact Number List

Agency	Emergency No.	Business No.	Comments
Reno Combined Dispatch	(775) 334-2161		
Reno Gazette	(775) 788-6397	(775) 788-6200	
Reno VA Hospital		(775) 786-7200	
Sacramento Bee	(916) 321-1000		
Saint Mary's Hospital (Reno)	(775) 770-3000		
Salvation Army	(775) 688-4555		
SBC (Corporate Offices)	(800) 303-3000		**# is corporate offices, Missouri**
Sierra Pacific Resources	(775) 834-4100 (8-5PM)		**roll-over to Dispatcher after 5PM**
Sierra Pacific Resources Power Company	(775) 834-4100		
Southwest Gas	(800) 772-4555	(775) 882-2126	
Southwest Gas - Pipeline	(775) 772-4555		
South Lyon Medical Center		(775) 463-2301	
Storey County Ambulance	(775) 847-0950		
Storey County Department of Transportation	(775) 888-7000		
Storey County Fire Department	(775) 847-0950		
Storey County Office of Emergency Management	(775) 847-0950	(775) 742-9826	
Storey County Public Works	(775) 742-9824	(775) 847-0958	
Storey County Sheriff's Office	(775) 742-9825	(775) 847-0959	
Truckee Carson Irrigation District	(775) 221-1704		
Truckee Meadow Water Authority	(775) 834-8273	(775) 834-8090	
Truckee Police Department	(530) 550-2320	(530) 582-7838 (8-5PM)	
U.S. Bureau of Alcohol, Tobacco & Firearms		(775) 784-5251 (8-5PM)	**rollover to SDiego Office after 5PM**
U.S. Dept of Homeland Security FEMA REG 9	(800) 427-4661	(510) 627-7235	**800# is Disaster Response in WashDC**
U.S. Bureau of Land Management	(775) 883-3535	(775) 885-6000 (8-5PM)	
U.S. Bureau of Reclamation - Dams	(916) 979-3004	(775) 882-3436	**SEE US BOR No. Nevada Ops**
U.S. Bureau of Reclamation - Lwr Colo Rvr- Water Master	(702) 596-0245	(702 596-0245	
U.S. Bureau of Reclamation No. Nev. Ops- Water Master	(775) 882 3436	(775) 884-8351	
U.S. Coast Guard NRC	(800) 424-8802		
U.S. Coast Guard Tahoe City, CA	(530) 583-4433		
U.S. Department of Agriculture	(775) 784-6057		**Recording w/options**
US Department of Justice FBI (Reno, NV Office)	(775) 823-2623		
U.S. Department of Homeland Security	(202) 282-8000		
U.S. Environmental Protection Agency Region IX RRC	(800) 300-2193		
U.S. Fish and Wildlife Service	(775) 287-4678	(775) 861-6337	
U.S. Forest Service - Inyo National Forest (Lee Vining)	(760) 647-3044		
U.S. Forest Service - Toiyabe National Forest (Carson City)	(775) 883-5995	(775) 331-6444 (8-5PM)	
U.S. Forest Service - Toiyabe National Forest (Bridgeport)	(760) 932-7070		

Contact Number List

Agency	Emergency No.	Business No.	Comments
U.S. Geological Survey	(775) 887-7600		**Recording with options**
U.S. Occupational Safety and Health Agency USOSHA	(800) 475-4020	(800) 321-6742	
Underground Service Alert (USA)	(800) 227-2600		
Union Pacific Railroad	(402) 544-7822	(888) 877-7267	
Universal Environmental,Inc.,Sparks,NV (Spill Contractor)	(775) 351-2500	(775) 351-2500	
Walker River Piute Tribe	(775) 773-2002		
Washo Tribe		(775) 265-4191	
Washoe County Environmental Health	(775)328-2436	(775) 328-2434	**Rollover after 5PM**
Washoe Medical Center (Reno)	(775) 982-4144	(775) 982-4100	

Carson River Corridor Maps – List of Maps

* CA Detail Maps #4-7 show areas along the Walker River and can be found in the Walker River Geographic Response Plan.

River Response Strategies

INTRODUCTION

Whenever spilled oil enters water it begins to spread quickly. In flowing water, oil will travel downstream with the current causing even more widespread environmental damage. Oil damages wildlife and their habitats by coating the surface of any thing the oil contacts; soil, vegetation, rocks, feathers and fur. The more area contaminated, the greater the environmental injury, the more time needed for cleanup, and the greater its cost. Environmental injury and cleanup cost can be minimized by taking prompt, effective action to contain spilled oil and minimize its dispersion in the environment.

A chemical release into the river is likely more difficult to respond to, due to the fact that the chemical involved may be miscible in water or may sink in water. Depending on the physical properties of the chemical released, it is likely that booming strategies described here for responding to petroleum, may not be relevant. However, other strategies may be of use, such as closing intakes to surface water ditches.

This plan has been prepared as an aid to first responders to a petroleum spill or chemical release that threatens the waters of the Carson River system. Selection of response sites was based on the suitability of that location for diversion, containment, collection, and removal of spilled products. Site selection criteria used included access for response personnel and equipment, stream morphology and gradient, and development of a feasible, workable site-specific response strategy.

This River Response Strategy section contains the following information:

- A brief description of the types of spill containment equipment typically used;
- Historical hydrologic flow data for the Carson River;
- Identification of specific booming sites and strategies which can be employed to deploy spill containment and recovery devices.

With regard to identification of specific booming sites and strategies, there are several considerations which need to be kept in mind:

- Many (if not most) of the sites identified are on private property. This version of the Carson River Geographic Response Plan does not identify private property owners; although it is possible that this type of information could be included in subsequent versions of the plan, if the parties involved believe this is appropriate. As such, responders need to follow the appropriate procedures for obtaining access to private property. One of these steps may include contacting the Water Master and requesting assistance in contacting the appropriate property owners.

- Flow conditions in the Carson River system vary tremendously throughout the season, as a function of precipitation, snow-melt, and agricultural diversions. As such, the booming sites and strategies identified here may or may not be appropriate depending on the flow conditions. For example, a site that is boomable at low flow conditions may not be boomable at higher flow conditions. Similarly, the strategy employed at a specific location will likely change depending on the flow of the river. Again, the Water Master is likely a valuable source of information regarding flow conditions on the river and regarding the status of agricultural diversions.

- Boom sites are identified sequentially for each river. First, sites along the West Fork of the Carson River are identified. Since a significant portion of West Fork water is diverted into the Brockliss Slough, sites along the Brockliss Slough are identified next. Sites along the East Fork of the Carson River are identified after this. Finally, sites along the Carson River, after the confluence of the East Fork and West Fork are identified. Boom sites are not identified for the myriad of agricultural ditches in the Carson Valley; however the location of many of these ditches is identified in an aerial photograph of the Carson Valley that is included in this plan. The intake locations, for several of the larger irrigation ditches (such as the Fredericksburg, Brockliss, Allerman, Rocky/Virginia, and Cottonwood) are identified in the site strategies section. Again, the Water Master is likely the best source of information regarding the current status of the of the irrigation ditches. The Water Master would also be the person responsible for determining if it is necessary or appropriate to close an irrigation ditch, to prevent if from becoming contaminated.

OIL CONTAINMENT AND COLLECTION DEVICES

Containment boom (also called hard boom or curtain boom)

Features of typical containment boom: constructed of PVC-coated fabric; a top tension cable sealed in fabric and connected to aluminum 'universal' end connectors; flotation of closed-cell foam sealed within the PVC fabric; a 'skirt' of the same fabric which extends below the water surface; chain ballast in an open pocket along the length of the skirt; aluminum 'universal' end connectors at each end to join 50 ft lengths of boom into longer sections; oiled boom can be cleaned and re-used. Containment boom for river application should have 4 inch (diameter) flotation and a 6 inch skirt (vertical measurement). Flowing water will exert a substantial force against the submerged skirt so the boom must be secured with strong anchor points at each end. Avoid use of boom with larger flotation and deeper skirt. Containment boom is essential for oil spill containment and collection; sorbent boom is not a substitute for containment boom.

Sorbent boom (also called sausage boom)

Features of typical sorbent boom: constructed of melt-blown or shredded polyethylene (same as sorbent pads or 'diapers'); collects oil by absorbing product into the body of the boom like a sponge; sorbent material is generally contained in a net or sock, usually about 10 ft long and 4 to 6 inches in diameter; usually with a snap and ring near each end so that when the snap of one is connected to the ring of another, the two overlap along side each other so that no space occurs between them that could allow oil to escape; very effective for recovery of light petroleum products like gasoline, diesel fuel, or home heating oil; not a substitute for containment boom.

Oil snare (also called pom-pom)

Features of oil snare; constructed of a multitude of polyethylene plastic strands bound in a bundle; come separate (pom-pom) or on a 50 ft rope with about 20 units attached (oil snare *or* snare boom); collects oil by adsorbing product *or* sticking it to the surface of plastic; these devices work well with heavy oil (i.e. #6 fuel oil). Each unit will collect about 50-60 times its weight in heavy oil. The snare is inefficient for recovery of light oils and thus is not recommended for recovery of products like diesel fuel.

SITE SELECTION AND BOOM DEPLOYMENT

Boom is generally most easily deployed and most effective in areas where the water moves slowly. In streams, the water moves slowest in long pools where the water is deep and the stream gradient is low. Oil should be collected at an easily accessible location out of the main stream water flow where there is little current. Generally, such an oil collection location will be along one bank near the downstream end of a pool, on the inside of a bend in the river or where a natural eddy occurs. Boom should be deployed at about a 30 degree angle across the current and it should be taut; the boom will not contain and collect oil if it is deployed in a 'U' or 'J' shape. The skirt of the boom must hang freely below the floatation along its entire length. If the skirt breaks the water surface because of some obstruction (log or rock), or if rope is tied around the floatation and skirt, or if the skirt is lifted out of the water near the end connector when tying the boom to an anchor point, the boom will fail to contain oil. In addition, at the collection point, the boom must be secured into the soil or gravel of the bank so that there is no way for collected oil to leak past, around, or under the boom. We recommend 3/8 inch polypropylene line be used to secure booms and anchors. When all these are done properly, that is when the boom is deployed at a shallow angle to the flow of water, it is taut and well anchored to the banks with no leaks at the collection point, floating oil will be carried along the upstream face of the boom and into the slow-moving water of the collection point along the bank where the accumulated oil can be removed.

CASCADE BOOM SYSTEM

Containment boom can be less difficult to set and more effective if deployed in 'cascade' fashion. Two or more short boom lengths are used to span the river rather than one long continuous boom. Each boom segment is deployed to span a portion of the river so

that oil streaming off the downstream end of one boom is captured by the next boom just downstream. The last boom downstream has a containment point against the bank arid out of the main current just as other boom sets do. The advantage of a cascade system is that the short lengths of boom create less drag in the water and are easier to set than a single long diversion boom. Also, cascade systems can work well in a site that is not adequate for a single diversion boom. The disadvantage is that more rope and anchor points are required and therefore more of the stream bank must be accessible.

STREAM FLOW DATA

The following stream flow data was obtained from the U.S.G.S. and may be of use to the responder in selecting booming locations based on stream flow discharge and measured travel times. Real-time stream flow data can be obtained from the U.S.G.S. web page at http://nevada.usgs.gov (click on “data,” then click on “water data,” then click on “real-time stream flow”). Historic mean monthly stream flows are also available on this web page and are summarized in the table below:

Historic Mean Monthly Stream Flows – Carson River (cubic feet per second)													
Location	Time-frame	Jan	Feb	March	April	May	June	July	August	Sep	Oct	Nov	Dec
East Fork Markleeville, CA	1960-2004	191	203	286	547	1,124	977	384	141	86.5	78.0	107	130
East Fork Gardnerville, NV	1890-2004	192	224	307	607	1,193	1,013	408	152	104	98.4	138	175
West Fork Woodfords, CA	1900-2004	52.7	56.2	78.3	207	374	256	104	47.5	30.4	26.9	39.4	46.1
Carson River Carson City, NV	1939-2004	364	386	418	604	1,181	946	258	56.8	45.8	95.8	203	281
Carson River Dayton, NV	1994-2004	853	505	739	673	1,310	1,069	369	65.6	22.4	49.6	153	282
Carson River Ft. Churchill, NV	1911-2004	337	389	413	561	1,097	959	249	33.4	16.9	60.9	172	266
Carson River below Lahontan Reservoir Fallon, NV	1966-2004	127	162	254	640	931	1,016	932	817	599	324	125	47.3
Carson River at Tarzyn Road Fallon, NV	1985-2004	38.9	48.9	69.4	29.1	99.5	105	33.8	14.8	11.2	8.93	6.20	4.52

DESCRIPTION OF SITE PAGE HEADINGS

Site: The number and name of the site; corresponds to the site number on the attached maps.

