

Humboldt River Geographic Response Plan

Humboldt River Corridor

Elko, Eureka, Lander, Humboldt, Pershing, and Churchill Counties Nevada



Prepared for:

State of Nevada Department of Conservation and Natural Resources
Division of Environmental Protection
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May 14, 2019

Project No. 10-01-219

Ms. Rebecca Bodnar, Superfund Branch Coordinator
State of Nevada Department of Conservation and Natural Resources
Division of Environmental Protection, Bureau of Corrective Actions
901 South Stewart Street, Suite 4001
Carson City, Nevada 89701

Re: *Humboldt River Geographic Response Plan*, Elko, Eureka, Lander, Humboldt, Pershing, and Churchill Counties Nevada

Dear Ms. Bodnar,

Please find attached the *Humboldt River Geographic Response Plan for Elko, Eureka, Lander, Humboldt, Pershing, and Churchill Counties Nevada*.

If you have questions regarding this document, please contact the undersigned at dguerrant@broadbentinc.com, or (775) 322-7969.

Sincerely,
BROADBENT & ASSOCIATES, INC.

JURAT: I, Ryle A. Yopps, hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state and local statutes, regulations and ordinances.

Ryle Yopps, EI, CEM
Project Engineer

JURAT: I, Douglas G. Guerrant, hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state and local statutes, regulations and ordinances.

Douglas G. Guerrant, CEM, PG, CHG
Principle Hydrogeologist/President

cc: Mr. Tom Dunkelman, USEPA On-Scene Coordinator

Acknowledgements

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

Local Government

- Churchill County Sheriff and Local Emergency Planning Commission (LEPC)
- Elko County Sheriff and LEPC
- Elko City Environmental Office
- Eureka County Sheriff and LEPC
- Humboldt County Commissioner
- Humboldt County Sheriff and LEPC
- Lander County Sheriff and LEPC
- Pershing County Sheriff and LEPC
- Winnemucca City Council
- Winnemucca City Fire Department
- Winnemucca Police Department
- Winnemucca Rural Fire Department
- Winnemucca Volunteer Fire Department

State Government

- Nevada Division of Emergency Management
- Nevada Division of Environmental Protection (NDEP), Bureau of Corrective Actions
- NDEP, Bureau of Safe Drinking Water
- NDEP's Environmental Assessment, Mitigation, and Remediation (EMAR) Contractor, Broadbent & Associates, Inc.
- Nevada Division of Public and Behavioral Health
- Nevada Department of Transportation
- Nevada Department of Wildlife
- Nevada Highway Patrol
- Nevada Public Utilities Commission, Railroad Safety

Federal Government

- 92nd Civil Support Team
- National Oceanic and Atmospheric Administration/National Weather Service, Elko
- U.S. Bureau of Land Management
- U.S. Department of Transportation, Federal Railroad Administration
- U.S. Environmental Protection Agency

Private/Public Organizations

- Barrick Gold Corporation - Cortez Mine
- Barrick Gold Corporation - Turquoise Ridge Mine
- Civil Air Patrol/Northern Nevada Dive Rescue Team
- Cyanco
- Humboldt Sun Newspaper
- Newmont Mining Corporation
- NV Energy
- Southwest Gas
- Union Pacific Railroad

In an EMERGENCY-

Involving the release or threatened release of hazardous materials, petroleum products, or other contaminants impacting public health and/or the environment it is most important to **protect yourself and then others!**

Then,

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

**First On-Scene
(Fire, Law, EMS, Public, etc.)
Will notify local Dispatch (via 911 or radio)**

**A complete list of Dispatch Centers can be found in
the (Red Tab) beginning on page R-2 of this plan.**

Dispatch will make the following Mandatory Notifications:

Nevada Division of Emergency Management	(775) 687-0300
National Response Center	(800) 424-8802

Dispatch will also consider notifying the following affected or adjacent agencies:

- County Environmental Health (Red Tab)
- Local Emergency Management (if applicable) – County Emergency Management (White Tab)
- Humboldt River Water Masters
 - Elko Area – Kirk Owsley (775) 753-3553
 - Winnemucca Area – Steve Del Soldato (775) 623-6562
- Local Drinking Water Agencies (Red Tab)

2. After the **Mandatory Notifications** are made, use **Notification (Red Tab)** to implement the notification procedures described in the Immediate Action Guide.
3. Use the **Resources (Orange Tab)** to contact specialized response teams.
4. Use the **Humboldt River Corridor Maps (Green Tab)** to pinpoint the location and surrounding geography of the incident site.
5. Use the **Emergency Response Site Strategies (Blue Tab)** to develop a mitigation plan.
6. Review the **Supporting Documentation (White Tab)** for additional information needed during the response.

Humboldt River Geographic Response Plan

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Introduction

Introduction

This Geographic Response Plan (GRP) serves as guidance for the federal and state on-scene-coordinators (OSC) and first responders during the initial phase of an oil or hazardous material spill response in the Humboldt River Basin. It is meant to aid the response community during the initial phase of an oil or hazardous material spill incident from the time a spill occurs until Unified Command is established. This GRP may also be used as a resource after the establishment of Unified Command. This plan has been approved by the U.S. Environmental Protection Agency (USEPA) Region 9 and the Nevada Division of Environmental Protection (NDEP) and prioritizes response strategies based on locations where spills might occur and the proximity of those locations to sensitive natural, cultural and economic resources. By using this document, immediate and proper action can be taken to reduce the impact of oil or hazardous materials on sensitive resources. This GRP should be considered a live document and changes to it are expected as more testing is conducted through drills, site visits and its actual use in spill situations.

Geographic Response Plans have been developed for the major water bodies within Nevada, including Lake Tahoe, the Truckee River, Carson River, Walker River and the Lower Colorado River. GRPs are available online at <https://ndep.nv.gov/environmental-cleanup/environmental-assistance-program/state-response-plans>. They were prepared through the efforts of, and in cooperation with, the USEPA Region 9, NDEP, other state and federal agencies, Tribes, local governments, industry, oil spill response organizations, environmental non-governmental organizations and emergency responders. GRPs are developed through committees, workshops and meetings with federal, state, and local oil spill emergency response experts, oil spill response contractors, tribal representatives, industry, local governments, and environmental and conservation organizations. Participants identify resources that may be at risk of impact from spills, develop oil and hazardous material spill response strategies to minimize impact to those resources, and provide information needed to support logistics during a spill response.

After compiling information on sensitive resources in the area, site visits are conducted to gather data and determine if spill response strategies near those resources should be added, modified, or deleted. In this, the anticipated effectiveness of existing strategies are reviewed, modifications made as determined necessary, potentially unsafe or ineffective strategies removed and new strategies added to the plan.

Plan Overview

The following sections describe the purpose and objectives of this plan, incident objectives, response strategy selection and provide Humboldt River Basin general and physical information.

Purpose

1. The Humboldt River Geographic Response Plan (HRGRP) 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 an oil or hazardous material spill/incident.
2. This plan establishes the emergency response organization for oil or hazardous material spills/incidents occurring within the Humboldt River watershed from Wells, Nevada to the

Carson Sink near Fernley, Nevada.

3. The HRGRP is the principle guide for state and federal agencies, incorporated cities, and government entities within the Humboldt River watershed area to mitigate oil or hazardous material 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 oil or hazardous material emergencies.
4. The HRGRP 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.
5. This plan provides a description of various response strategies for use during oil spills or hazardous material releases in the Humboldt River Basin.

Plan Objectives

1. Identify emergency response organization for oil spills or hazardous material releases occurring within the Humboldt River response area.
2. Establish a preliminary notification system to ensure the appropriate local, state and federal response agencies are informed of oil spills and hazardous material releases impacting the river.
3. Present river response strategies in advance to aid response personnel in effective deployment of personnel and equipment.
4. Delegate responsibilities for local, state, and federal agencies in the event of an oil spill or hazardous material release within the Humboldt River response area.
5. Establish lines of authority and coordination for oil spills or hazardous material releases.
6. Facilitate mutual aid to supplement local resources.
7. Introduce procedures for accessing outside funding (state and federal) for mitigation and recovery efforts for oil spills or hazardous material releases.

Incident Objectives

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

1. Secure the affected area, isolate the hazard, deny the entry of unauthorized persons into the area and ensure appropriate notifications.
2. Identify the hazardous material(s).
3. Provide rapid and effective warning, information and instructions to threatened populations.
4. Provide means to access technical resources to stabilize the affected area and return it to normal conditions as quickly as possible.
5. Instruct, train, and equip emergency response personnel (HazMat team members and first responders) to efficiently and effectively mitigate oil spill or hazardous material spills/incidents.