Site Rank: Sites are ranked as A. B. or C. Sites ranked 'A' have a number of ,good attributes; 'B' sites have at least one disadvantage; 'c' sites have more than one drawback but may be used, depending on the spill circumstances.

'A' sites have the following attributes: good stream morphology for boom placement and collection of oil; good access for deploying the boom for recovery of oil contained by the boom, and for boom maintenance; support vehicles and other equipment can be brought reasonably near the site; the site is a safe work place for response personnel. 'B' sites lack at least one of these; 'C' sites will lack several of these.

Sensitive Site: Indicates if the site is sensitive to ecological and/or archeological concerns.

Directions to Site: How to locate the site; includes highway mileposts or notable landmarks.

Stream Width: Indicates the stream width in feet at the site.

Boom Requirements: The minimum amount of containment boom necessary to fulfill the described deployment strategy using an angle of about 30 degrees across the river. The mistake made most often when setting boom is that oil containment or collection devices (hard boom, sorbent boom also called sausage boom, and pom-poms or oil snare) is deployed from one side of the river directly across to the opposite bank. As a result, the boom takes on a 'U' shape. Oil tends to collect in the center where the current is strongest, and eventually entrains beneath (washes under) the boom, and is carried further downstream.

Site Strategy: A general description of the site is provided, including its attributes and drawbacks. The boom deployment strategy is described including placement of the upstream and downstream boom anchor points (using site landmarks if possible).

Comments: Notes regarding other pertinent information about the site

USGS 7.5 min Quad: Identifies the name of the appropriate 7.5 min USGS Quad

Coordinates: Latitude and longitude of the site; for use with GPS navigation instruments.

Site: **West Fork Carson River Site WF1 – Hope Valley Highway 88**
(Photo taken from bridge, looking downstream)

Site Rank: A **Sensitive Site**: No

Directions to Site: From the intersection if Highway 88 and 89 in Hope Valley, CA, proceed 1 mile west on 88 to Bridge 31-14. This location is in California.

Stream Width: 40 ft. **Boom Required**: 200 ft. (minimum)

Site Strategy: The river meanders through Hope Valley, with a relatively gentle gradient. There are a number of boomable locations in the valley. The first accessible booming location in Hope Valley is near the western end of the valley, where the river crosses Highway 88. The booming location is just downstream from the bridge, with the collection point being on the north side of the river. There is a parking area just west of the bridge.

Comments: This is the furthest upstream booming location identified for the West Fork of the Carson River. From its headwaters, this is the first time the West Fork crosses a major highway (88). The West Fork does parallel Blue Lakes Road upstream from here, but this road primarily handles recreational traffic headed to Blue Lakes.

USGS 7.5 min Quad: Freel Peak

Coordinates: N 38 46.301 W 119 56.098

Site: **West Fork Carson River Site WF2 – Hope Valley Highway 89**
(photo taken from bridge, looking downstream)

Site Rank: A **Sensitive Site**: No

Directions to Site: From the intersection if Highway 88 and 89 in Hope Valley, CA, proceed 0.1 miles north on 89 to Bridge 31-17. This location is in California.

Stream Width: 40 ft. **Boom Required**: 200 ft. (minimum)

Site Strategy: The river meanders through Hope Valley, with a relatively gentle gradient. There are a number of boomable locations in the valley. A second accessible location is present where the river crosses Highway 89. The booming location is just downstream from the bridge. There is a parking on the shoulder near the bridge.

Comments: To the east of this location, the river enters the Carson Canyon for the next 5 miles. The river gradient in the canyon is steep, and there are few boomable locations. During lower flow conditions there may be small pools that could be boomed.

USGS 7.5 min Quad: Freel Peak

Coordinates: N 38 46.675 W 119 55.138

Site: **West Fork Carson River Site WF3 – Diamond Valley Road**
(photo taken from bridge, looking downstream)

Site Rank: A **Sensitive Site**: No

Directions to Site: From the intersection if Highway 88 and 89 in Hope Valley, CA, proceed east on Highway 88 through the canyon to Diamond Valley Road. Turn right (south) on Diamond Valley Road and go 0.1 miles to Bridge. **OR** From Highway 88 and 395 intersection in Minden, go 10.5 miles south on S.R. 88. Turn left (south on Diamond Valley Road). This location is in California.

Stream Width: 40 ft. **Boom Required**: 200 ft. (minimum)

Site Strategy: This is the first potential booming location downstream of the Carson Canyon; although at high flows this location may not be boomable. There is a diversion dam approximately 60 yards downstream from the bridge. The booming location is between the dam and bridge. The collection point is on the north side of the river. There is a large ditch gate associated with the overflow dam here. The ditch gate would be a good collection point. This ditch gate controls flow into the Fredericksburg Ditch which is one of two major irrigation ditches associated with the West Fork (the other being the Brockliss Slough). The majority of water in the West Fork is diverted into these two ditches leaving only a small amount of water to flow into the true channel of the West Fork. Typically during irrigation season, diversion into the Brockliss Slough and the Fredericksburg Ditch will alternate by week.

Comments: The ditch gate is padlocked at this location. There is ample parking along the road on the north bank of the river. There is a private residence on the south bank. Both banks are fairly heavily vegetated, but still accessible.

USGS 7.5 min Quad: Woodfords

Coordinates: N 38 48.522 W 119 46.631

INSERT SITE HERE FOR CONFLUENCE OF BROCKLISS SLOUGH AND THE WEST FORK

This information has not yet been obtained, since the property owner has not granted access to the property.

SITE BR-1

Site: **Brockliss Slough Site BR2 – Dressler Road**
(photo taken from bridge, looking upstream)

Site Rank: A **Sensitive Site**: No

Directions to Site: From Highway 88 and 395 intersection in Minden, go 6.5 miles south on S.R. 88. Turn left (east) on Dressler and go 1.0 mile, to across the river. This site is in Nevada.

Stream Width: 40 ft. **Boom Required**: 200 ft. (minimum)

Site Strategy: There is a diversion dam approximately 40 yards downstream from the bridge, which backs the water up. The best booming location is on the upstream side of the bridge. Anchor the upstream end of the boom on the west side of the river. The collection point is on the east side of the river, just upstream from the bridge.

Comments: This site is on the Brockliss Slough, which is carries the majority of West Fork water. The West Fork carries little water after the Brockliss Slough diversion, which is upstream of this location. There is decent access to the slough at this location; although there is a barbed-wire fence present. There is another bridge about a half-mile upstream, which could also be used as a booming location if needed.

USGS 7.5 min Quad: Woodfords/Minden

Coordinates: N 38 52.013 W 119 45.631

Site: Brockliss Slough Site BR3 - Highway 88 Bridge South
(photo taken from bridge, looking downstream)

Site Rank: A **Sensitive Site**: No

Directions to Site: From Highway 88 and 395 intersection in Minden, go 4.9 miles south on S.R. 88 to bridge B-576.

Stream Width: 80 ft **Boom Required**: 300 ft (minimum)

Site Strategy: Locations upstream and downstream of the bridge could be used for booming; although the downstream location is preferred. There is a diversion dam approximately 30 yards downstream from the bridge, which backs the water up. There is a ditch gate on the west side of the river, downstream from the bridge which would be an excellent collection point. Anchor the upstream end of the boom on the east bank, near the bridge.

Comments: This diversion is referred to as the Bart Cary diversion. Parking in available on the shoulder of Highway 88.

USGS 7.5 min Quad: Minden

Coordinates: N 38 53.330 W 119 46.753

Site: Brockliss Slough Site BR4 – Centerville Lane
(photo taken from side of West Fork Vista, looking upstream)

Site Rank: A **Sensitive Site**: No

Directions to Site: From Highway 88 and 395 intersection in Minden, go 3.4 miles south on S.R. 88. Turn right (west) on Centerville Lane and proceed 1.2 miles. Turn right (north) onto West Fork Vista and proceed 0.2 miles.

Stream Width: 50 ft **Boom Required**: 200 ft (minimum)

Site Strategy: This site is located on the Brockliss Slough. This is a relatively narrow section of water, within a well-defined channel. Anchor upstream end of boom on east side of river. The collection point is on the west side of the river, adjacent to wide shoulder on the road.

Comments: There is a small diversion dam located just downstream from this location, so water tends to back up and move slowly here. There is a wide shoulder on the road adjacent to the west bank of the river, allowing room for equipment.

The true course of the West Fork is present about a mile to the east of West Fork Vista along Centerville. It looks like a small irrigation ditch at the point where it crosses Centerville. About a mile to the west of West Fork Vista there is another ditch which crosses Centerville. This is referred to as the Big Ditch. It originates in the fields south of Centerville, and it does not carry West Fork or East Fork water.

USGS 7.5 min Quad: Minden

Coordinates: West Fork @ Centerville (N 38 54.624, W 119 47.522), Brockliss Slough Centerville Site BR4 (N 38 54.726, W 119 48.176), Big Ditch @ Centerville(N38 54.634, W 119 47.512)

Site: Brockliss Slough Site BR5 – Mottsville Lane Bridge 1330
(photo taken from bridge, looking downstream)

Site Rank: A **Sensitive Site:** No

Directions to Site: From Highway 88 and 395 intersection in Minden, go 2.5 miles south on S.R. 88. Turn right (west) on Mottsville Lane. Proceed 1.4 miles to Bridge 1330.

Stream Width: 50 ft **Boom Required**: 200 ft (minimum)

Site Strategy: There is good access to downstream side. There is a diversion dam 100 yards downstream from the bridge, which causes the water to back up. There is a ditch gate on the west bank on the downstream side of the bridge. This gate would be an excellent collection point. Anchor upstream end of boom to east bank, upstream of bridge. Collection point is on the west bank, just downstream of the bridge at the ditch gate.

Comments: Proceeding east to west on Mottsville Lane from Highway 88, the following ditches are crossed (the mileage is given from Highway 88 and bridge numbers are provided): West Fork – B1492 (1.1 miles), Brockliss Slough - B1330 (1.4 miles), Johnson Slough (2.0 miles), Big Ditch – B1491 (2.2 miles). Along Mottsville, the West Fork is carrying very little water and it is not described here as a booming location. The Johnson Slough carries water that is collected from the fields to the south of Mottsville and also carries water that is diverted from the Brockliss. As such, for a spill impacting the Brockliss, it might be appropriate to consider closing the intake into the Johnson Slough. The Big Ditch collects water from the fields south of here, and does not carry water from the West Fork or East Fork.

USGS 7.5 min Quad: Minden

Coordinates: West Fork @ Mottsville (small ditch), Brockliss Slough @ Mottsville Site BR5 (N38 55.929, 119 48.436), Johnson Slough @ Mottsville (N 38 55.936, W 119 49.830), Big Ditch @ Mottsville (N 38.55.943, W 119 49.305)

Site: Brockliss Slough Site BR6 – Muller Lane Bridge 474
(photo taken from bridge, looking upstream)

Site Rank: A **Sensitive Site**: No

Directions to Site: From Highway 88 and 395 intersection in Minden, go 0.6 miles north on S.R. 395.Turn left (west) on Muller Lane. Proceed 2.7 miles to Bridge B474.

Stream Width: 10 ft **Boom Required**: 50 ft (minimum)

Site Strategy: The Brockliss Slough is split into two ditches at Muller Lane. The East and West Brockliss ditches are separated by 0.2 miles. For convenience, these two ditches are both described on this page (although the picture here is of the East Brockliss). Both are small ditches which could be easily boomed in the vicinity of the bridges which cross over them.

Comments: Proceeding east to west on Muller Lane from Highway 88, the following rivers/ditches are crossed (the mileage is given from Highway 88 and bridge numbers are provided): East Fork Carson River – B477 (1.0 miles), Home Slough – B476 (1.7 miles), West Fork Carson River – B465 (2.0 miles), VanSickle Ditch (1.7 miles), East Brockliss Slough – B474 (2.7 miles), West Brockliss Slough (2.9 miles). The East Fork booming location on Muller Lane is described in a subsequent page. The Home Slough carries East Fork water that is diverted from the East Fork via the Rocky ditch. The West Fork and the VanSickle ditch along Muller also carry East Fork water that is diverted from the East Fork via the Rocky ditch. At Muller Lane, the West Fork and VanSickle ditch are separated by about 50 yards. The West Fork and VanSickle ditch merge just north of Muller Lane. Separate booming strategies are not provided for the Home Slough, West Fork, and Van Sickle on Muller Lane, but these are all small ditches which could easily be boomed.

USGS 7.5 min Quad: Minden

Coordinates: East Fork @ Muller (N 38 58.248, W 119 47.934), Home Slough @ Muller (N 38 58.255, W 119 48.796), West Fork @ Muller (N 38 58.251, 119 49.046), East Brockliss @ Muller Site BR6 (N 38 58.265, 119 49.907), West Brockliss @ Muller(N 38 58.266, 119 50.120)

Site: Brockliss Slough Site BR7 – Genoa Lane Bridge 1240
(photo taken from bridge, looking upstream)

Site Rank: A **Sensitive Site**: No

Directions to Site: From Highway 88 and 395 intersection in Minden, go 2.4 miles north on S.R. 395. Turn left (west) on Genoa Lane, go 2.5 miles to B1240 which crosses the East Brockliss Slough. Go another 0.3 miles to the West Brockliss Slough.