Transitioning from Initial Response to Unified Command

Spill responses along the Humboldt River may readily cross jurisdictional boundaries and local response capabilities may be exceeded due to the remoteness of much of the river basin. As Initial Response transitions from the initial responder to a qualified Incident Commander, a Unified Command structure may be established. When this occurs, additional authorized representatives will be added to the Unified Command Group. Because of the remoteness of much of the Humboldt River Basin and the limited number of trained response resources, it may take several hours for additional response personnel to arrive on scene. Also, given that the Humboldt River crosses six counties, response personnel from multiple counties may be present. A typical Unified Command Structure may include the designated Incident Commander, a local representative from the impacted county or counties, a state representative, a federal representative and a representative from the responsible party. The local representative to Unified Command may be provided by local fire or law enforcement serving in the role of Incident Commander, the authorized representative for the impacted local government, or both, depending on the location of the spill. The state representative to Unified Command may be provided by the Nevada Highway Patrol or NDEP. The federal representative to Unified Command would be an EPA On-Scene Coordinator. Other state assets such as the National Guard Civil Support Team may be available to support the Unified Command. Tribes may also be represented in Unified Command when Tribal resources are impacted or threatened.

Before Deploying a GRP Strategy

Are conditions safe? Response managers and responders must first determine if efforts to implement a response strategy would pose an undue risk to worker safety or the public based on conditions present during the time of the emergency. No strategy should be implemented if doing so would threaten public safety or present an unreasonable risk to the safety of responders.

Response Strategy Selection

The bulk of this plan is contained within the **Green** and **Blue** Tabs. The **Green Tab** provides information on GRP response strategies and the order they should be implemented based on potential oil or hazardous material spill origin points and their proximity to sensitive resources. Area and sector maps (Humboldt River Corridor Maps – Figures 1 through 7) are also presented in the **Green Tab**. After a spill occurs, the emergency response site strategies provided in the **Blue Tab** should be implemented as soon as possible; these individual site strategies provide information on staging areas and boat launch locations. Unless circumstances unique to a particular spill situation dictate otherwise, the tables in the **Green Tab** should be used to determine strategy deployment priorities. The movement of oil or lighter-than-water hazardous materials on water and the time it takes to mobilize response resources to deploy GRP strategies must always be considered when setting strategy implementation priorities.

Control and containment of an oil spill or hazardous material release at the source is a higher priority than the implementation of GRP response strategies. If, in the responder's best judgment, control and containment of an oil spill or hazardous material release at the source is not feasible, or the source is controlled and contained but spilled material has spread out beyond initial containment, then the priorities laid out in the **Green Tab** of this plan take precedence until Unified Command is formed. It is important to note that spill response

priorities, beyond those described in this plan, should rely on aerial observations and spill trajectory information. A booming strategy shown in the **Blue Tab** would not necessarily be implemented if spill trajectory information didn't warrant action in that area. However, the priority tables should be followed until spill trajectory information becomes available. During an incident, modifications to the deployment priorities provided in the **Green Tab** of this plan may be made if approved by the Incident Commander or Unified Command. The strategies discussed in this plan have been designed for use with persistent oils or hazardous materials that float on water and may not be suitable for other petroleum products or hazardous substances.

Humboldt River Basin—General Information

General information and physical characteristics of the Humboldt River Basin are provided below.

Introduction to the Humboldt River Basin

The Humboldt River Basin encompasses an area of approximately 16,000 square miles and is the largest river basin in the state of Nevada. The basin stretches in a west-southwest direction from its source (a spring and swampy area called the Humboldt Wells, near Wells, Nevada) located in the northeastern corner of the state to the Humboldt Sink. The Humboldt Sink is located approximately 208 air miles away from the Humboldt Wells and is southwest of Lovelock, Nevada. Connecting the source waters to the terminus are 330 linear miles of river. The Humboldt River Basin is the largest river basin in the United States with its full boundary residing entirely within the borders of one state. An overview of the Humboldt River Basin is depicted on Figure 1 in the **Green Tab**.

Most of the Humboldt River Basin watershed is charged by precipitation. Snowmelt in the eastern portion of the watershed, from the Ruby, Jarbidge and Independence Mountains, contributes most of the precipitation the basin receives. Stream-gauge measurements conducted by the United State Geological Survey suggest the Humboldt River flows increase only until Palisade Canyon located between Carlin and Beowawe, Nevada; after which flow continually decreases to the river's terminal end.

Due to this fact, water rights along the Humboldt River Basin are governed by two State Decrees. The Edwards Decree of 1935 established water rights in the Upper Humboldt River Basin, which contains the hydraulic basins upstream of Palisade, and the Bartlett Decree of 1931 established water rights in the Lower Humboldt River Basin, which contains the hydraulic basins downstream of Palisade (excluding the Reese and Little Humboldt River systems). From these decrees distribution of Humboldt River system surface water rights for Elko, Eureka, Lander, Humboldt and Pershing Counties are approximately 60%, 5%, 6%, 7%, and 22%, respectively.

The importance of the Humboldt River and the Humboldt River Valley to early emigration is well documented in the history of the west. The river's course, cutting directly through Nevada's basin and range topography, became a primary route for the California Emigrant Overland Trail through Nevada beginning in the early 1840s and lasting into the early 1870s. With the completion of the transcontinental railroad in 1869, the route down the Humboldt River became a major east-west railroad passage. Through various phases of highway construction, eventually evolved into present-day U.S. Interstate 80, still paralleled by railroad tracks.

The earliest economical use of the Humboldt River Basin by Europeans was for trapping beaver. Later the river provided water to scattered agricultural activities which served the needs of early emigrant wagon trains. Upon the discovery of silver ore in the lower Humboldt basin in 1860, the economic focus shifted to the development of the river basin's natural and mineral resources. The resultant influx of people dramatically increased the demands for agricultural produce, necessitating more intensive use of the basin's extensive rangelands for livestock grazing. By the early 1870s, extensive ranching and open-range grazing operations stretched virtually from one end of the basin to the other and reached every major stream and tributary

to the Humboldt River. By the late 1800s, most of the basin’s mining activities had lapsed into near-dormancy, but the extensive rail and road transportation systems that mining had fostered now amply served the needs of an expanding farming and ranching industry. Agriculture and transportation effectively dominated the Humboldt River Basin’s economy up until the late 1980s, when gold production, primarily along the Carlin Trend in western Elko County and northern Eureka County, turned the basin into the largest producer of gold in the United States. Throughout the late 1980s and early 1990s, the mining industry came to dominate the economies of the principal counties in the Humboldt River Basin.

Hydrologic Overview and Physical Features of the Humboldt River Basin

The Humboldt River Basin is sub-divided into 33 hydrographic areas. A hydrographic area typically represents a defined valley drainage area or some other discreet drainage system within a larger hydrographic region, basin or watershed. For purposes explained below, the Humboldt River Basin is generally accepted to consist of the Upper and Lower Humboldt River Basins with eleven major tributaries feeding the river. Major tributaries of the Upper Humboldt River Basin include Bishop Creek, Marys River, Lamoille Creek, North Fork Humboldt River, South Fork Humboldt River, Susie Creek, Maggie Creek, Marys Creek, and Pine Creek. Major tributaries of the Lower Humboldt River Basin include Rock Creek, the Reese River, and the Little Humboldt River.

Flows in these tributaries, and subsequently in the Humboldt River, can vary dramatically between seasons. On average, flows in the river and tributaries increase between March and July with peak flows typically occurring in June as the melting snow pack in the surrounding mountains adds water to the river. River and tributary flows drastically recede between August and December, on average by about 90%, due to arid conditions and because most of the precipitation late in the year occurs as snowfall (USGS, 2006).

Due to seasonal variations in flow, diversion and storage dams exist over the reach of the river to control river flow. Below is a table of diversions and dams. These diversions and dams are also depicted on Figure 2 in the **Green Tab**.

HUMBOLDT RIVER DIVERSIONS AND DAMS

Diversion/Dam Name	County	Description/Location
SR 278 Diversion	Eureka	Flow control/diversion dam below SR 278 bridge
Highline Canal	Lander	Diversion dam near Beowawe
Corbett Canal	Lander	Diversion dam near Beowawe
Merchant Canal	Lander	Diversion dam at Beowawe

Diversion/Dam Name	County	Description/Location
Westside Ditch	Lander	Diversion dam at Beowawe
Rose Canal	Lander	Diversion dam near Dunphy
Whitehouse Ditch	Lander	Diversion dam at Dunphy
Slaven Dam	Lander	Diversion dam at Argenta
Broyles Ranch	Lander	Diversion Near Battle Mountain
Iron Point Relief Canal	Humboldt	Diversion at Iron Point
Hammond	Humboldt	Diversion dam at Red House Ranch
Hibbs	Humboldt	Diversion dam near Golconda
Christion	Humboldt	Diversion dam near Golconda
Stall Dam	Humboldt	Flow control dam at Golconda
Thacker Dam	Pershing	Diversion dam near Imlay
Rye Patch Dam	Pershing	Reservoir dam at Rye Patch
Pitt Dam	Pershing	Flow control/diversion dam near Lovelock
Rodgers Dam	Pershing	Flow control/diversion dam at Lovelock

Other major hydrologic features in the Humboldt River Basin include Rye Patch Reservoir and the Humboldt Sink. Rye Patch Reservoir is located approximately 22 miles northeast of Lovelock. The primary purpose of the reservoir is to store water for agricultural use surrounding Lovelock,

but it also serves as a recreational area. The Rye Patch Dam was created in 1935 as part of the New Deal project, intended to help combat the great depression. The dam was expanded in 1976 raising the dam height three feet and providing more storage capacity. The reservoir also includes the Pitt-Taylor Reservoirs which are two off-stream storage basins built in 1911 by a private venture of Lovelock farmers. The Pitt-Taylor Reservoirs are less efficient at storing water than Rye Patch Reservoir and, therefore, only utilized in high-flow years.