Stream Width: 40 ft **Boom Required**: 100 ft (minimum)

Site Strategy: The Brockliss Slough is split into two ditches at Genoa Lane. For convenience, booming strategies for both ditches are described on this page, although the East Brockliss is shown in the photograph on this page. Both ditches are about 40 feet wide and the water is very slow moving in both due to diversion dams located downstream of the bridges. Locations upstream and downstream of the bridges over each of the ditches could easily be boomed.

Comments: Proceeding east to west on Genoa Lane from Highway 88, the following ditches are crossed (the mileage is given from Highway 88 and bridge numbers are provided): East Fork Carson River – B1239 (? Miles), East Brockliss Slough – B1240 (? Miles), West Brockliss Slough (? Miles). The booming strategy for the East Carson River at Genoa Lane is provided in a subsequent page.

USGS 7.5 min Quad: Genoa

Coordinates: East Brockliss @ Genoa Site BR7(N 39 59.919, W 119 49.611); West Brockliss @ Genoa (N 38 59.869, W 119 49.435)

Site: East Fork Carson River Site EF1- Hangman's Bridge
(photo taken from bridge, looking downstream)

Site Rank: C **Sensitive Site:** No

Directions to Site: From Highway 88, take Highway 4 nine miles through Markleeville, CA to Hangman's Bridge (B 31-01). This site is located in California.

Stream Width: 80 ft **Boom Required**: 300 ft (minimum)

Site Strategy: Flow here is fast, and this location is likely boomable only at lower flows. The bridge allows access to both sides of the river; however access to the river is marginal here. The booming location is downstream from the bridge.

Comments: Silver Creek, a tributary to the East Fork of the Carson River, follows Highway 4 for several miles before joining the East Fork southwest of Markleeville. The East Fork then continues to follow Highway towards Markleeville. Markleeville Creek flows through the town of Markleeville, and joins the East Fork near town. The river gradient here is steep, and booming in the East Fork and its tributaries would only be possible at lower flows. Depending on flow conditions, there may be several pools that are boomable along Highway 4; however Hangman's Bridge is the only location identified here. After Hangman's Bridge, the East Fork leaves the road and is not readily accessible again until the Rhuenstroth Dam, more than twenty miles downstream. Highway 4 west of Monitor Pass is typically closed from November through April, and does not receive much truck traffic.

USGS 7.5 min Quad:

Coordinates: N 38.41.394 W 119 45.942

Site: East Fork Carson River Site EF2- Rhuenstroth Dam
(photo taken from overlook, facing upstream, dam is just downstream of this photo)

Site Rank: C **Sensitive Site:** No

Directions to Site: Highway 395 south through Gardnerville . Approximately 3 miles south of 7-11 store, turn right (west) onto dirt road. Proceed 0.5 miles on dirt road to dam. This site is in Nevada.

Stream Width: 150 ft **Boom Required**: 600 ft (minimum)

Site Strategy: The river is wide and fast moving at this location. It is likely not boomable at high flows, but may be boomable at lower flows. Anchor upstream end of boom on west side of river. The recovery point is on the east side of the river.

Comments: This is the first accessible area downstream of an approximately 20 mile stretch of the river. The next accessible upstream location is along Highway 4 near Markleeville, CA. The river gradient in the vicinity of Highway 4 is steep, and may not be suitable for booming under moderate and high flow. There is abundant parking near the dam. There is also a boat ramp and bathroom. Responders need to be careful working near the water at this location, as there is a relatively large overflow dam, immediately downstream.

USGS 7.5 min Quad: Gardnerville

Coordinates: N 38.52.340 W 119 41.536

Site: East Fork Carson River Site EF3- Allerman Canal
(photo taken facing upstream, ditch gate is left of dam)

Site Rank: A **Sensitive Site:** No

Directions to Site: Highway 395 south through Gardnerville, past 7-11 store. Turn right into Lahontan Fish Hatchery. Go through north side of hatchery parking lot, over bridge, turn left and proceed 0.2 miles south on dirt road to gate.

Stream Width: 160 ft **Boom Required**: 500 ft (minimum)

Site Strategy: This is a critical location for capturing contamination introduced into the East Fork in California. This would be the best location to capture contamination before it enters downstream locations in the Carson Valley. Boom could be placed across the river, upstream of the dam, anchoring on the west bank and using the area around the ditch intake on the east bank as a collection point.

Comments: The Allerman Ditch is one of the main diversions on the East Fork, the other two being the Rocky/Virginia and the Cottonwood which are downstream from here. A significant portion of the river is diverted into the Allerman Ditch, which is used to irrigate property on the east side of the Carson Valley. Any remaining water from the Allerman Ditch is returned to the Carson River via Ambrosetti Pond near the north end of the Carson Valley.

USGS 7.5 min Quad: Gardnerville

Coordinates: N 38.53.031 W 119 41.688

Site: East Fork Carson River Site EF4- Rocky/Virginia Ditch
(photo taken from west bank, looking across dam)

Site Rank: A **Sensitive Site:** No

Directions to Site: Highway 395 south through Gardnerville. Turn right at the 7-11 store onto Riverview Drive. Proceed past the golf course and turn left onto Fairway Drive. Go 0.2 miles to the golf course maintenance facility, which is on the left. Access to the site is through the golf course, past the green for the 15th hole.

Stream Width: 120 ft **Boom Required**: 500 ft (minimum)

Site Strategy: There is a large diversion dam at this location. The diversion to on the east side of the river is the Virginia Ditch; while the diversion to the west is the Rocky Slough. Both diversions have operable gates. The river is generally wide and slow at this location. The best collection point is on the west side, near the intake for the Rocky slough. There is also good access on the east side of the river to the intake for the Virginia Ditch intake. Access to the east side is through Washo Tribal land via a dirt road behind the 7-11 store.

Comments: It is possible to drive to within 20 yards of the intake for the Rocky Slough; however, this involves driving through the golf course. The Virginia Ditch and Rocky Slough, along with the Allerman Ditch and Cottonwood Ditch, are the main diversions on the East Fork. Any remaining water from these ditches is returned to the Carson River after passing through Ambrosetti Pond in the northern part of the Carson Valley.

USGS 7.5 min Quad: Gardnerville

Coordinates: N 38.54.564 W 119 42.967

Site: East Fork Carson River Site EF5- Cottonwood Ditch
(photo taken from west bank, looking upstream)

Site Rank: A **Sensitive Site:** No

Directions to Site: Highway 395 south through Gardnerville. Turn right (west) at the 7-11 store, onto Riverview Drive (a.k.a. Dresslerville Road). Proceed 2.0 miles and turn right (north) onto Centerville Lane. Go 0.5 miles on Centerville, and turn right (east) onto dirt road. Follow dirt road 0.5 miles toward large brown barn. Past barn, continue another 0.5 miles toward river (arch bridge). There is a diversion dam located on the river 0.1 miles south of the bridge.

Stream Width: 150 ft **Boom Required**: 500 ft (minimum)

Site Strategy: There is a large diversion dam at this location. The diversion on the west side of the river is the Henningsen Ditch; while the diversion on the east side of the river is the Cottonwood Ditch. The best collection point is upstream of the dam, on the west side. Use the area in the vicinity of the ditch intake, for a collection point. Anchor, on the east bank, 150 yards upstream from the dam.

Comments: The Cottonwood Ditch, along with the Rocky/Virginia and the Allerman Ditch, are the main diversions on the East Fork. Most water diverted from these ditches is returned to the Carson River after passing through Ambrosetti Pond in the northern part of the Carson Valley. The Henningsen ditch flows towards the West Fork, but typically runs out of water before reaching the West Fork.

USGS 7.5 min Quad: Gardnerville/Minden

Coordinates: N 38.55.273 W 119 43.864

Site: East Fork Carson River Site EF6 – Lutheran Bridge
(photo taken from bridge, looking upstream)

Site Rank: A **Sensitive Site**: No

Directions to Site: Highway 395 south through Gardnerville. Turn right (west) on Waterloo Lane (a.k.a. Lampe), proceed 0.5 miles to intersection with Centerville Lane. Turn left (south) and Centerville and go 0.1 miles to Lutheran Bridge. There is a dirt turnoff on the east side of the road, just north of the bridge.

Stream Width: 110 ft **Boom Required**: 500 ft (minimum)

Site Strategy: The booming site is upstream of the bridge. The river widens and slows at this location. Anchor upstream end of boom to west side of river. Collection point is on the east side of the river, just upstream from the bridge.

Comments: Excellent river access on east bank of the river, just upstream of the bridge. Vehicles and equipment can be brought close to river. There is foot access on the west side of the river upstream of the bridge. Exercise caution at this location, as there is a rock overflow dam, downstream of here. There is also county owned property just downstream of this location which could be utilized. This county owned property is just to the north, across Centerville.

USGS 7.5 min Quad: Gardnerville/Minden

Coordinates: N 38 55.840 W 119 44.828

Site: East Fork Carson River Site EF7 – Highway 88 North (near Swim Center)
(photo taken from bridge, facing upstream)

Site Rank: A **Sensitive Site:** No

Directions to Site: From Highway 88 and 395 intersection in Minden, go 1 mile south on S.R. 88 to Bridge (B-553).

Stream Width: 70 ft **Boom Required**: 400 ft (minimum)

Site Strategy: There are good booming locations both upstream and downstream of the bridge. The upstream location is more accessible, but the downstream location would be useful for a spill at the bridge. For the upstream location, there is a gate and road on the north side of the bridge. The collection point would be on the east side of the river just upstream of the bridge. The downstream location is about 250 yards downstream from the bridge. This area is accessed through a gate on the north side of the bridge. It is necessary to drive along the levy for about 100 yards before dropping down onto the floodplain. The collection point is on the east side of the river.

Comments: There is adequate parking on the shoulder of the highway. The bridge allows for access to both sides of the river.

USGS 7.5 min Quad: Minden

Coordinates: N 38 56.776 W 119 46.745

Site: East Fork Carson River Site EF8 – Ironwood
(photo taken from east bank, looking upstream)

Site Rank: B **Sensitive Site**: No

Directions to Site: From Highway 88 and 395 intersection in Minden, go 0.4 miles south on S.R. 88. Turn right (west) onto Westwood and proceed 0.4 miles. Turn left onto Cedarwood and proceed 0.4 miles.

Stream Width: 70 ft **Boom Required**: 300 ft (minimum)

Site Strategy: Anchor upstream end of boom on west side of river. Collection point is on east side of river, along rip rap. Limited access to west bank of river, and rocky collection point, make this site less desirable.

Comments: Access to east bank of the river is at end of cul-de-sac through private property. There may be access to the west bank through Park Cattle Company, but would have to travel to Muller Lane for access.

USGS 7.5 min Quad: Minden

Coordinates: N 38 57.734 W 119 47.309

Site: East Fork Carson River Site EF9 – Muller Lane Bridge B477
(photo taken from bridge, looking downstream)

Site Rank: A **Sensitive Site**: No

Directions to Site: From Highway 88 and 395 intersection in Minden, go 0.6 miles north on S.R. 395. Turn left (west) on Muller Lane and proceed 1.2 miles to Bridge B477.

Stream Width: 105 ft **Boom Required**: 600 ft (minimum)

Site Strategy: There is excellent access to the river. There is gated road on the east side of the river, both upstream and downstream. Booming location is upstream of bridge. The bend in the river, causes water to be pushed towards the west bank. Anchor upstream end of boom on east side of river. Collection point is on west side of river.

Comments: Bridge allows access to both sides of the river. Access to the west bank is very good**.** Access is through Park Cattle Company property. Along Muller Lane there is access to both the East and West forks of the Carson River.

USGS 7.5 min Quad: Minden

Coordinates: N 38 54.244 W 119 47.309

Site: Carson River Site CR1 – Genoa Lane
(photo taken from bridge, looking downstream)

Site Rank: A **Sensitive Site**: No

Directions to Site: From Highway 88 and 395 intersection in Minden, go 2.4 miles north on S.R. 395. Turn left (west) on Genoa Lane, go 2.4 miles to Bridge B-1239 over the Carson River.

Stream Width: 105 ft **Boom Required**: 500 ft (minimum)

Site Strategy: The river channel is well defined here, and the river flow is relatively slow. The best booming location is just downstream from the bridge. Access is relatively limited, but sufficient. The collection point is on the east bank.

Comments: East Fork and West Fork merge just upstream (approximately 150 yards) of this location. This is the first booming location after the confluence of the two forks.