The Humboldt Sink is an intermittent dry lake bed approximately 20 miles southwest of Lovelock on the border of Pershing and Churchill counties. The Humboldt Sink is the terminus of the Humboldt River and has no natural outlet. In 1984 the Nevada Department of Transportation (NDOT) cut a channel connecting the Humboldt Sink to the Carson Sink, further south, to prevent flooding in Lovelock after heavy snowfall the preceding years. The channel was dry from 1986 until the winter of 2016/2017 when significant precipitation caused it to flow. The Humboldt Sink and the Carson Sink are remnants of prehistoric Lake Lahontan which existed at the end of the last ice age. The Humboldt Sink is protected as part of the Humboldt Wildlife Management Area. Wetlands in and near the Humboldt Sink provide important nesting, foraging and resting habitat to a large number of migratory birds. There is also a long history of human habitation around the Humboldt Sink. Evidence includes a 2000-year-old decoy found in Lovelock Cave and huts constructed in the bed of the lake, suggesting it was an important hunting and fishing ground for ancient peoples during wetter climatic periods.

The Upper Humboldt River Basin

The Upper Humboldt River Basin is considered to be the portion of the overall basin between Wells, and Palisade Canyon containing the towns of Wells, Elko, and Carlin, Nevada. The Upper Humboldt River Basin includes those drainage areas encompassing the reach of the river between Wells and Palisade Canyon. The Upper Humboldt River basin is comprised of several smaller sub-basins including Upper Humboldt, North Fork Humboldt, South Fork Humboldt, and Pine basins depicted in Figure 1 in the **Green Tab**. The Upper Humboldt River Basin is encompassed in the counties of Elko and Eureka.

The beginning of the Humboldt River formally occurs west of Wells where the headwaters from the springs known as the Humboldt Wells meet the waters from Bishop Creek. The river generally travels southwest for nearly twenty miles where it meets the waters of the Marys River and then Lamoille Creek.

Once the water joins with Lamoille Creek the river travels west for approximately 10 miles where it reaches the community of Osino and merges with the North Fork of the Humboldt River. The headwaters of the North Fork begin in the Independence Mountains and the river travels roughly 25 miles south, joining with numerous streams, until it meets the main branch of the Humboldt River.

Upon leaving Osino, the river once again flows southwest through the town of Elko. Roughly 9 miles downstream of Elko the river joins with the South Fork of the Humboldt River. The South Fork of the Humboldt River spans nearly 38 miles southeast of where it joins the main branch of the Humboldt River. From the headwaters in the Ruby Mountains, the South Fork flows northwesterly joining with several streams until it reaches South Fork Reservoir, roughly 9 miles east of the main branch of the Humboldt River. South Fork Reservoir is used for recreation and as a means of downstream flood control with a storage capacity of 40,000 acre-feet. South Fork

Reservoir can be seen in the South Fork Humboldt Basin in Figure 1 and in Figure 4, both are included in the **Green Tab**.

After the South Fork and the main branch of the Humboldt River conjoin, the river continues to flow southwest for another 6.5 miles then turns west and passes through Carlin Canyon. The river flows in a westerly direction for approximately seven miles, passing through the town of Carlin where it joins with Maggie, Susie, and Marys Creeks. The river then returns to a southwesterly flow after passing under State Route 278 and travels 5 miles, crossing into Eureka County, to the mouth of Palisade Canyon and the beginning of the Lower Humboldt River Basin.

The Lower Humboldt River Basin

The Lower Humboldt River Basin is considered to be the portion of the overall basin from the start of Palisade Canyon to the Humboldt Sink. The Lower Humboldt River Basin is comprised of the smaller sub basins of Rock, Middle Humboldt, Reese, Little Humboldt, and Lower Humboldt Basins depicted in Figure 1 in the **Green Tab**. This area includes the towns of Beowawe, Battle Mountain, Golconda, Winnemucca, Imlay, and Lovelock. The Lower Humboldt River Basin is encompassed in Eureka, Lander, Humboldt, Pershing, and Churchill Counties.

Upon entering Palisade Canyon, the river travels roughly half of a mile and joins with the waters from Pine Creek. After this joining, the river travels west through Palisade Canyon for nearly 20 miles until it reaches Beowawe. From Beowawe the river travels northwest for 8 miles, crossing under Interstate 80, and turns west near Dunphy. Shortly after turning west the river crosses into Lander County.

In Lander County, the river passes by several industrial complexes until it enters the town of Battle Mountain. In Battle Mountain, the river joins with the waters of Rock Creek and the Reese River before turning northwest and crossing into Humboldt County near Valmy.

Once in Humboldt County the river passes the Iron Point Power Station, about 20 miles northwest of Battle Mountain, and reaches Red House Ranch where it begins once again to flow westward. On this westward path, the river passes through Emigrant Canyon and the community of Golconda until it joins with the intermittent waters of the Little Humboldt River, approximately 20 miles downstream from the mouth of Emigrant Canyon. From the joining of the Little Humboldt, the river travels southwest through the town of Winnemucca and crosses into Pershing County near the community of Cosgrave.

After entering Pershing County, the river travels in a southerly direction until passing a diversion approximately 2.5 miles north of Mill City. This diversion once fed the Pitt-Taylor Reservoirs. At Mill City, the river turns west and travels for nearly 8 miles, passing through Imlay and enters Rye Patch Reservoir which has a storage capacity of 213,000 acre-feet. The Rye Patch Reservoir is approximately 20 miles long and ends at the Rye Patch Dam near Humboldt River Ranch. Twenty-two miles downstream of the dam, the river travels south through the town of Lovelock and skirts east of the agricultural area east of Interstate 80. What water remains in the river drains into the Humboldt Sink on the border of Pershing and Churchill Counties.

Climate and Winds

Northern Nevada's climate is usually described as cold semi-arid: winters are typically cold while summers are usually hot and dry. Diurnal temperature variations can be extreme, sometimes by as much as 36 degrees Fahrenheit. The region is largely denied Pacific storms and cold arctic air because the Sierra Nevada and Pine Forest Mountain Ranges effectively cause rain shadow effects to the east. However, on occasion, large Pacific storms make it over the mountains bringing moisture and cold air masses spill over the mountain ranges and produce prolonged cold waves.

The area, on average, receives between 8 and 10 inches of rain a year and up to 42 inches of snow in lower elevations. Northern Nevada experiences light to heavy rain during the spring and summer months. The area averages 67 to 78 days of rain per year.

In the spring, temperatures typically warm quite rapidly. However, strong winter storms still persist with snowfall possible even through late May. Further, with the limited number of storm systems pushing across the area, average precipitation rates begin decreasing toward the end of May.

The summer period brings the warmest temperatures of the year and moisture in the region is generally brought about by afternoon thunderstorm activity. This activity is normally relatively dry, although significant atmospheric moisture can produce wetting rains. For the most part, however, these thunderstorms are dry and create a looming wildfire threat once grasses have cured. Although afternoon temperatures can climb into the 90s and even 100s, overnight lows can become chilly due to the dry air mass overhead.

Precipitation begins to increase in the fall as more weather systems push southward. Temperatures also continue to cool with the possibility of snow, typically occurring in November.

Winter is the second wettest season in the region and the highest amounts of snowfall occur during this time. The coldest days of the year can occur during this time, as well as the highest number of freezing rain events.

Prevailing winds are generally from the west during spring and summer months and from the south during fall and winter. Wind speeds often vary by season, with the highest winds generally occurring in the winter and spring as storms move through the region. Wind gusts can occasionally reach 20 mph or greater. In the valleys, winds are generally light in the mornings and stronger in the afternoon. Dust or sand storms occur rarely, but typically happen in the spring, when storms move through the region more frequently than other seasons.

Risk Assessment

The Humboldt River is one of the principal resources found in Northern Nevada with numerous cultural and economic resources intrinsically connected to it. Potential risks to these resources include roads, rail systems and other factors.

Road Systems

Vehicle traffic on roadways pose an oil or hazardous material spill risk in areas where the roadways run adjacent to the river shoreline, or where they cross over the rivers, creeks and ditches that drain into the Humboldt River. Interstate 80 runs parallel to most of the river, with several other state highways running parallel to rivers and creeks that feed the Humboldt River as depicted in Figure 1 in the **Green Tab**. Within the Humboldt River Basin area there are eight major highway or interstate bridges that cross the Humboldt River or its tributaries. A vehicle spill onto one of these bridges or roadways can cause fuel, oil or other hazardous materials to flow from hardened surfaces into the Humboldt River or its tributaries. Commercial trucks can contain hundreds to thousands of gallons of fuel and oil, especially fully-loaded tank trucks, and may carry almost any kind of cargo, including hazardous waste or other material that would pose a risk to the environment. Smaller vehicle accidents pose a risk as well, commensurate to the volume of fuel and oil they carry.

Rail Transportation and Facilities

Like the highways that run along much of the Humboldt River, Union Pacific rail lines closely parallel nearly the entire Humboldt River. This major railroad company employs mixed cargo trains that can carry hazardous materials on both the eastbound and westbound lines. Locomotives, by themselves, typically hold several thousand gallons of diesel fuel plus large quantities of lube and motor oils. Individual tank cars can contain just over 30,000 gallons of crude oil or other petroleum products. Trains can carry 3,000,000 gallons of oil in a unit train of 100 tank cars; at 42 gallons per barrel that equates to 71,428 barrels. Various hazardous materials are also shipped by rail. These materials can each pose a spill risk to the river as the rail lines parallel the river and a train derailment could cause breaching of the railcar containers.

Aircraft

One small commercial airport, the Elko Regional Airport, is located within the Humboldt River Basin. Landing strips at this airport are used for recreational, commercial, and transit purposes. Several other small landing strips exist in other municipalities along the river, typically used for emergency landing and/or as destinations for small private aircraft. With airports in the area, the potential exists for aircraft failures during inbound or outbound flights that could result in a spill with a release of jet fuel to the Humboldt River or its tributaries.

Recreational Boating

Accidents involving recreational water craft within Rye Patch or South Fork Reservoirs have the potential to result in spills of gasoline. Examples of such accidents include: collisions or a vessel grounding, catching on fire, sinking or exploding. These types of accidents are the most typical types of spills to occur and have a negative impact on sensitive river resources.

Earthquakes, Weather and Wildfire

Oil or hazardous material spill risk factors include accidents near waterways due to natural events, including earthquakes, weather and wildfire. Small earthquakes occur rarely along the reach of the Humboldt River. The Humboldt River Basin has severe weather with the possibility of strong winds, snow and ice in the winter, and summer thunderstorms throughout the area also place the region at risk of weather-related wildfires.

Other Spill Risks

Other potential oil or hazardous material spill risks in the area include road run-off during rain events and on-shore, near-shore or over-the-water (bridge work) construction activities in which heavy equipment is being operated. Additionally, the migration of spilled oil or hazardous materials through soil on lands adjacent to the river or along creek or stream banks, as well as security concerns such as acts of vandalism, sabotage or terrorism against railroads pose potential spill risks.

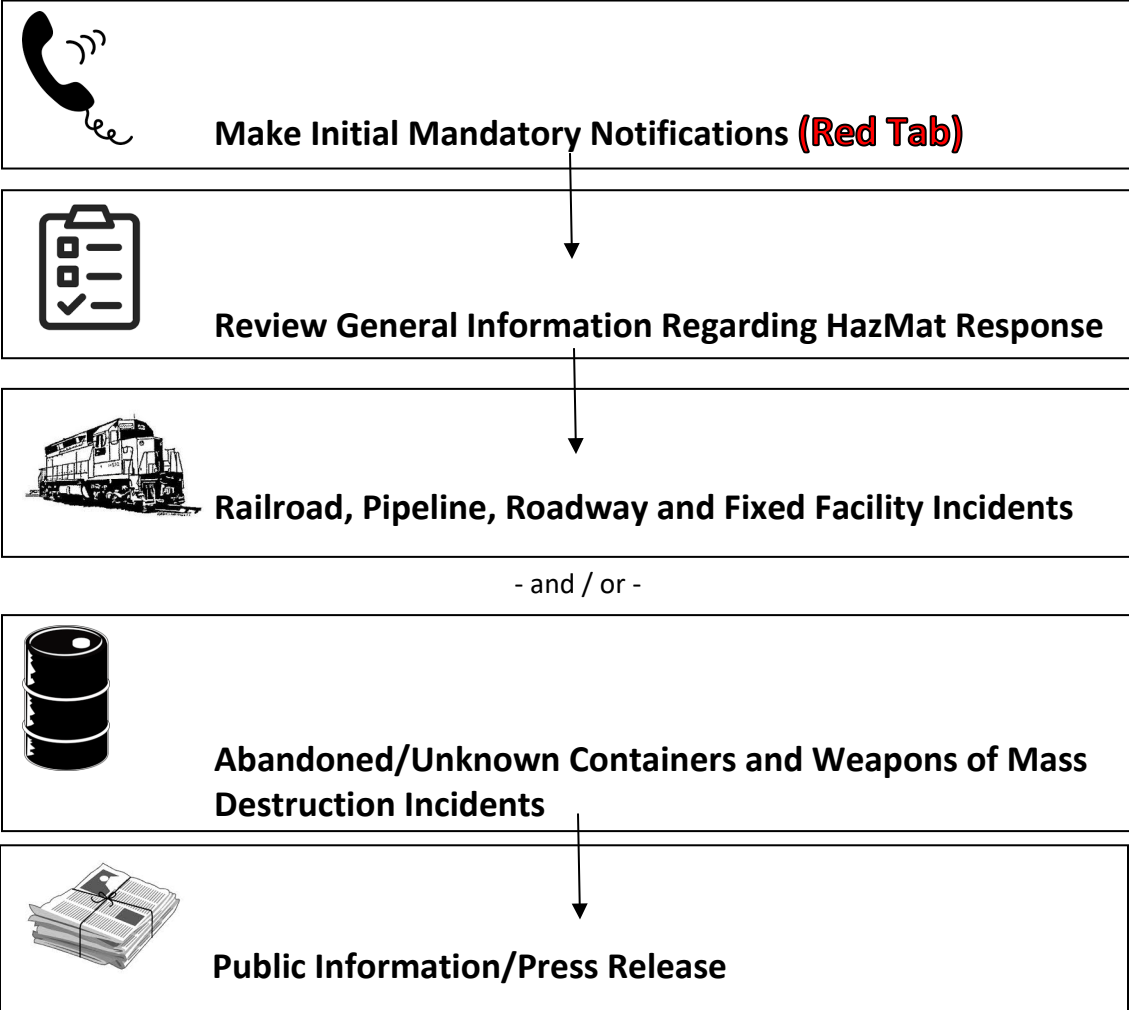
Yellow Tab
Immediate Notification Guide

Immediate Action Guide

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

How to Use the Immediate Action Guide

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



This is only a guide:

Nothing in this section shall supersede the experience, initiative and/or ingenuity of responders in overcoming the complexities of actual emergency conditions.



Make Initial Immediate Notifications

Collect the information detailed below 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 can discharge into the Humboldt River.*

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

- Type of incident (Rail, Motor Transport, Pipeline, 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 is expected to 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., turnout-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 as well as contact with potentially hazardous materials or products.
6. Confine exposed victims for emergency decontamination.
7. Consider all unidentified containers or released products (including smoke) as hazardous materials until they are 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 tasks in the Immediate Action Checklist below.
5. Review the Immediate Action Checklist below:

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 the exclusion zone	
7.	Determine level of response	
8.	Determine if additional resources are required	
9.	Establish 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 personal protective equipment (PPE)	
14.	Determine communication needs	
15.	Make appropriate notifications	
16.	Determine exposures	
17.	Develop Incident Action Plan	



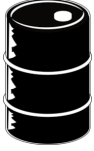
Railroad, Pipeline, Roadway and Fixed Facility Incidents

Responder

1. Notify Local Emergency Dispatch – **Activate 911**.
2. Isolate and deny entry to the area - establish a perimeter.
3. Shut down all possible ignition sources (stop ALL vehicle traffic).
4. Establish parameters.
5. Attempt to identify the material.

Information For Dispatcher

1. Determine the following information:
 - Type of incident (rail, motor transport, pipeline, 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 _____
 - Has the spill ignited? Yes ____ No ____
 - Any information on rail car or container
 - Has the spill been contained? 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 Weapons of Mass Destruction Incidents

Responder

1. Notify Local Emergency Dispatch – **Activate 911.**
2. Isolate and deny entry to the area - establish perimeter.
3. Shut down all possible ignition 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 Weapons of Mass Destruction (WMD) or Nuclear, Biological, or Chemical (NBC) hazards, determine if there are secondary devices or hazards.
7. Treat location as a ***possible crime scene!***

Information For 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_____
 - Has the spill ignited? Yes____ No____
 - Can the spill be contained? 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.