USGS 7.5 min Quad: Genoa

Coordinates: N 38 59.875 W 119 49.441

Site: Carson River Site CR2 – Genoa Lakes Golf Course #1
(photo taken from west bank, looking upstream)

Site Rank: A **Sensitive Site**: No

Directions to Site: At intersection of Highway 395 and Jacks Valley Road (Target, and Home Depot) turn west onto Jacks Valley Road. Proceed south to the Genoa Lakes Golf Course (second golf course). Turn east into golf course and proceed to the maintenance area.

Stream Width: 120 ft **Boom Required**: 500 ft (minimum)

Site Strategy: Booming location is upstream of the bridge. Anchor upstream end of boom to east bank. Collection point is on the west bank, just upstream of the bridge.

Comments: This site is just downstream from the confluence of the Carson River and Brockliss Slough. Access is through the Genoa Lakes Golf Course. It is necessary to follow the cart path to the river. Call (775) 782-0063 for access. Equipment and vehicles can be brought to the west bank via the golf cart path. There is a bridge over the river, which provides access for personnel to the east bank.

USGS 7.5 min Quad: Genoa

Coordinates: N 38 00.556 W 119 49.702

Site: Carson River Site CR3 – Genoa Lakes Golf Course #2
(photo taken from west bank, looking upstream)

Site Rank: B **Sensitive Site**: No

Directions to Site: See directions for Genoa Lakes Golf Course #1. This second site at the golf course is located downstream of the first site.

Stream Width: 105 ft **Boom Required**: 600 ft (minimum)

Site Strategy: Anchor upstream end of boom to east side of river. Collection point is on west side of river.

Comments: Access to the second site at the golf course is more limited than access to the first site.

USGS 7.5 min Quad: Genoa

Coordinates: N 39 01.033 W 119 49.592

Site: Carson River Site CR4 – Big Bend
(photo taken from west bank, looking upstream)

Site Rank: B **Sensitive Site**: No

Directions to Site: Highway 395 south past Home Depot store. Exit to the west onto Plymouth Drive and immediately turn left onto Hobo Hot Springs. Continue south on Hobo Hot Springs past storage units, through gate into Washo Tribal land. Continue 1 mile on dirt road, turn left after large, metal corral. Go 0.2 miles along corral, at the end of the corral bear to the right near the Quonset hut. Continue 0.4 miles to large gate (with license plates) and then continue another 0.5 miles to a smaller gate. Past this gate, continue 0.4 miles on dirt road (along barb-wire fence). Follow a small dirt road to the left, 0.1 miles to the river.

Stream Width: 105 ft **Boom Required**: 600 ft (minimum)

Site Strategy: The large bend in the river, pushes water towards the west bank. The river flows relatively slowly here. Anchor upstream end of boom on the east bank. Collection point is on the west bank.

Comments: Very large bend in the river at this location. There is a lot of room vehicles and equipment adjacent to the river. Access to the west bank is through Washo Tribal land, along a meandering dirt road. This road may not be passable during wet conditions. During low flows it is possible to wade across the river, but at higher flows a boat would be helpful at this location.

USGS 7.5 min Quad: Genoa

Coordinates: N 39 01.033 W 119 49.592

Site: Carson River Site CR5 – Cradlebaugh Bridge
(photo taken from north-bound bridge, looking downstream)

Site Rank: B **Sensitive Site**: No

Directions to Site: Highway 395 (between Minden and Carson City), 6.0 miles north of intersection of S.R. 88 and 395.

Stream Width: 110 ft **Boom Required**: 600 ft (minimum)

Site Strategy: This is potentially a critical location in the event of a spill on Highway 395. However in the event of a spill at Cradlebaugh Bridge, it is likely that a significant amount of material would move downstream before boom could be deployed at this location There is a good booming location at the river bend just downstream from the bridge. The collection point would be on the east side of the river.

Comments: Access to the downstream location is difficult. There is a gate, just south of the bridge, but there is no road. Responders would have to make their way in through the brush.

USGS 7.5 min Quad: Genoa

Coordinates: N 39 02.912 W 119 46.788

Site: Carson River Site CR6 – Golden Eagle Lane
(photo taken from west bank looking upstream towards former bridge)

Site Rank: A **Sensitive Site**: No

Directions to Site: From Highway 395 (South Carson St.) in the south end of Carson City, turn east onto Snyder Ave. and go 1.9 miles to the intersection with Golden Eagle Lane. Turn right (south) onto Golden Eagle Lane and go 1.1 miles to the intersection with Hobby Horse Lane. Go 0.1 miles further on Golden Eagle Lane to a small, dirt turnout on the right.

Stream Width: 80 ft **Boom Required**: 400 ft (minimum)

Site Strategy: This is potentially a critical location in the event of a spill on Highway 395 at Cradlebaugh Bridge, as it is the first good, accessible booming location downstream of the bridge (other than the previous location which is right at the bridge). At this location, there are the remnants of an old bridge that crossed the river (only the concrete footings remain). The best booming location is just downstream from these footings. The collection point is on the west side of the river. The river is slow and easily boomed at this location. At low to medium flow, it is possible to wade across the river here.

Comments: It is possible to bring vehicles to within about 20 yards of the river. There is excellent foot access to the river bank here.

USGS 7.5 min Quad: McTarnahan Hill/New Empire

Coordinates: N 39 05.977 W 119 43.625

Site: Carson River Site CR7 – Mexican Dam Road
(photo taken from east bank, facing upstream)

Site Rank: A **Sensitive Site**: No

Directions to Site: In Carson City, take 5th St. east from US 395. From the traffic circle at 5th and Edmonds, continue east on 5th St. 0.2 miles. Turn right onto Carson River Rd., which crosses the Carson River at Lloyd's Bridge. Just past the bridge, turn right onto Sierra Vista Lane. Go 3.4 miles on Sierra Vista Lane. Turn right on Arroyo Vista Lane and go 0.2 miles. Turn right on Mexican Dam Rd. and go 150 feet to the end of the road.

Stream Width: 105 ft **Boom Required**: 600 ft (minimum)

Site Strategy: The river has a sweeping bend at this location, with willows and cottonwoods on the east bank. The west bank is more open. Anchor upstream end of boom to west bank of river. The collection point is on the east bank of the river, in vicinity of the large cottonwood tree. No access to far side of river without a boat or a long drive.

Comments: This location is several miles downstream from Cradlebaugh Bridge, and would be excellent for use in a spill at Cradlebaugh.

USGS 7.5 min Quad: McTarnahan Hill/New Empire

Coordinates: N 39 06.629 W 119 42.200

Site: Carson River Site CR8 – Sierra Vista Lane
(photo taken from dirt parking area on east side of river, looking upstream)

Site Rank: B **Sensitive Site**: No

Directions to Site: In Carson City, take 5th St. east from 395. From the intersection of 5th and Edmonds, continue east on 5th St. Take the first right onto Carson River Rd., which crosses the Carson River at Lloyd's Bridge. Just past the bridge, turn right onto Sierra Vista Lane. Go 0.3 miles to dirt parking area on right side of the road.

Stream Width: 135 ft **Boom Required**: 600 ft (minimum)

Site Strategy: Excellent access to east side of river through large dirt parking area. Access to west side of river through Carson River Park. Anchor upstream end of boom to west bank of river. Collection point is on the east bank of the river adjacent to the dirt parking area.

Comments: This location is several miles downstream from Cradlebaugh Bridge, and could be useful for a spill occurring at Cradlebaugh. However this location is also less than a mile downstream of Mexican Dam. The overflow dam would likely cause entrainment of oil, rendering this site less desirable. Boat ramp, rest rooms and additional parking located nearby at Carson River Park.

USGS 7.5 min Quad: McTarnahan Hill/New Empire

Coordinates: N 39 08.359 W 119 42.247

Site: Carson River Site CR9 – Lloyd's Bridge/Carson River Park
(photo taken from bridge, looking upstream)

Site Rank: B **Sensitive Site**: No

Directions to Site: In Carson City, take 5th St. east from 395. From the intersection of 5th and Edmonds, continue east on 5th St. Take the first right onto Carson River Rd., which crosses the Carson River at Lloyd's Bridge. Turn right into Carson River park just before the bridge.

Stream Width: 150 ft **Boom Required**: 600 ft (minimum)

Site Strategy: A bend in the river at this location causes water to be pushed to the east bank. The best access is on the west bank, at the park. Although there are excellent amenities at the park (boat ramp, rest room, parking lot), the Sierra Vista location (just upstream) is likely a better option.

Comments: This location is several miles downstream from Cradlebaugh Bridge, and could be useful for a spill occurring at Cradlebaugh. However this location is also about a mile downstream of Mexican Dam. The overflow dam would likely cause entrainment of oil, rendering this site less desirable.

USGS 7.5 min Quad: McTarnahan Hill/New Empire

Coordinates: N 39 08.512 W. 119 42.360

Site: Carson River Site CR10 – Riverview Park
(photo taken from west bank near pump house, looking upstream)

Site Rank: A **Sensitive Site**: No

Directions to Site: In Carson City, take 5th St. east from US 395 to the traffic circle at the intersection of 5th and Edmonds. Continue east on Edmonds 0.9 miles to Korean Veterans Memorial Park. There is a gated, dirt road on the east side of the park that leads to the river. The gate can be unlocked by contacting Carson City Development Services through Carson City Dispatch at (775) 887-2007. Once through the gate follow the dirt road to the river. This area constitutes Riverview Park, which is owned by Carson City. The dirt road forks to the left and leads to a well pump house. The right fork proceeds directly to the river. Both forks join along the river, forming a loop.

Stream Width: 100 ft **Boom Required**: 600 ft (minimum)

Site Strategy: There are several excellent booming locations along the river here. Depending on the river flow, some locations may be better than others. There is an excellent location adjacent to the pump house that is reached via the left fork in the dirt road. Anchor the upstream end of boom to the east side of the river upstream from the pump house. The collection point is on the west bank, adjacent to the pump house.

Comments: Access to the far bank can be had by driving across Lloyd's Bridge or by use of a boat (or by walking across the river at very low flow conditions).

USGS 7.5 min Quad: New Empire

Coordinates: N 39 09.799 W 119 42.388

Site: Carson River Site CR11 – Deer Run Bridge
(photo taken from west bank, looking upstream)

Site Rank: B **Sensitive Site**: No

Directions to Site: In Carson City, take Highway 50 east to Deer Run Rd. Turn right (south) onto Deer Run. Take dirt road on northwest side of Deer Run Bridge and proceed about 150 yards upstream. This dirt road is in poor condition, but should be passable. Due to the limited access, Riverview Park is a better option.

Stream Width: 150 ft **Boom Required**: 600 ft (minimum)

Site Strategy: Anchor upstream end of boom to east bank. Collection point is on the west bank.

Comments: The bridge allows for access to both sides of the river. Downstream of this location, the river enters Brunswick Canyon. Once in the Canyon, the river gradient steepens significantly.

USGS 7.5 min Quad: New Empire

Coordinates: N 39 10.850 W 119 41.839

Site: Carson River Site CR12 – Brunswick Canyon
(photo taken from dirt parking area on north west bank, looking upstream)

Site Rank: A **Sensitive Site**: No

Directions to Site: In Carson City, take US 50 east to Deer Run Rd. Turn right (south) onto Deer Run. Just before Deer Run Bridge, turn left onto dirt road which follows the river through the canyon and rejoins Highway 50 near Moundhouse. Proceed 1.2 miles east of Bertagnollis pit, to dirt parking area on south side of road, adjacent to river.

Stream Width: 150 ft **Boom Required**: 600 ft (minimum)

Site Strategy: Wide bend in the river at this location. Anchor upstream end of boom to southeast bank. Collection point is adjacent to dirt parking area on northwest bank.

Comments: This is the best location within Brunswick Canyon. The road through the canyon is rough but passable. No easy access to the opposite bank.

USGS 7.5 min Quad: New Empire/Dayton

Coordinates: N 39 10.800 W 119 40.398

Site: Carson River Site CR13 – Dayton Locks
(photo taken from north bank, looking upstream)

Site Rank: A **Sensitive Site**: No

Directions to Site: From Carson City, take US 50 east past Moundhouse. Turn right (south) onto Dorff Rd. Follow Dorff Rd. approximately 2 miles to river.

Stream Width: 130 ft **Boom Required**: 600 ft (minimum)

Site Strategy: There is a large dirt parking area at the end of the road, adjacent to the river. A bend in the river pushes water towards the north bank. Anchor upstream end of boom to south bank. Collection point is on the north bank, adjacent to the dirt parking area. There is a rock overflow dam just downstream of the booming area, which tends to back the water up.

Comments: Dorff Rd. is a dirt road which has several steep and rough sections. A four-wheel drive vehicle is recommended. No access to far side of the river without a boat. At times of low water it may be possible to walk across the rock overflow dam.