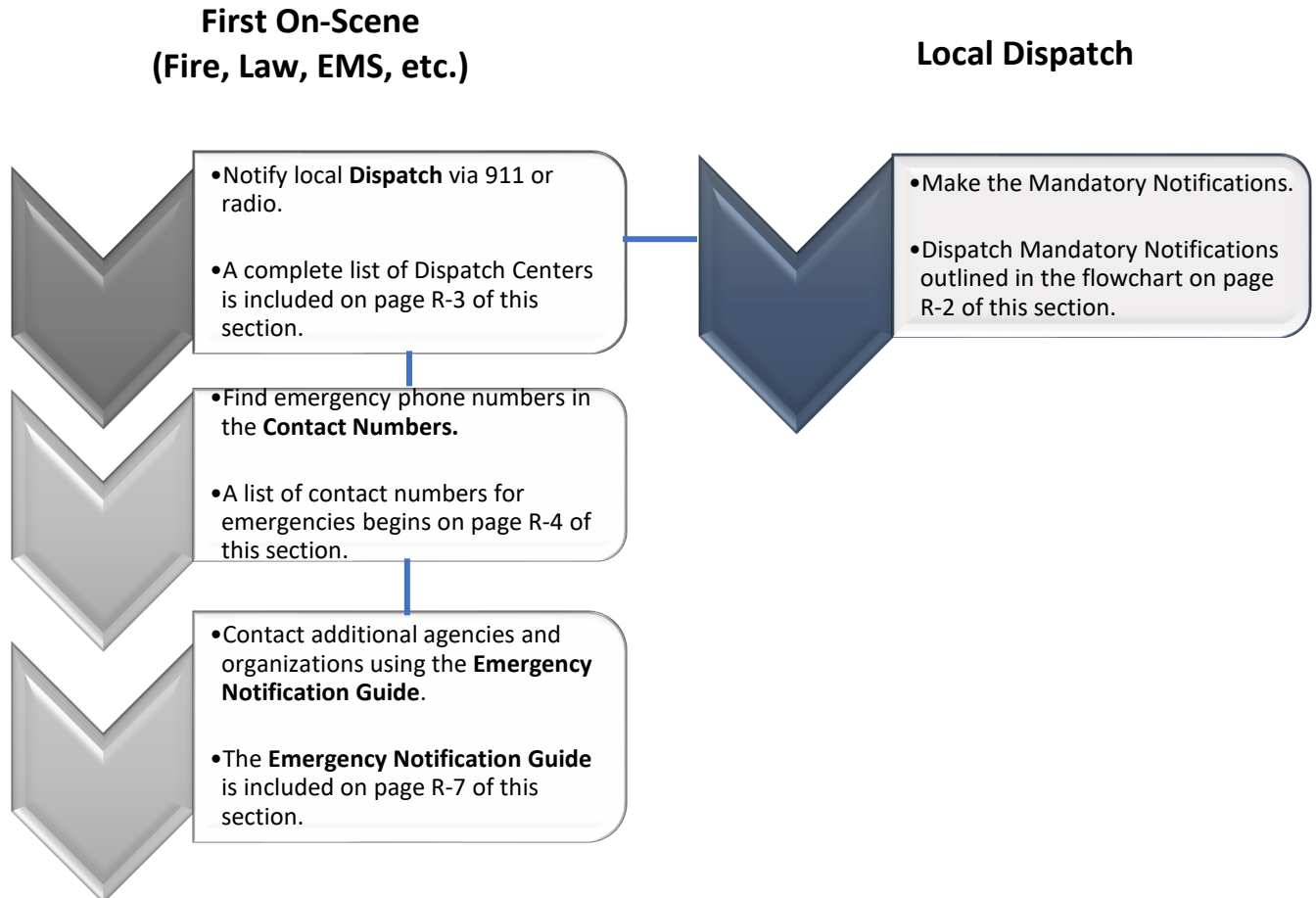
Clean up crews from (agency/company) were dispatched to the scene, and normal traffic was resumed by (time), at which time residents were allowed to return to their homes. There were no injuries reported – OR – (number) persons, including (number) of emergency personnel, were treated at area hospitals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

Red Tab
Notification

Notification

Overview

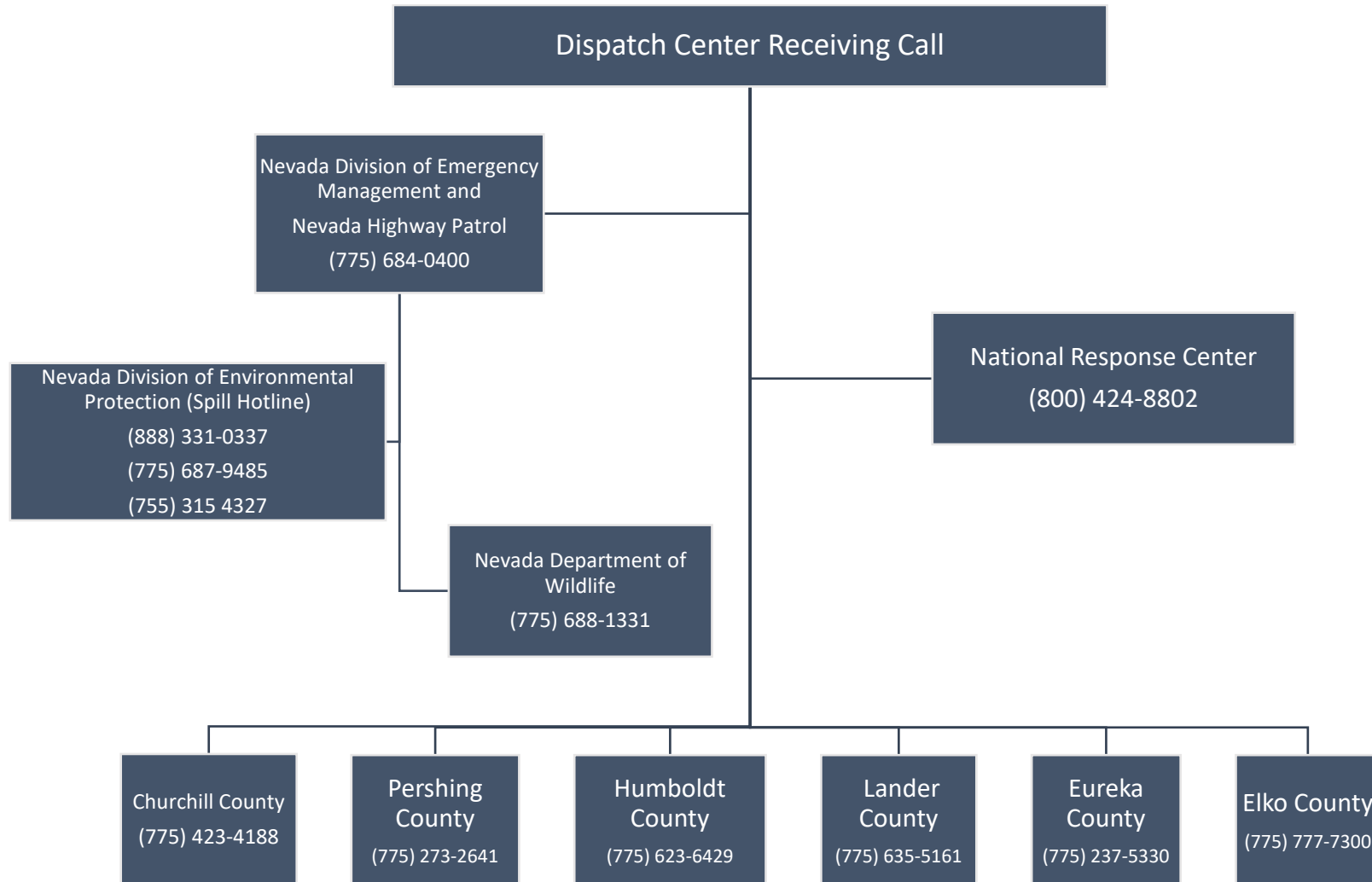
The chart below shows the flow of notifications that must be made in a hazardous material, petroleum product or other contaminant emergency.



For updates to the contact information, contact Rebecca Bodnar at (775) 687-9545.

Note: Certain areas along the river may not have cell phone service.