USGS 7.5 min Quad: Dayton

Coordinates: N 39 12.011 W 119 37.622

Site: Carson River Site CR14 – Blaise Park
(photo taken from north bank, looking upstream)

Site Rank: A **Sensitive Site**: No

Directions to Site: From Carson City, take US 50 east through Dayton. Past Dayton, turn right onto River Rd. Blaise Park is on River Rd., near the intersection with Vineyard Way. Alternate route is to take US 50 to Cardelli Rd. Go 0.5 miles south on Cardelli, turn right (west) on River Rd. and go 0.6 miles.

Stream Width: 135 ft **Boom Required**: 600 ft (minimum)

Site Strategy: There are several good booming locations in the vicinity of Blaise Park. One is just upstream of the park, where there is a bend in the river. A second location is downstream of the park in a straight stretch of the river. In both cases, anchor the upstream end to the south bank, and set up collection point on the north bank.

Comments: This is the first location downstream from Dayton. There is good access to the river on the north bank. Access to the south bank would involve a long drive. A boat would be helpful at this location.

USGS 7.5 min Quad: Dayton/Flowery Peak

Coordinates: N 39 16.854 W 119 32.255

Site: Carson River Site CR15 – Fort Churchill #1
(photo taken from north bank, looking upstream)

Site Rank: A **Sensitive Site**: No

Directions to Site: Highway 50 east from Dayton to Fort Churchill Road. Proceed 4.8 miles east on Fort Churchill Road.

Stream Width: 180 ft **Boom Required**: 600 ft (minimum)

Site Strategy: There are several cottonwoods and willows to use as anchoring points. Anchor the upstream end of boom to the south bank. The collection point is on the north bank.

Comments: This is the first of three locations along Fort Churchill Rd. A boat would be necessary at this location as there is no access to the south side of the river. The road is within 50 feet of the river bank.

USGS 7.5 min Quad: Misfits Flats/Churchill Butte

Coordinates: N 39 17.332 W 119 25.997

Site: Carson River Site CR16 – Fort Churchill #2
(photo taken looking upstream, from north bank)

Site Rank: A **Sensitive Site**: No

Directions to Site: Highway 50 east from Dayton to Fort Churchill Road. Proceed 5.0 miles east on Fort Churchill Road.

Stream Width: 165 ft **Boom Required**: 600 ft (minimum)

Site Strategy: There are several cottonwoods and willows to use as anchoring points. Anchor the upstream end of boom to the south bank. The collection point is on the north bank, near the large cottonwood with a rope swing.

Comments: This is the second of three locations along Fort Churchill Rd. A boat would be necessary at this location as there is no access to the south side of the river. There is room for equipment parking at this location.

USGS 7.5 min Quad: Misfits Flats/Churchill Butte

Coordinates: N 39 17.316 W 119 25.813

Site: Carson River Site CR17 – Fort Churchill #3
(photo taken looking upstream, from north bank)

Site Rank: A **Sensitive Site**: No

Directions to Site: Highway 50 east from Dayton to Fort Churchill Road. Proceed 12.6 miles east on Fort Churchill Road. Just east of Hodges Transportation property.

Stream Width: 150 ft **Boom Required**: 600 ft (minimum)

Site Strategy: This location is 175 yards upstream of a diversion dam. Anchor the upstream end of boom to the south bank. The collection point is on the north bank.

Comments: This is the third of three locations along Fort Churchill Rd. A boat would be necessary at this location as there is no access to the south side of the river. Turn around for trucks and flat ground for equipment storage.

USGS 7.5 min Quad: Misfits Flat/Churchill Butte

Coordinates: N 39 17.662 W 119 18.876

Site: Carson River Site CR18 – Union Pacific Bridge
(photo taken looking downstream from trestle)

Site Rank: B **Sensitive Site**: No

Directions to Site: From intersection of US 50 and US 95, proceed south on US 95. Just past bridge HOW FAR??, turn right onto dirt onto dirt road. Follow main dirt road for 1.9 miles. Take right fork and go 0.4 miles to railroad trestle.

Stream Width: 125 ft (at trestle) **Boom Required**: 1000 ft (minimum)

Site Strategy: The access to the river is not good here, but in the event of a derailment, boom could be placed downstream of the trestle. Equipment can be parked within about 80 feet of the river, on the downstream side.

Comments: Although access is a little difficult, this would be a critical location in the event of a derailment on the trestle here.

USGS 7.5 min Quad: Silversprings South

Coordinates: N 39 17.168 W 119 16.465

Site: Carson River Site CR19 – US395A Bridge
(photo taken looking upstream, from south bank of river)

Site Rank: A **Sensitive Site**: No

Directions to Site: From intersection of US 50 and US 95, proceed south on US 95 How far??. Turn right on first dirt road south of bridge. Double back towards bridge and pass through barb-wire gate.

Stream Width: 210 ft **Boom Required**: 800 ft (minimum)

Site Strategy: Anchor the upstream end of boom several hundred yards upstream of bridge, on north bank of river. Collection point is on south side of the river.

Comments: This site would be useful in the event of a derailment at the UPRR trestle located upstream. Access to this location may not be possible during wet conditions. There is a large sandy area along south bank of the river.

USGS 7.5 min Quad:

Coordinates: N 39 17.502 W 119 15.178

Carson River Basin – General Information

Introduction to the Carson River

The Carson River Basin encompasses an area of approximately 3,966 square miles in the states of California and Nevada. The basin stretches in a generally north by northeast direction from its headwaters, located in the Sierra Nevada Mountains in Alpine County, on the border between California and Nevada, to its end at Carson Sink, near Fallon, Nevada, located approximately 184 miles away in the Nevada desert.

Approximately 85% of the Carson River watershed (3,360 square miles) is located in western Nevada, primarily in Douglas County, with the remaining 15% (606 square miles) located in California. The Carson River Basin is bounded by the crest of the Sierra Nevada Mountain Range to the south, the Pine Nut Mountain Range to the east, and the Carson Mountain Range to the west. Elevations range from approximately 12,000 feet in the Carson Range to approximately 3,800 feet at the Carson Sink. The Lake Tahoe and Truckee River Basins are adjacent to the Carson River Basin to the northwest. The Walker River Basin lies to the south.

Precipitation patterns in the Carson River watershed vary with elevation but are generally seasonal, with most precipitation falling from late October to early May. Precipitation is typically much heavier at higher elevations. Elevations of less than 4,500 feet typically receive 4 to 8 inches of annual precipitation. Elevations between 4,500 and 9,000 feet typically receive between 8 and 20 inches of precipitation per year. Areas of higher elevation in the Sierra Nevada Mountain Range can receive more than 50 inches of precipitation per year. Precipitation is also higher on the western side of the watershed due to the rainshadow effect of the mountains. The majority of precipitation falls in the 15% of the basin that is located in California; however most of the basin's water consumption occurs in Nevada.

Hydrologic Overview of the Carson River Basin

The major hydrologic features of the upper Carson River Basin include the Sierra Nevada Mountains, which are the primary source of precipitation, a number of lesser upstream storage lakes and tributaries, the East and West Forks of the Carson River, the Carson Valley agricultural area (35,000 acres of irrigated farmland) and the main body of the Carson River which runs through it, and Eagle Valley to the north. The lower Carson River Basin begins in Dayton Valley and includes the Carson Plains, the Lahontan Dam and Reservoir, the Truckee Canal which diverts water from the Truckee River to Lahontan Reservoir, the Carson Diversion Dam and Newlands Irrigation Project, the Lahontan Valley, the Stillwater Wetlands, and the Carson Sink, where the Carson River terminates.

The upper section of the Carson River is divided into two forks (the West Fork and the East Fork), both originating in Alpine County, California. These forks are fed by springs and melting snow, and form the Carson River at their confluence near Genoa, Nevada.

The West Fork of the Carson River is the smaller of the two forks and also has only 1/3 the discharge of the East Fork. It begins near the Lost Lakes, California at an elevation of 9,000 feet, just below The Nipple (9,340 feet) and ends near Genoa, Nevada, where the two forks join to form the Carson River. The West Fork is 33 miles long and drops more than 4,200 feet in elevation, with an average slope of 2.3 percent. The topography of the West Fork and its tributaries is described as steep and erosive. The West Fork travels through canyons into Hope Valley for the first six miles. It then travels through a broad floodplain into West Carson Canyon. The final 14 miles of the West Fork are in Carson Valley. The West Fork of the Carson River drains approximately 66 square miles of land above Woodfords, California.

From its headwaters, the West Fork travels for 2 miles before it is joined by Forestday Creek and enters Faith Valley. After 4.5 miles, the West Fork is joined by Red Lake Creek in Hope Valley. The West Fork travels through Hope Valley and is joined by Maxwell Creek in 2 miles and by Willow Creek in another two miles and runs through Horse Meadow. After its 5-mile course through Hope Valley, the West Fork drops 1,460 feet through West Carson Canyon, emerging 5 miles later at Woodfords, California. Within West Carson Canyon, the West Fork is joined by streams from Horsethief, Hidden, Deep, Cloudburst, Merk, Acorn, and Cary Canyons. Additionally, several irrigation ditches depart the West Fork from West Carson Canyon. The West Fork continues east past Woodfords for 3.5 miles to Paynesville, California, where it enters Carson Valley and travels north for 14 miles until it joins the East Fork near Genoa, Nevada, to form the Carson River. With Carson Valley, the East Fork is also joined by streams from Stuard, Larson, Fredericksburg, Jobs, Mott, Genoa, and Sierra Canyons, as well as by Luther, Sheridan, Barber, and Daggett Creeks. Eagle Valley Creek also flows into Carson Valley from the north. A number of sloughs and ditches run through Carson Valley for irrigation, with the general flow direction to the northwest. In some cases water is transferred between the East and West Forks. It is imperative that responders be aware of the correct channel, slough, or ditch impacted by a pollutant to effectively mitigate damage.

The first significant diversion from the West Fork is the Brockliss Slough. The Brockliss diversion dam is located North of the Dressler Lane crossing on private property. During normal flow the entire volume of the West Fork is diverted to the Brockliss Slough, leaving the West Fork nearly dry, except for tailwater that is received from ditches. The Brockliss Slough carries the bulk of West Fork water North with two major diversions. First is the Big Ditch, which splits the Brockliss flow just north of Centerville Lane, and returns North of Mottsville Lane. Second is North of Mottsville Lane just downstream of the Big Ditch confluence, where the Brockliss splits into the East and West Brockliss. The Brockliss proceeds with two well defined channels until their confluence North of Genoa Lane. Shortly after the Confluence of the East and West

Brockliss the Brockliss Slough rejoins the Carson River at the Genoa Lakes Golf Course.

The West Fork of the Carson River is essentially dry from the Brockliss Slough diversion until the confluence of the Rocky Slough North of Centerville Lane. The Rocky Slough conveys East Fork water from the Rocky/Virginia diversion to the West Fork. The West Fork continues North with numerous small diversions and return flows with the second notable contribution from the East Fork being the Home Slough Northeast of Walley's The confluence of the West and East Fork occurs just just upstream of the Genoa Lane crossing to form the Carson River.

The East Fork of the Carson River begins just south of Ebbetts Pass, California in the Carson-Iceberg Wilderness, at an elevation of 11,460 feet, and ends near Genoa, Nevada, where the two forks join to form the Carson River. The East Fork is 65 miles long and drops more than 6,500 feet in elevation, with an average slope of 2.2 percent. It drains approximately 344 square miles of land above Gardnerville, Nevada. The East Fork is characterized by rapids and occasional pools. The first 45 miles of the East Form consist of canyons, until the river enters Carson Valley.

From its headwaters, the East Fork flows north for 15 miles, where it is joined by Poison Creek, and, after an additional 6 miles, by Silver King Creek. The East Fork continues through Silver King Valley, and is joined by the outfall from Bagel Valley in 3 miles, by Wolf Creek in another 3 miles, and by Silver Creek in 2.6 miles. The East Fork continues to travel north and is joined by Monitor Creek in 2.5 miles. It passes under Hangman's Bridge in another 3 miles, and Markleeville Creek joins it 1.4 miles further downstream. The East Fork crosses the California/Nevada state line 9 miles after its confluence with Markleeville Creek. Bryant Creeks joins it after one mile. The East Fork continues another 3.5 miles, where it arrives at Horseshoe Bend. After an additional 3 miles, the East Form enters Carson Valley, a natural floodplain that is 22 miles long, 10 miles wide, and contains 35,000 acres of irrigated farmland. The first major diversion from the East Fork in the Carson Valley is the Allerman Canal, downstream of the downstream of the Washoe Road bridge and accessible through the USFWS fish hatchery. The Allerman Canal travels through the Settelmeyer ranch before passing under US 395 to irrigate the East Side of the Carson Valley. The Rocky/Virginia diversion South of Riverview Drive at the south end of the Carson Valley Golf Course is a major diversion dam that directs flow into the Virginia Canal for irrigation in the East valley and into the Rocky Slough to the West supplying the West valley and West Fork Carson River. The Cottonwood Ditch is the last major diversion from the East Fork and conveys water from North of Dresslerville Lane, through the West side of Gardnerville, eventually returning a small amount of water to the East Fork near Douglas High School.