Dispatch Mandatory Notifications



Dispatch Centers

Dispatch Center	Phone Number	Area of Dispatch	Agencies Notified
Law Enforcement and Fire/ Emergency Medical Services			
Nevada Division of Emergency Management (NDEM)	(775) 687-0400	Humboldt River Basin	Civil Support Team, State Engineer, NDEP
Elko County Sheriff – Wells Substation	(775) 738-4011	Wells, Nevada	Wells Volunteer Fire and Ambulance Dept, Elko County Sheriff, County Local Emergency Planning Committee (LEPC), NDEM, Nevada NDOT, NHP
Elko Central Dispatch	(775) 777-7300	Elko, Nevada	Elko County Sheriff, Elko Police, Elko Fire, EMS, Elko Emergency Manager (EM), Elko Environmental Dept, LEPC, Citizen Corps HazMat Team, Civil Air Patrol, NDEM, NDOT, NHP
Carlin Police Department	(775) 754-2222	Carlin, Nevada	Carlin Police Dept, Carlin Volunteer Fire Dept
Eureka County Sheriff's Office	(775) 237-5330	Eureka, Nevada	Eureka County Sheriff, Eureka EM, Eureka Fire/EMS, LEPC, NDOT, NHP
Lander County Sheriff's Office	(775) 635-5161	Battle Mountain, Nevada	Lander County Sheriff, Lander EM, Volunteer Fire, Ambulance, LEPC, NDEM NDOT, NHP
Humboldt County Sheriff's Office	(775) 623-6429	Winnemucca, Nevada	Humboldt County Sheriff, Humboldt EM, Winnemucca Police, Winnemucca Volunteer Fire, EMS, Civil Air Patrol, NDEM, NDOT, NHP
Pershing County Sheriff's Office	(775) 273-2641	Lovelock, Nevada	Pershing County Sheriff, Pershing EM, Lovelock Fire/Ambulance, Lovelock Police Dept, NDOT, NHP
Churchill County Sheriff's Office	(775) 423-3116	Fallon, Nevada	Churchill County Sheriff, Churchill EM, Churchill Fire, EMS, Churchill LEPC, NDEM, NDOT, NHP, Fallon Paiute Shoshone, Fallon NAS

Contact Numbers

Dispatch Center	Phone Number	Area of Dispatch	Agencies Notified
Fire/EMS Only			
Elko Interagency Dispatch Center (Elko County)	(775) 748-4000	Wells, Elko, and Carlin	Bureau of Land Management, U.S. Forest Service, Nevada Division of Forestry
Central Nevada Interagency Dispatch Center (Battle Mountain and Winnemucca)	(775) 623-3444	Battle Mountain, Winnemucca, and Lovelock	Bureau of Land Management, U.S. Forest Service, Nevada Division of Forestry
Crescent Valley Volunteer Fire	(775) 468-0238	Crescent Valley, Nevada	Crescent Valley Fire/Ambulance/EMT
Law Enforcement Only			
Nevada Highway Patrol (Reno)	(775) 687-0400	All Nevada highways in the Humboldt River Basin	NHP, NDEM
Nevada Department of Wildlife	(775) 688-1331	Humboldt River Basin	BLM, Nat'l Park Svc, USFWS, U.S. Forest Service
Humboldt River Water Resources			
Position	Phone Number	Area of Dispatch	Agencies Notified
Elko Area Water Master – Kirk Owsley	(775) 753-3553	Wells, Elko, and Carlin	NDEP, Nevada Division of Water Resources (NDWR)
Winnemucca Area Water Master – Steve Delsoldato	(775) 623-6562	Battle Mountain, Winnemucca, and Lovelock	NDEP, NDWR
Pershing County Water District	(775) 273-2293	Pershing County	None
City Governments			
City	Phone Number	Area of Dispatch	Notifications
City of Wells	(775) 752-3355	Wells, Nevada	Public Utilities (Water, Sewer, etc.) and Interested Parties (Property Owners, Etc.)

City Contacts			
City	Phone Number	Area of Dispatch	Agencies Notified
City of Elko	(775) 777-7100	Elko, Nevada	Public Utilities and Interested Parties
City of Carlin	(775) 754-6354	Carlin, Nevada	Public Utilities and Interested Parties
Lander County	(775) 635-2885	Battle Mountain, Nevada	Public Utilities and Interested Parties
City of Winnemucca	(775) 623-6333	Winnemucca, Nevada	Public Utilities and Interested Parties
City of Lovelock	(775) 273-2356	Lovelock, Nevada	Public Utilities and Interested Parties
Tribal Authority			
Tribe	Phone Number	Area of Dispatch	Position
Inter-Tribal Emergency Response Commission	(775) 355-0600 X 154	Humboldt River Basin	NIMS Coordinator
Battle Mountain Band of the Te-Moak Tribe of Western Shoshone	(775) 635-2004	Battle Mountain Area	Tribal Council
Elko Band of the Te-Moak Tribe of Western Shoshone	(775) 738-8889	Elko Area	Tribal Council
South Fork Band of the Te-Moak Tribe of Western Shoshone	(775) 744-4273	South Fork Area	Tribal Council
Wells Band of the Te-Moak Tribe of Western Shoshone	(775) 345-3086	Wells Area	Tribal Council
Winnemucca Indian Colony of Western Shoshone	(702) 722-3833	Winnemucca Area	Tribal Council

Tribal Authority			
Tribe	Phone Number	Area of Dispatch	Position
Lovelock Paiute Tribe	(775) 273-7861	Lovelock Area	Tribal Council

For **emergencies and other sudden threats** to public health such as:

- oil and/or chemical spills,
- radiation emergencies, and
- biological discharges,

call the **National Response Center** at 1-800-424-8802

The EPA Region 9 office also has a 24/7 duty officer for oil and chemical spills at 1-800-300-2193.

Emergency Notification Guide

The following Spill Contact Sheet is presented as a guide. Several contact numbers are not filled in as the Humboldt River spans multiple counties and contact numbers may vary county to county. It is recommended that users of this plan fill out this Spill Contact Sheet with appropriated numbers for their area of operations.

Spill Response Contact Sheet

Immediate/Mandatory Emergency Notifications for Oil Spills & Hazardous Substance Releases	
State Notification - Nevada Department of Environmental Protection	(888) 331-6337*
Federal Notification - National Response Center	(800) 424-8802*

Local Emergency, Industry, OSRO, Infrastructure Contact Information
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Local Government	
LEPC/County Emergency Mgmt	
County Environmental Health	
CUPA	

Oiled Wildlife Care Network	
UC Davis - Oiled Wildlife Care Network	(530) 752-7704

Local Fire and Law Enforcement	
Local Police Department	
County Sherriff	
Local Fire Department	
Local Haz Mat Teams	

Oil Spill Response Organizations (OSRO's)	
NRC Environmental Services / NRC	(800) 899-4672

Public Works and Traffic Control	

Railroad, Pipeline, Fixed Facility	
Union Pacific Railroad	(888) 877-7267

Water Districts and County Water Agencies	
Public Drinking Water	

Utilities Infrastructure	
NV Energy	(775) 834-4100

Water Intake Contacts	

* Contact Numbers staffed 24-hour/day

Other Contact Information

City and County Government	

National Oceanic Atmospheric Administration	
Scientific Support Coordinator	(206) 526-4911
Weather	(775) 778-6716

Other Federal Agencies	
U.S. Army Corps of Engineers	(602) 230-6900
U.S. Fish & Wildlife Service	(775) 861-6300
U.S. Department of Interior	(775) 887-3500
U.S. Forest Service	(775) 331-6444

Tribal Contacts	
Inter-Tribal Emergency Response Com.	(775) 355-0600 ext 154

Other State Agencies	
Department of Parks and Recreation	(775) 684-2770
Historic Properties/SHPO	(775) 684-3448
Nevada Dept of Transportation	(775) 888-7000
Nevada Highway Patrol	(775) 687-5300
Department of Water Resources	(775) 684-2800

Property Owners/Managed Lands	
BLM	(775) 861-6500

Emergency Response Resources	
Ambulance Service	
Hospitals	
Airports	
Marinas	
Established Command Post Locations	

Orange Tab
Resources

Resources

This section provides resource information about hazardous materials specialized response teams, spill response contractors and significant response equipment available in the vicinity of the Humboldt River.

Specialized Teams

There are several specialized teams that operate in the vicinity of the Humboldt River. While these teams do not meet the requirements of Type 1 HazMat entry teams, they have personnel with specialized training and equipment. Additional information regarding the capabilities of these teams is provided in the Roles and Responsibilities section (White Tab #2) of this plan. A brief summary of equipment inventories for these teams is provided later in this section. These teams include the following:

- USEPA Region 9 (800) 300-2193
- 92nd Nevada Civil Support Team (775) 687-0400
- Elko Fire Department (775) 777-7345
- Winnemucca Fire Department (775) 623-6329
- Mine Rescue Teams/Environmental Departments Various
- Union Pacific Railroad Hazardous Materials Management Group (916) 580-9999

Spill Response Contractors

The following are spill response and vessel salvage contractors (in no particular order) that are available along the Humboldt River. Additional information regarding the capabilities of these companies is provided in the Roles and Responsibilities section (White Tab #2) of this plan. Significant equipment lists are provided later in the section.