Many ditches and sloughs convey water year round and seasonally and are best described or accessed by contacting the watermaster, Conservation District, or ditch users. The East Fork travels for 11 miles through Carson Valley, where it joins the

West Fork approximately 1.5 miles southeast of Genoa, Nevada to form the Carson River.

The Carson River begins in Carson Valley, approximately 1 mile south of Genoa, Nevada,.at the confluence of the East and West Forks and ends at the Carson Sink near Fallon, Nevada. It flows in a north-northeasterly direction, crosses US Highway 395, leaves Carson Valley and enters Eagle Valley, passing by Carson City and Empire City, Nevada. The Carson River then heads east through Dayton Valley. Approximately 11 miles past Empire City, flow from Gold Canyon enters the Carson River. After Dayton Valley, the Carson River flows east through the Carson Plains for 15 miles to Table Mountain. In 9 miles, it meets Adrian Valley, and continues for another 10 miles to reach Lahontan Reservoir. The Lahontan Reservoir is the only large reservoir on the Carson River and has an elevation of 4,159 feet and a volume of approximately 294,000 acre feet. The Carson River exits the Lahontan Reservoir through the Lahontan Dam, where it is joined by waters of the Truckee River that were diverted into Lahontan Reservoir. Six miles past the Lahontan Dam, the Carson River reaches the Carson Diversion Dam and beginning of the Lahontan Valley.

The Newlands Irrigation Project in the lower Carson River Basin has altered river flows and modified the hydrology of the Lahontan Valley. Water is diverted from the Truckee River into the Truckee Canal which flows into the Lahontan Reservoir. A significant amount of this water is then used to irrigate the Lahontan Valley farmlands. This turns the Carson River into a network of canals and ditches and it ceases to be a recognizable river system except in periods of high flow. The Carson River ends at the Carson Sink in the Nevada desert. Much of the water that reaches the wetland areas around Carson Sink consists of agricultural drainage and runoff.

References:

Nevada Division of Environmental Protection. *Upper Carson River Watershed Management Plan*. August 20, 1996.

Nevada Division of Water Planning. *Carson River Basin 8: Nevada's Hydrogeographic Regions (Basins), Areas and Sub-Areas*. Retrieved August 1, 2005 from http://water.nv.gov/Water%20planning/basins/hydro_08.htm

Nevada Division of Water Planning. *Carson River Chronology – A Chronological History of the Carson River and Related Water Issues: Part I – Overview*. Retrieved August 4, 2005 from http://water.nv.gov/Water%20planning/carson/carson1.htm

U.S. Geological Survey. Surface-Water Data for Nevada. Retrieved August 2005 from http://waterdata.usgs.gov/nv/nwis/sw

Resource Matrix

	Specialized Personnel												Technical Advice/Information/Duties													Equipment/Cleanup										Modeling						Sampling/Measuring/Analyses								
	Public Information Officer (PIO)	Special Investigator for Hazmat crimes	Hazmat incident commander	Health officer	Emergency management coordinator	Law enforcement personnel	Toxicologist	Wildlife Biologist	Fisheries Biologist	Industrial hygienist	Aquatic Toxicologist	Site safety	Public education	Water treatment of drinking water	Technician/specialist response team	Emergency notifications	Declare health emergencies	Directives to responsible parties	Declare area safe	Environmental fate assessment	Technical and regulatory advice	Identify sensitive habitats	PRP oversight	GIS/mapping	Response Planning Operations	Provide environmental cleanup	Water treatment	Cleanup technology assessment	Booms and adsorbent materials	SCBAs rescue equipment	Aerial photographs	Vehicles	Air support	Emergency Lighting	Flow modeling	River model to estimate impact	Technical reference library	CAMEO/TOMES	Environmental fate	Toxicological modeling	Laboratory analyses	Water supply sampling	Streamflow measurement	Groundwater measurement	Hazard materials categorization	Water Quality Sampling/Analysis	Sediment Data Collection	Soil sampling	Biota Collection
Federal																																																
American Red Cross																																																
Bureau of Indian Affairs																																																
Bureau of Land Management	X					X						X			B	X	X	X	X		X	X	X	X	X	B	B	B			X	X							B	X			X	X	X	X	X
National Weather Bureau																																																
National Park Service																																																
Salvation Army																																																
USBR																																																
US Coast Guard																																																
US EPA	X	X	U	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
US Fish &Wildlife Service							A	X	X		X									X	X	X														X				B		X			X	X		X
USFS-Toiyabe National Forest																																																
USGS																																																
Water Master																																																
Tribal																																																
Fallon Paiute-Shoshone Tribe																																																
Walker River Paiute Tribe																																																
Washo Tribe																																																
Yerington Paiute Tribe																																																
State of California																																																
CDF	1		8		X	X						X	X											X	X					X	X	X	X														
CalEPA/DTSC	X	X	X		X		X			X			X			X		X	X	X	X		X			X		X		X					X	X	X	X	X				X			
Highway Patrol	X		X			X				X		X	X		X	X		X	X		X		X	X	X		X			X	X	X						X		X		X				
Caltrans	X														X						X								X	X	X	X	X	X													
Fish and Game	X		X			X		X	X	X	X	X	X		X	X		X	X		X	X	X	X	X	X		X	X		X	X	X			X	X	X			X						
National Guard	X																														X	X	X														
Office of Emergency Services	X				X	X	X						X			X		X			X			X	X											X	X		X									
Lahonton RWQCB							X						X	X							X	X	X													X				B	X	X	X	X		X	X		X
California Counties																																																
Alpine County																																																

Resource Matrix

	Specialized Personnel												Technical Advice/Information/Duties												Equipment/Cleanup									Modeling						Sampling/Measuring/Analyses								
	Public Information Officer (PIO)	Special Investigator for Hazmat crimes	Hazmat incident commander	Health officer	Emergency management coordinator	Law enforcement personnel	Toxicologist	Wildlife Biologist	Fisheries Biologist	Industrial hygienist	Aquatic Toxicologist	Site safety	Public education	Water treatment of drinking water	Technician/specialist response team	Emergency notifications	Declare health emergencies	Directives to responsible parties	Declare area safe	Environmental fate assessment	Technical and regulatory advice	Identify sensitive habitats	PRP oversight	GIS/mapping	Response Planning Operations	Provide environmental cleanup	Water treatment	Cleanup technology assessment	Booms and adsorbent materials	SCBAs rescue equipment	Aerial photographs	Vehicles	Air support	Emergency Lighting	Flow modeling	River model to estimate impact	Technical reference library	CAMEO/TOMES	Environmental fate	Toxicological modeling	Laboratory analyses	Water supply sampling	Streamflow measurement	Groundwater measurement	Hazard materials categorization	Water Quality Sampling/Analysis	Sediment Data Collection	Soil sampling	Biota Collection
-Fire Department																																														
-Sheriff's Office																																														
Mono County																																														
-Conservation District																																														
-Environmental Health Department				X																																										
-Fire Department			X																																											
-Sheriff's Office	X				X	X										X		X						X						X	X		X												
Local California																																														
Markleeville																																														
Bridgeport																																														
State of Nevada																																														
Highway Patrol																																														
NDOT																							X																							
Department of Wildlife																					X																									X
Div. of Emergency Management					X								X			X																														
Div. of Environmental Protection	X												X					X			X		X	X																					
Div. of Water Planning																																														
NV Laboratories																																														
NV Natural Heritage								X																																						
U of NV Cooperative Extension																																														
Sierra Fire Protection Dist. (NDF)																																														
Nevada Counties																																														
Carson City County																																														
-Environmental Health Department				X	X					X			X				X	X	X		X															X									
-Fire Department	X		X									X	X		X	X			X		X				X				X	X			X	X			X	X							
-Sheriff's Office	X					X							X						X		X																								
-Development Services (public works)														X					X		X			X		X					X	X			X				X	X				
Churchill County																																														
-Fire Department																																														
-Sheriff's Office																																														

Resource Matrix

	Specialized Personnel												Technical Advice/Information/Duties												Equipment/Cleanup											Modeling							Sampling/Measuring/Analyses									
	Public Information Officer (PIO)	Special Investigator for Hazmat crimes	Hazmat incident commander	Health officer	Emergency management coordinator	Law enforcement personnel	Toxicologist	Wildlife Biologist	Fisheries Biologist	Industrial hygienist	Aquatic Toxicologist	Site safety	Public education	Water treatment of drinking water	Technician/specialist response team	Emergency notifications	Declare health emergencies	Directives to responsible parties	Declare area safe	Environmental fate assessment	Technical and regulatory advice	Identify sensitive habitats	PRP oversight	GIS/mapping	Response Planning Operations	Provide environmental cleanup	Water treatment	Cleanup technology assessment	Booms and adsorbent materials	SCBAs rescue equipment	Aerial photographs	Vehicles	Air support	Emergency Lighting	Flow modeling	River model to estimate impact	Technical reference library	CAMEO/TOMES	Environmental fate	Toxicological modeling	Laboratory analyses	Water supply sampling	Streamflow measurement	Groundwater measurement	Hazard materials categorization	Water Quality Sampling/Analysis	Sediment Data Collection	Soil sampling	Biota Collection
Douglas County																																																	
-East Fork Fire and Paramedic Districts																																																
-Emergency Management																																																
-Sheriff's Office																																																
Lyon County																																																
-Central Lyon County Fire District																																																
-Mason Valley Fire Department																																																
-Sheriff's Office																																																
Mineral County																																																
-Fire Department																																																
-Sheriff's Office																																																
Storey County																																																
-Fire Department																																																
-Sheriff's Office																																																
Local Nevada																																																
Fallon																																																
Gardnerville																																																
Genoa																																																
Mason																																																
Minden																																																
Virginia City																																																
Wellington																																																
Yerington																																																
Utilities																																																
PG&E																																																
Union Pacific Railroad	X		X	X	X	X	X								X	X			X	X	X	X				X	X	X	X			X								X	X		X	X				

A= Wildlife toxicology only

B= By contract, if necessary

H= Heavy equipment, as necessary

U=Unified Command

Roles and Responsibilities

Local Government Agencies

Fire Departments

Local fire departments provide incident support for the incident commander. The fire department works within the incident command system as needed for fire suppression and/or rescue activities. Fire departments also function to provide emergency decontamination, treatment, and transportation of patients injured as a result of a hazardous materials incident.

Local Emergency Planning Committees (LEPC)

The LEPCs provides a regional oversight to hazardous materials response planning. These plans include local oil and hazardous materials response. The LEPCs recommendations are discharged through the Administering Agencies.

Public and Environmental Health Services (EH)

Environmental health is designated as the administering agency in California. Duties include identification of product, approval of cleanup, public notification, and determining when an event is ”clean” and safe for public reentry. EH is responsible to contact CalEPA—Department of Toxic Substance Control to access California superfund monies for clean up operations.

County Sheriff’s Offices / Town Police Department (LE)

Law enforcement is designated by the area plan as the incident commander for off- highway areas including county and private properties. LE is responsible for overall scene management, resource coordination, and resource management.

Office of Emergency Services (OES)

OES assists the incident commander with coordination of resources at incidents that involve multiple agencies, including local, state, and federal. OES also assists the incident Information Officer to ensure timely and accurate information is disseminated to the public.

County / Town Public Works Department (PW)

Public Works is responsible to clean up spills occurring on roadways maintained by their agency when the responsible party is unknown or unable to pay for clean up.

State of California

Governor's Office of Emergency Services (OES)

OES is the designated state agency responsible for coordinating the mitigation, preparedness, response, and recovery activities related to all disasters in California. To facilitate coordination of emergency response resources, OES operates the central notification and reporting system for the State of California, through the OES Warning Center. Once the Warning Center receives a warning or notification of a hazardous materials incident, the on-duty Warning Center coordinator will then make the appropriate notifications (via fax, phone, and/or pager) to local, state, and federal agencies. OES coordinates mutual aid within the state and operates both the regional and state emergency operations centers. OES is delegated substantial emergency duties under the California Emergency Services Act.

When off-highway spills of hazardous substance impact human health and safety as the primary concern OES will assume the role of State On-Scene Coordinator (SOSC), as designated in the California Government Code section (CGC) §8574.17. During these off-highway incidents the California Department of Fish and Game, Office of Spill Prevention and Response (DFG-OSPR) may function in a support capacity for wildlife issues in order to assist the lead agency or SOSC.