Contractor	Contact	Phone Number
Clean Harbors Environmental	Stephen Sitton	(775) 331-9400
		24 Hr ER: (800) 645-8265
H2O Environmental, Inc.	Kevin Anderson	(775) 351-2237
		24 Hr ER: (866) H2O-SPILL
RK Contractors, Inc.	Ryan Kautz	(530) 412-3322

Significant Response Equipment Inventory

Significant response equipment along the Humboldt River was catalogued for this plan. Descriptions and/or lists of available equipment per entity are provided below.

USEPA Region 9 Oil Spill Response Trailer

Location: Carson City Fire Department
Contact: Carson City Fire Dispatch (775) 887-2007, or USEPA Region 9 (800) 300-2193

This response trailer and equipment is owned and operated by USEPA Region 9 but is stored by the Carson City Fire Department. The Oil Spill Response Trailer is available for use by appropriately trained personnel and contains the following:

- 14-foot tandem axle trailer with 2-inch ball receiver and trailer brakes
- 500 feet of containment boom (4-inch float, 6-inch skirt)
- Rotary drum oil skimmer with air compressor and hose
- 1,000-gallon collapsible storage tank
- Misc. sorbent pads, sorbent boom and solidifiers
- Misc. PVC pipe and materials for underflow dam construction
- Misc. line, carabiners, anchors, pulleys, life jackets, etc.
- 9-foot inflatable boat

USEPA Region 9 Equipment Cache

Location: Carson City, Nevada
Contact: (800) 300-2193

USEPA Region 9 maintains a cache of equipment in Carson City including air monitoring, sampling and radiation detection equipment. USEPA Region 9 also maintains larger equipment warehouses in San Francisco, Las Vegas, and Los Angeles. These warehouses contain a larger variety and number of equipment types than those identified above, including WMD detection instrumentation. This equipment is available 24/7/365 for deployment to incidents in the Humboldt River Basin.

Nevada 92nd Civil Support Team

Location: Carson City, Nevada
Contact: (775) 687-0400

The Civil Support Team (CST) is deployed by request through NDEM and is staffed with 22 full-time service members from both the Air and Army National Guard. Service members are trained HAZMAT technicians and are capable of performing entry operations, sampling, decontamination, communications operations, hazard prediction assessment and acting as medical personnel. The CST also maintains and operates several incident trailers including a state-of-the-art communications system, a mobile laboratory, and an emergency response trailer equipped with numerous pieces of response equipment.

Mine Rescue Teams and Environmental Departments

Location: Mines within the area of the Humboldt River

Contact: Various

Mine rescue teams and environmental departments are employed by the various mining companies that lie within or near the Humboldt River Basin. The team members specialize in emergency rescue of personnel and response to hazardous material releases related to mining activities. Though these companies do not offer cleanup capabilities, they may be able to provide guidance and aid in the initial response of a spill.

Elko Fire Department (Elko County)

Location: Elko, Nevada

Contact: (775) 777-7345

The Elko Fire Department employs an eleven-member HAZMAT team that provides all hazard and emergency response services and maintains a response trailer. Their cleanup and mitigation capabilities are limited but they can perform initial assessment and can aid in response activities. Resources at their disposal, through Envirocare, include:

- 13 Pumps and Siphons
- Various Remediation Tools Including Brooms, Shovels, Squeegees, and Ladders
- 300 Feet of Hard Skirt Boom
- 4 Two-Way Radios
- 3 Remote Laptops
- 1 Weather Station
- 400 Feet of Chemical Vacuum Hose
- 13 Gas/Chemical and pH Testers
- 4 Vacuums Including HEPA and Mercury
- 14 Response Vehicles Including Trucks and Vans, a Mobile Command Center and Specialized Vehicles for Response such as Boom Deployers, End Dumps, AWD Terrain Vehicles, Vacuum Boxes, Roll Off Boxes, etc.
- Various Personal Protective Equipment (PPE) Including SCBA Units, Respirators and Decontamination Stations
- Various Drums and Totes
- Various Absorbents
- Various Pipes
- Various Consumables Including Sealants, Barrier Tape, Rope, Eye Wash Stations, Construction Fencing, Drum Liners, and Plastic Sheeting

Elko County Sheriff's Office (Elko County)

Location: Elko, Nevada
Contact: (775) 777-7300 (Dispatch)

Elko County Sheriff's Office has minimal hazardous material response resources. However, Elko County Sheriff personnel would likely be involved in response activities as first responders, but through awareness only. As first responders, they would secure the scene, control traffic and provide staging support.

Eureka County Sheriff's Office (Eureka County)

Location: Eureka, Nevada
Contact: (775) 237-5330 (Dispatch)

Eureka County does not have a Hazmat Team and the Eureka County Sheriff's Office has minimal hazardous material response resources. However, Eureka County Sheriff personnel would likely be involved in response activities as first responders, but through awareness only. As first responders, they would secure the scene, control traffic and provide staging support. The Humboldt River spans about 33 linear miles across the north end of Eureka County.

Lander County Sheriff's Office (Lander County)

Location: Battle Mountain, Nevada
Contact: (775) 635-5161

Lander County does not have a Hazmat Team and the Lander County Sheriff's Office has minimal hazardous material response resources. However, Lander County Sheriff personnel would likely be involved in response activities as first responders, but through awareness only. As first responders, they would secure the scene, control traffic and provide staging support. The Humboldt River spans about 27 linear miles across the north end of Lander County.

Winnemucca Fire Department (Humboldt County)

Location: Winnemucca, Nevada
Contact: (775) 623-6329

The Winnemucca Fire Department employs a HAZMAT team in cooperation with Humboldt County Emergency Medical Services coordinated by Humboldt General Hospital. This team is comprised of three HAZMAT technicians and 20 assessment/operations personnel. The Winnemucca Fire Department also maintains a response trailer with decontamination materials, PPE and a small amount of mitigation equipment. Please note that the Winnemucca Fire Department will only respond to emergencies within their response area and not to the entirety of Humboldt County. Additional resources at their disposal through Humboldt General Hospital include:

- Various Communications Equipment Including Portable Radios, Mobile Radios, and Base Stations

- Various Heavy Equipment Including Non-Radio Equipped Vehicles, Backhoes, Boom Trucks, Dozers, Dump Trucks, Graders, Loaders, Water Trucks, Sweepers, Portable Generators, Pumps and Lights, Passenger Vans/Buses, a Vacuum Truck, a Crane, Lone Tree/Twin Creeks Hazmat Response Mine Rescue Trailers, a Disaster Trailer, and a Snow Cat
- Various Light Equipment Including Shovels, Gloves, Safety Glasses, Rain Gear, Sand Bags, and Tents
- Various Fire Fighting Equipment
- Various PPE Including Face Masks, SCBA Units, and Turnout Gear
- Traffic Control Signs
- Various Miscellaneous Equipment Including Chemical Detectors, Laptop Computers, Flashlights, and Water Cans

Humboldt County Sheriff's Office (Humboldt County)

Location: Winnemucca, Nevada

Contact: (775) 623-6429

Humboldt County Sheriff's Office has minimal hazardous material response resources. However, Humboldt County Sheriff personnel would likely be involved in response activities as first responders, but through awareness only. As first responders, they would secure the scene, control traffic and provide staging support.

Pershing County Sheriff's Office (Pershing County)

Location: Lovelock, Nevada

Contact: (775) 2732641

Pershing County does not have a Hazmat Team and the Pershing County Sheriff's Office has minimal hazardous material response resources. However, Pershing County Sheriff personnel would likely be involved in response activities as first responders, but through awareness only. As first responders, they would secure the scene, control traffic, and provide staging support.

Churchill County Emergency Management and Sheriff's Office (Churchill County)

Location: Fallon, Nevada

Contact: (775) 423-4188 (Emergency Management); (775) 423-3116 (Sheriff's Office)

The western terminus of the Humboldt River is in the Humboldt Sink, a portion of which is located in northern Churchill County. It is unlikely that Churchill County would be involved in spill response along the Humboldt River in the context of this plan. However, Churchill County does have an Emergency Management Department and Sheriff's Office, both located in Fallon, which can provide logistics support for first responders during emergencies.