California Department of Fish and Game (DFG)

DFG is the law enforcement agency charged to preserve, protect, and enhance the state's fish, wildlife, and their habitat (Fish and Game Code, Sec. 711.7). Because of this responsibility, and because polluting the environment of fish or wildlife or their habitat is a criminal offense (Fish and Game Code, Sec. 5650), DFG has traditionally accepted the role of lead state agency at off-highway spills whenever fish, wildlife, and/or their habitat are threatened or injured by a spill of oil, hazardous substance, or other deleterious material. When a hazardous substance spill is no longer a threat to public safety, but continues to pose a threat to fish or wildlife or the habitat, DFG may assume the lead state role as SOSC for the remainder of the clean up.

California Highway Patrol

CHP is the designated state agency responsible to function as the Incident Commander or part of the Unified Command for all hazardous materials incidents that occur on all state highways and freeways, as designated in California Vehicle Code § 2454. In addition, CHP is also the Incident Commander at all hazardous materials incidents that occur on county roads. In situations where another agency first becomes aware of an incident within CHP jurisdiction, the CHP shall be notified and provided with emergency information to ensure a safe response.

California Environmental Protection Agency (Cal/EPA)

Cal/EPA is the umbrella agency designated to oversee the following Boards, Departments, and Offices:

- *California Air Resources Board (ARB)*
  ARB is the designated state agency responsible to protect and enhance the ambient air quality of the state. The ARB fulfills this responsibility through local and regional air pollution control authorities. Notification to the ARB is required for hazardous materials incidents that threaten to adversely affect air quality.

- *California Department of Pesticide Regulation (DPR)*
  DPR is the designated state agency responsible for regulating the registration, sale, and use of agricultural chemicals (including pesticides, fertilizers, and livestock drugs) prior to entering the waste stream.

- *California Department of Toxic Substance Control (DTSC)*
  DTSC is the designated state agency responsible for providing executive management and control of the State's Toxic Control Program and is the lead for the handling, storage, treatment, and disposal of hazardous wastes. In addition, DTSC coordinates emergency funding for off-highway emergency response incidents, clandestine drug lab cleanups (including abandoned hazardous wastes resulting from these labs), and oversees the cleanup of sites contaminated with hazardous substances.

- *California Integrated Waste Management Board (IWMB)*
  IWMB is the designated state agency responsible for overseeing municipal solid waste landfills, other non-hazardous waste or recycling facilities, used oil and household hazardous waste facilities, and waste tire facilities.

- *Office of Environmental Health Hazard Assessment (OEHHA)*
  OEHHA is the designated state agency responsible to assess health effects and characterize risk to public health and the environment from toxic chemical releases in the environment.

- *State Water Resources Control Board (SWRCB)*
  SWRCB is the designated state agency responsible to protect the state's surface, coastal, and ground water resources. This involves a proactive role in providing technical assistance in evaluating the potential impact of hazardous materials spills to water resources. In addition, SWRCB issues cleanup and abatement or cease and desist orders to responsible parties, assesses fines, and pursues recovery of costs for abatement, mitigation, or contract cleanup.

  There are nine Regional Water Quality Control Boards (RWQCB), one located in each of the nine major watersheds of the state. Regional Water Quality Control Boards develop basin plans, issue waste discharge requirements, take

enforcement action against violators, and monitor water quality. They carry out state and federal law and are guided by policies established by the State Water Resources Control Board. The Lahonton Regional Water Quality Control Board serves the Carson River area.

California Department of Forestry and Fire Protection (CDF)

The California Department of Forestry and the State Fire Marshal have consolidated into the California Department of Forestry and Fire Protection (CDF) protects the people of California from fires, responds to emergencies, protects and enhances forest, range, and watershed values, providing social, economic, and environmental benefits to rural and urban citizens. CDF performs fire protection suppression and prevention duties for about 30 million acres of wildland in the state. In addition to their state responsibilities, CDF may provide fire service to some local jurisdictions under contract. In such cases, CDF carries out the responsibilities of local fire suppression agencies as they relate to hazardous materials incidents.

The State Fire Marshal's Office was consolidated into CDF as mentioned above, which includes all the Fire Marshal's resources and responsibilities including oversight responsibilities for pipelines within the state of California.

California Department of Health Services (CDHS)

CDHS is the designated state agency responsible to protect public health from the effects of hazardous and radioactive materials. CDHS has statutory responsibility for the regulation of public water systems to ensure that drinking water is safe, wholesome, and potable. In the event of a hazardous materials spill or threatened release which affects a public water system or source of drinking water such as a lake, river, or aqueduct, the Drinking Water Field Operations Branch within CDHS will work with the water utility to prevent contamination of the system. Notification is required for radioactive material incidents; releases involving a public water system or drinking water source; releases affecting a food, drug, medical device, cosmetic, or bottled water manufacturer or wholesaler; or significant releases affecting a large population or involving deaths, serious injuries, evacuations or in-place sheltering

California Department of Parks and Recreation (DP&R)

DP&R is the designated state agency responsible for the administration of State Parks, and for the safety and well being of the public and employees using the state parks system.

California Department of Transportation (CalTrans)

CalTrans is the designated state agency responsible for planning, designing, constructing, operating, and maintaining the state highway system. In coordination with other response agencies they ensure proper cleanup and restoration of the highway

within its rights-of-way. CalTrans is responsible to determine the degree and type of maintenance required to restore the flow of traffic while protecting the health, safety, convenience, and welfare of the general public. It should also be noted that CalTrans determines when the roadway is re-opened.

California Department of Water Resources (DWR)

DWR is the designated state agency responsible to protect the operation and water quality of the State Water Project. This includes providing water of a quality that can be used for agricultural, recreational, municipal, and industrial purposes. Activities supporting this responsibility include protection of State Water Project facilities and flood control facilities. Notification to DWR is required when an incident threatens to contaminate or otherwise disrupt the operation of the State Water Project and its man-made and natural conveyance facilities or if a significant release of a hazardous substance occurs into the San Joaquin Delta.

California National Guard (CNG)

CNG is a state military agency that provides support to fire and law enforcement operations, aviation, general transportation, and other support for emergency operations. In the event of a major hazardous materials incident, the CNG can provide many resources and support functions. In addition, the CNG has Weapons of Mass Destruction Civil Support Teams (CST). The CSTs are designed to support local incident commanders and local emergency first responders 24 hours a day, seven days per week for any weapons of mass destruction terrorist event. The team assesses the situation, advises civilian authorities on appropriate actions, and provides assistance to expedite the arrival of additional state and federal resources.

California Occupational Safety and Health Administration (Cal/OSHA)

Cal/OSHA is the designated state agency responsible to prevent and regulate occupational exposures and injuries in the workplace. Cal/OSHA also administers the Process Safety Management Program (which is closely aligned with the CalARP program). Regulations regarding worker health and safety at hazardous materials incidents are contained in 8 CCR 5192. Cal/OSHA has the capability to evaluate the adequacy of health and safety plans designed to protect employees from exposure to hazardous materials during hazardous materials response and recovery operations.

California Public Utilities Commission (CPUC)

The Railroad Operations and Safety Branch of the CPUC have responsibility and authority for investigation of railroad accidents. This includes those incidents involving hazardous materials. It performs railroad safety oversight of daily operations and inspections of new and existing facilities for compliance with the PUC General Orders and with 49 CFR.

California State Lands Commission (SLC)

SLC acting as trustee for the people of California holds and manages all sovereign lands of the state. These lands include the beds of more than 30 navigable rivers, 40 navigable lakes, and submerged land adjacent to the coast and offshore islands of the state from the mean high tide line to three nautical miles offshore. Additionally, SLC manages more than 500,000 acres of "school lands" and exercises general oversight authority on granted lands. SLC has specific statutory jurisdiction over the operation of marine oil terminals located in the state, as well as trustee responsibility at other marine facilities on lands leased from the state.

Emergency Medical Services Authority (EMSA)

EMSA is the designated state agency responsible for planning and coordinating the state's medical response to disasters. At the request of the impacted jurisdiction, EMSA can arrange for emergency procurement and distribution of medical supplies. In conjunction with the affected medical associations, EMSA develops general guidelines for the triage and handling of contaminated/exposed patients. Notification is required when a significant number of human exposures, any evacuation, or when a chemical fire or vapor cloud has occurred or is expected to occur.

State of Nevada

Nevada Division of Emergency Management (NDEM)

NDEM is the central contact point for coordination of state and federal agencies during an emergency response situation in Nevada. NDEM is not an active response agency and has no in-house emergency response resources, but will provide coordination of resources needed for the response.

Nevada Highway Patrol (NHP)

NHP has statutory responsibility to police all primary and secondary highways in Nevada and to investigate all accidents that occur on those highways, including hazardous materials incidents.

Nevada State Emergency Response Commission (SERC)

Nevada SERC is primarily responsible for Nevada's compliance with the Federal Emergency Preparedness and Community Right to Know Act. The SERC acts in a preventative/planning capacity to coordinate working relationships among state, local, federal, and private agencies and industries.

Nevada Division of Environmental Protection (NDEP)

NDEP has Duty Officers available around the clock to receive spill reports. NDEP provides technical assistance on environmental matters, regulates hazardous waste, conducts sampling, and makes final decisions on remediation in the State (except for decisions made by the Washoe County District Health Department in that county). NDEP is currently developing emergency response capabilities. The Bureau of Corrective Action oversees cleanups being conducted on contaminated sites and enforces environmental regulations. The Bureau of Waste Management oversees and inspects facilities that generate, store and dispose of hazardous materials.

Nevada Division of Health (NDH)

NDH is responsible for the public's health and can test for contamination from chemicals and organisms. Other sections of the division that may assist are:

- *Radiological Health*
  Radiological Health is responsible for the incidents involving radioactive materials.
- *Emergency Medical Services (EMS)*
  EMS assists in coordinating emergency medical response.

Nevada Division of Investigations (NDI)

NDI conducts criminal investigations at crime scenes, including HazMat incidents. Their responsibilities include protecting the crime scene, collecting evidence, initiating investigations and providing investigative support to other agencies. NDI investigators are capable of making entries into hazardous environments.

Nevada Department of Transportation (NDOT)

NDOT has highway maintenance yards throughout the state with heavy equipment and other resources that may be used by the local responder under certain circumstances. NDOT has the power to close highways to traffic.

Nevada Department of Motor Vehicles and Public Safety

The Department of Motor Vehicles and Public Safety controls the licensing and regulation of commercial carriers through the state. The NHP is part of the department and enforces highway transportation regulations in the state. NHP also controls the Nevada law enforcement communications net that may be used for emergency communications.

Nevada State Fire Marshall

The Fire Marshall's office functions to promote and develop ways and means of protecting life and property from fire. As part of the Division of the State Fire Marshall, the Nevada Hazardous Materials and Fire Training Center provides training statewide to fire personnel, industry, business, governmental agencies, and private citizens. The State Fire Marshall's Office provides technical assistance on fire and life safety issues, investigates the cause of fires, and provides law and code enforcement.

Nevada Department of Wildlife (NDOW)

NDOW can provide rescue and rehabilitation support for fish and other wildlife in the river.

Nevada Division of Forestry (NDF)

NDF can provide manpower, aircraft, and heavy equipment to support emergency response personnel. Response times for these resources are usually two to four hours. Aircraft support includes several helicopters used for fire fighting, personnel transport, and rescue efforts. Heavy equipment that can be provided by NDF includes bulldozers and road graders. NDF utilizes inmate labor.

Nevada Occupational Safety and Health Enforcement Section (OSHES)

OSHES enforces health and safety standards required by the Nevada Occupation Safety and Health Act, and assists employers in identifying and correcting unsafe working conditions. OSHES can evaluate health and safety plans designed to protect employees from exposures to hazardous materials during HazMat responses and recovering operations.

Tribes

To be added at a later time.

Federal Government

U.S. Environmental Protection Agency (USEPA)

The USEPA has ten regional offices throughout the Nation. California and Nevada are within the boundaries of EPA Region IX. The USEPA is the primary federal agency involved in a hazardous materials emergency response.

The USEPA ensures that a timely and effective response is made to control and remove the discharge of oil or hazardous materials in the inland zones. The USEPA will

assign the Federal On-Scene Coordinator (FOSC) in the event of a discharge into the inland zone, and can request activation of the USCG Pacific Strike Team.

The FOSCs in the USEPA Region IX Emergency Response Section can be contracted through the 24-hour emergency hazardous materials spill phone line at (800) 300-2193.

Depending on the site location, the FOSC could potentially be on-site in approximately four hours. A support staff consisting of members of the Superfund Technical Assessment and Response Team (START) and the Pacific Strike Team would accompany the FOSC. Additional emergency response resources, manpower, and equipment would be mobilized as necessary. Upon arrival on-site, the USEPA response organization can be integrated into the ICS command structure.

The START contract is designed to provide the FOSC with a broad range of technical support services for oil and chemical releases. The START maintains field offices in San Francisco and Los Angeles that are dedicated to the USEPA emergency response operations. Professional disciplines include chemistry, geology, biology, hydrogeology, soil science, environmental engineering, and industrial hygiene. Team capabilities include full media sampling, air monitoring, field and laboratory analysis, data management, quality assurance, health and safety, and other aspects of emergency response operations.

The USCG Pacific Strike Team (PST) is a very specialized unit within the Coast Guard whose mission is to prepare for, and response to oil and other chemical emergencies. The highly trained members of the PST maintain and deploy specialized equipment in support of the FOSC in response to inland spills. The PST will provide assistance in response planning and logistics, spill response techniques, medical monitoring, cost documentation, and operations oversight.

Actual cleanups are directed by the FOSC and performed by companies contracted through EPA's Emergency Rapid Response Services (ERRS). The ERRS contractor arranges for transfer of waste to the appropriate facilities and/or explores treatment options for hazardous and non-hazardous materials in a response.

U.S. Department of Homeland Security – U.S. Coast Guard (USCG)

The USCG administers the National Oil Pollution Fund. This fund can be accessed by FOSCs to respond to and mitigate oil spills. States may be reimbursed from this fund for reasonable costs incurred during oil spill removals.

U.S. Department of Energy (USDOE)

The USDOE can be contact for assistance involving radioactive materials through the California Department of Health Services Radiological Health Branch, through the National Response Center (800) 424-8802, or directly contacting the DOE

Radiological Assistance Coordinating Officer. The USDOE can provide advice and assistance in identifying sources and extent of radioactive contamination. They can also remove and dispose of radioactive materials.

U.S. Department of Health and Human Services – Agency for Toxic Substances and Disease Registry (ATSDR)

The ATSDR provides leadership and direction to programs and activities designed to protect both the public and workers from exposure and/or the adverse health effects of hazardous substances in storage sites or released in fires, explosions, or transportation accidents.

U.S. Department of Agriculture – Forest Service (USFS)

The USFS has responsibility for protection and management of national forests and grasslands. The USFS has personnel, laboratory, and field capacity to measure, evaluate, monitor, and control as needed, releases of pesticides and hazardous substances on lands under its jurisdiction. The USFS will respond to hazardous materials incidents and oil spills within the boundaries of the National Forest with available equipment and personnel as necessary when notified of such incidents.

U.S. Department of Defense (USDOD)

The USDOD provides the FOSC with information regarding releases of hazardous substances, pollutants, or contaminants from USDOD vehicles or rail cars. The U.S. Army Corps of Engineers and the U.S. Army's Explosives Ordnance Detachments are two USDOD organizations, which under some circumstances may provide the most relevant assistance to the Carson River area.

U.S. Department of Interior (USDOI)

The USDOI has stewardship responsibility for most of the nationally owned public lands and natural resources. The Bureaus of the USDOI include:

- *National Parks Service*
- *U.S. Fish and Wildlife Service*
- *Bureau of Indian Affairs*
- *Bureau of Land Management*
- *Minerals Management Service*
- *U.S. Geological Survey*
- *Office of Surface Mining*
- *Bureau of Reclamation*

U.S. Department of Justice – Environment and Natural Resources Division

The Environment and Natural Resources Division is responsible for litigating significant case ranging from protection of endangered species to cleaning up the Nation's hazardous waste sites.

U.S. Department of Labor – Occupational Safety and Health Administration (OSHA)

OSHA can provide advise, guidance, and assistance regarding hazards to persons involved in removal or control of oil discharges or releases of hazardous substances. OSHA is also responsible for the enforcement of worker health and safety regulations.

U.S. Department of Transportation (USDOT)

The USDOT includes:

- *Federal Aviation Administration*
- *Federal Highway Administration*
- *Federal Railroad Administration (FRA)*
  The FRA promulgates and enforces rail safety regulations, administers railroad assistance programs, and conducts research and development in support of improving railroad safety and national rail transportation policies.
- *National Highway Traffic Safety Administration*
- *Federal Transit Administration*
- *Saint Lawrence Seaway Development Corporation*
- *Maritime Administration*
- *Pipeline and Hazardous Materials Safety Administration (PHMSA)*
  The PHMSA is responsible for hazardous materials transportation research and development activities, and for collection and dissemination of air carrier economic data. The Office of Hazardous Materials Safety develops and issues regulations for the safe transportation of hazardous materials by all modes, excluding bulk transportation by water.
- *Bureau of Transportation Statistics*

Federal Bureau of Investigation (FBI)

The FBI is the lead agency for sites involving counter-terrorism activities. In addition, the FBI would be responsible for a site involving weapons of mass destruction including nuclear, biological, and chemical weapons.

Federal Emergency Management Agency (FEMA)

FEMA is responsible for administering the Federal Disaster Assistance Program in affected areas after the declaration of an emergency or a major disaster. Such a

declaration must be requested by the Governor of the State and declared by the President.

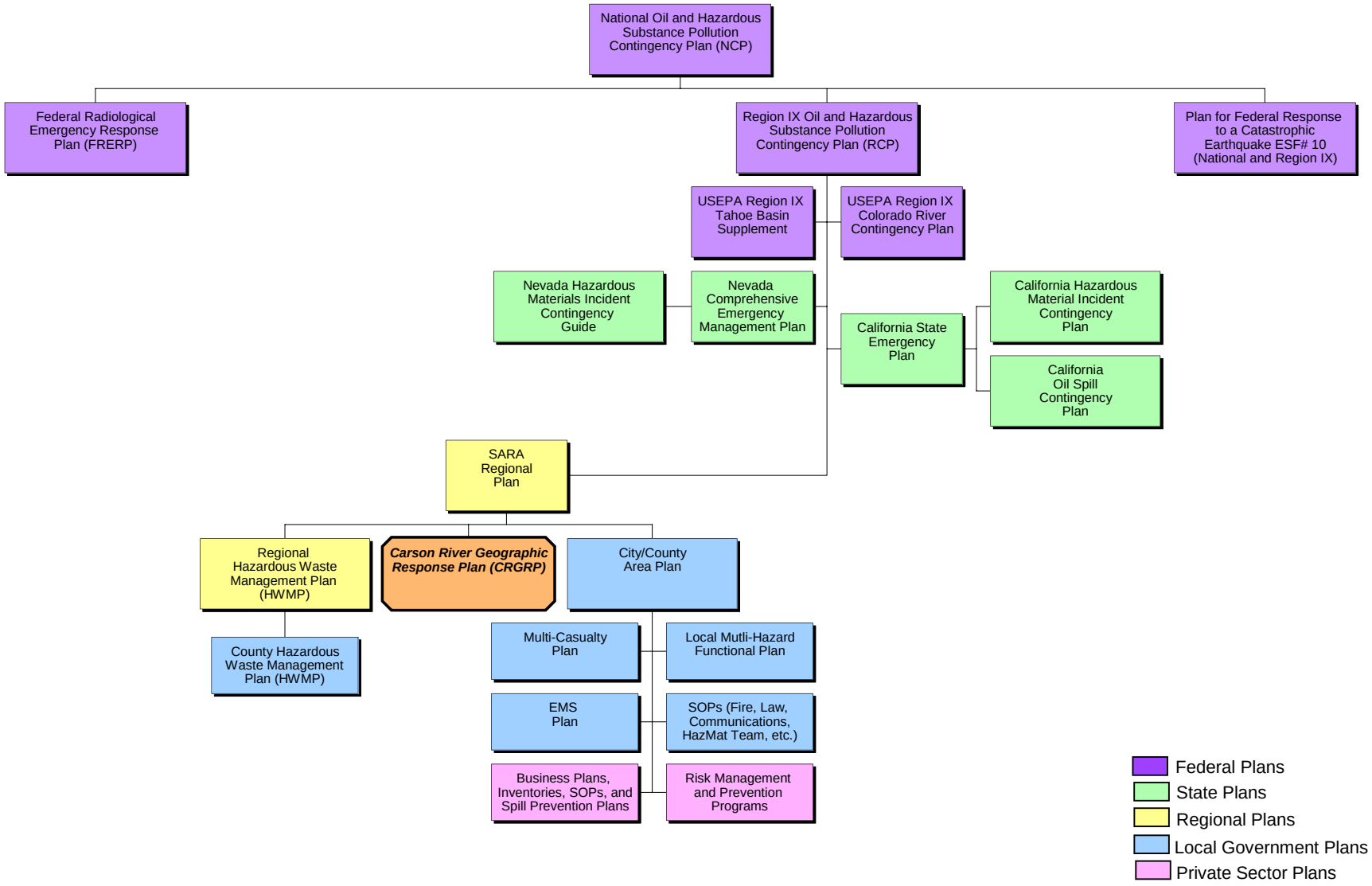
National Oceanic and Atmospheric Administration (NOAA)

NOAA provides scientific support to the FOSC for emergency responses. NOAA also provides contingency planning in coastal and marine areas. When requested by the USEPA, NOAA provides scientific support for emergency responses in inland areas.

Private/Public Organizations

To be added at a later time.

CRGRP's Relationship to Other Plans



Incident Command System (ICS) Forms

Electronic ICS Forms can be downloaded from the NOAA Office of Response and Restoration website:

http://response.restoration.noaa.gov/oilaids/ICS/intro.html

Acronyms

ARB	Air Resources Board
ATSDR	Agency for Toxic Substances and Disease Registry
Cal/EPA	California Environmental Protection Agency
Cal/OSHA	California Occupational Safety and Health Agency
CalTrans	California Department of Transportation
CDF	California Department of Forestry
CDFG	California Department of Fish and Game
CDHS	California Department of Health Services
CGC	California Government Code
CHP	California Highway Patrol
CNG	California National Guard
CPUC	California Public Utilities Commission
CST	Civil Support Team
CRGRP	Carson River Geographic Response Plan
DP&R	California Department of Parks and Recreation
DPR	California Department of Pesticide Regulation
DTSC	California Division of Toxic Substance Control
DWR	California Department of Water Resources
EH	Environmental Health
EMS	Emergency Medical Service
EMSA	Emergency Medical Services Authority
ERRS	Emergency Rapid Response Services
FBI	Federal Bureau of Investigations
FEMA	Federal Emergency Management Agency
FOSC	Federal On-Scene Coordinator
FRERP	Federal Radiological Emergency Response Plan
FRA	Federal Railroad Administration
HWMP	Hazardous Waste Management Plan
ICS	Incident Command System
IWMB	California Integrated Waste Management Board
LE	Law Enforcement
LEPC	Local Emergency Planning Committee
NBC	Nuclear, Biological, Chemical
NCP	National Oil and Hazardous Substance Pollution Contingency Plan
NDEM	Nevada Division of Emergency Management
NDEP	Nevada Division of Environmental Protection
NDH	Nevada Division of Health
NDI	Nevada Division of Investigations
NDOT	Nevada Department of Transportation

NDOW	Nevada Department of Wildlife
NHP	Nevada Highway Patrol
NOAA	National Oceanic and Atmospheric Administration
OEHHA	California Office of Environmental Health Hazard Assessment
OES	Office of Emergency Services
OSHA	Occupational Safety and Health Administration
OSHES	Nevada Occupational Safety and Health Enforcement Section
OSPR	California Oil Spill Prevention and Response
PIO	Public Information Officer
PPE	Personal Protective Equipment
PG&E	Pacific Gas and Electric
PST	U.S. Coast Guard, Pacific Strike Team
PUD	Public Utilities District
PW	Public Works
RCP	Region IX Oil and Hazardous Substance Pollution Contingency Plan
RSPA	Research and Special Programs Administration
RWQCB	Regional Water Quality Control Board
SARA	Superfund Amendments and Reauthorization Act
SCBA	Self Contained Breathing Apparatus
SERC	State Emergency Response Commission
SHPO	State Historic Preservation Office
SLC	California State Lands Commission
SOP	Standard Operating Procedure
SOSC	State On-Scene Coordinator
START	Superfund Technical Assessment and Response Team
SWRCB	State Water Resources Control Board
TRAC	Truckee River Area Committee
USBIA	U.S. Bureau of Indian Affairs
USBLM	U.S. Bureau of Land Management
USBOR	U.S. Bureau of Reclamation
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture
USDOD	U.S. Department of Defense
USDOE	U.S. Department of Energy
USDOI	U.S. Department of Interior
USDOT	U.S. Department of Transportation
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USFS	U.S. Forest Service
USGS	U.S. Geological Survey
WMD	Weapons of Mass Destruction
WRGRP	Walker River Geographic Response Plan

Distribution Log

Numbered copies of the Carson River Geographic Response Plan have been distributed to the following agencies and/or individuals:

Name	Agency	Address 1	Address 2	City	State	Zip

Name	Agency	Address 1	Address 2	City	State	Zip

Record of Review

The Carson River Geographic Response Plan is to be reviewed at least annually. Document plan reviews in the following table.

Review Date	By (Print)	Signature

Record of Changes

Record changes to the Carson River Geographic Response Plan in the following table.

Change No.	Date Posted	Brief Description of Change	By (Print Name)	Signature