Clean Harbors (Spill Response Contractor)

Location: McCarren, Nevada

Contact: (775) 331-9400

Clean Harbors can respond to oil or hazardous material spills as a contractor. Response equipment Clean Harbors can mobilize to the Humboldt River include:

- Containment Boom, 1,100-feet (8-inch float, 8-inch skirt), 300-feet (4-inch float, 4-inch skirt)
- 280-Oil Absorbent Booms (5-inch x 10-foot)
- Oil Skimmer, Drum
- 60 – Oil Absorbent Pads, Bales (15-inch x 18-inch)
- 24 – Acid/Caustic Absorbent Pads, Bales (15-inch x 18-inch)
- 100 – Clay Based Absorbent, 25 lb bags
- Hydro Excavator
- 2 – John Boats with Outboard Engines
- 2 – Rack Trucks
- 5 – Rapid Response Trucks (fully stocked and equipped)
- 5 – Chase Trucks
- 2 – Emergency Response Trailers
- 1 – Emergency Response Traffic Control Trailer
- 1 – 4WD UTV
- 2 – Vactor Trucks
- 6 – Vacuum Tanker Trucks, 120 and 70 Barrel
- 5 – Guzzler Airmover Trucks
- 2 – 7,000 Gallon Transport Tankers
- 8 – Semi-Trucks
- 4 – Portable Storage Tanks (3,000-5,000 gallons)
- 29 – Rolloff Bins, Various Sizes
- 8 – Utility Trailers
- 1 – Forklift
- 1 – Skid Steer Loader
- 1 – Jet Rodder
- 2 – End Dumps
- 4 – Vacboxes
- 4 – Pressure washers
- 2 – Air compressors
- 3 – 3,000-watt Generators
- 5 – Various Pumps

H2O Environmental (Spill Response Contractor)

Location: Reno, Nevada
Contact: (775) 351-2237

H2O Environmental can respond to oil or hazardous material spills as a contractor. Response equipment H2O Environmental can mobilize to the Humboldt River include:

- Containment Boom, in Las Vegas 4,000-feet (4-inch floatation, 8-inch skirt) Containment Boom, in Reno 1,500-feet (4-inch floatation, 8-inch skirt)

- Containment Boom, Reno 500 Feet (6-inch floatation, 12-inch skirt)
- 2 - Oil Skimmers, Drum
- 2 - Oil Skimmers, Disk
- 3 - John Boats with Outboard Engines
- 2 - 4WD Quad ATsV
- 100 - Absorbent Booms (8-inch diameter x 10-foot length)
- 50 - Absorbent Pads, Bales (24-inch x 24-inch)
- 10 - Emergency Response Vehicles, 1 to 5 ton (fully stocked and equipped)
- 2 - Emergency Response Trailers, 30-foot
- 1 - Command Center, 32-feet (fully equipped)
- 3 - Vactor Air Movers (2,200 gallons)
- 6 - Vacuum Trucks (3,000 gallons)
- 4 - Vacuum Tankers (5,000 gallons)
- 40 - Roll-Off Bins (15 – 40 cubic yards)
- 6 - Side Dump Trailers (28 cubic yards)
- 2 - Semi-Van Trailers with Lift Gates
- 4 - Excavators
- 4 - Backhoes, 4WD Enclosed Cab
- 3 - Skid Steer Loaders
- 4 - Pressure Washers
- 4 - Generators with 2,000-Watt Portable Lights
- 4 - Portable Storage Tanks (24,000 gallons)
- 5 - Portable Storage Tanks (2,000 – 5,000 gallons)

RK Contractors, Inc. (Spill Response Contractor)

Location: Truckee, CA

Contact: (530) 587-0599

RK Contractors, Inc. can respond to oil or hazardous material spills as a contractor. Response equipment RK Contractors, Inc. can mobilize to the Humboldt River include:

- 53' HAZMAT Response & Command Trailer
 - Office w/ Workstations, Printer, Copier, Fax, Wireless Internet/ Network
 - Gear Room/ Shop
 - Multi-Purpose Room- Conferences, Bunk Room, Additional Gear
 - Kitchenette- Food Cache, 200 gal. Potable Water Supply
 - Bathroom with Shower
 - 20 KW Diesel Generator- Auxiliary Power Plugs
 - HVAC Throughout
 - 4,400 lb Lift Gate
 - MotoSat Broadband Satellite
 - Bendix King Command Radios
 - Decon Stations
 - Misc PPE to Level B
 - 40- Nomex Suites
 - 40 - Absorbent Booms (8" D x 10'L)

- 10 - Absorbent Pads, Bale (24" x 24")
- QRAE Multigas Meter
- Backboard/ Stokes Litter/ Trauma Kit
- Assortment of Poly Drums, Steel Drums, Over Packs, All-Purpose Sorbent, Sand Bags, Visquine, etc.
- 1 - 4x4 RTV (Winch, Foam System, Back Board, Trauma Kit, Iridium Satellite Phone, GPS, BK Command Radio)
- 6 - Emergency Response Vehicles, 1-5 Ton (fully stocked and equipped)
- 1 - Vacuum Trailer (2,000 gal.)
- 5 - Roll-Off Bins (15 – 40 cu. yd.)
- 1 - Double Rolloff "Rocket Launcher" Trailer
- 1 - 32' End-Dump Trailer
- 1 - 48' Flatbed Trailer
- 1 - 35 Ton Lowbed
- 1 - Dump Truck
- 1 - Water Truck (2000 gal)
- 4 - Excavators
- 2 - Rubber Tired Loaders, 4x4, Tire Chains
- 1 - Tracked Loader, 4/1 & Rippers
- 2- Bulldozers, Winch, and Rippers
- 1 - Compact Track Loader
- 2 - Snowcats (Personnel Carriers/ Utility Bodies)
- 2 - Vibratory Compactors
- 1 - 25 Ton 6x6 Off-Highway Articulated Dump Truck
- 2 - Pressure Washers
- 2 -Light Towers/ Generators
- 5 - Generators (10KW – 85KW)
- 1 - 185CFM Air Compressor
- 2 - Portable Storage Tanks (2,000 – 5,000 gal.)
- Assorted Pumps

Union Pacific Railroad

Location: Roseville, CA

Contact: (916) 580-9999

If contacted to support a spill response and with headquarters clearance, Union Pacific Railroad's Hazardous Materials Response Teams will bring resources from multiple locations (Sparks, Nevada and Salt Lake City, UT, initially). The initial response will be containment and absorbent boom, boats, vacuum trucks, waste storage, and personnel. Depending on the nature of the release and its location, Union Pacific Railroad can ramp up their response significantly and bring in additional equipment and personnel from around the country.

Green Tab
River Response Strategies

River Response Strategies

This section provides information that may be useful to the responder in the event that hazardous materials, petroleum products or other contaminants are released into the Humboldt River. Information regarding basic stream flow data (including average monthly stream flow and stream flow velocity); oil spill response methods (presented in matrix form); potential collection methods; and procedures for managing the discovery of human and cultural or historic resources are presented in the text of this **Green Tab** section. Humboldt River figures are presented at the end of the section. The stream flow data can be used to assist in estimations of the time it will take for a contaminant to reach any downstream location under different stream flow conditions.

Various sites along the Humboldt River have been identified which are easily accessible to personnel and equipment, as well as being suitable for boom placement and recovery of floating products. Figures 3 through 7 provided at the end of this **Green Tab** section show the Humboldt River Basin and the locations of these identified sites. The **Blue Tab** section of this plan presents individual strategies for each of these identified sites.

Whether the material that is released during a spill floats, sinks, or mixes, downstream water users and operators for drinking water intakes (e.g. industrial and irrigation diversions) should be promptly notified of a spill so that appropriate actions may be taken to protect water supplies and structures.

Stream Flow Data

The following stream flow data was obtained from the USGS and may be of use to the responder in selecting booming locations based on stream flow discharge. Real-time stream flow data can be obtained from the USGS web page at <http://nevada.usgs.gov> (**click on “real time water data,” click on “current conditions,” click on “stream flow table,” and type in “Humboldt River”**). Historic mean monthly stream flows are available on this web page and are summarized in the following table.

It should be noted that many areas of the Humboldt River can experience problematic issues in terms of river response during high flow events. Well channelized sections of the river through towns and canyons can experience overtopping of river banks and bridges with dramatically increased flow velocity. Open, meandering sections of the river can experience a wide flood plain. In most cases, railways along the river experience the greatest threat to flooding. Additionally, high flow events may frequently wash out access roads across the Humboldt River Basin, potentially making access to the river difficult.

Historic Mean Monthly Stream Flows Humboldt River (cubic feet per second)												
	Jan.	Feb.	Mar.	Apr.	May	Jun.	July	Aug.	Sept.	Oct.	Nov.	Dec.
North Fork	35	61	127	211	186	124	29	9.1	8.8	12	17	21
Elko	90	178	340	499	654	755	187	23	10	23	46	59
South Fork	27	44	92	157	380	443	116	21	11	10	13	18
Carlin	131	243	473	684	971	1,180	329	48	25	40	68	89
Palisade	144	275	563	837	1,010	1,170	336	60	38	59	87	104
Dunphy	154	233	486	693	932	1,060	330	54	27	47	73	92
Battle Mountain	175	269	482	768	910	1,070	343	48	17	32	69	99
Comus	140	257	503	727	764	873	402	71	22	33	61	92
Little Humboldt, Paradise Valley	8.7	9.9	11	36	55	40	22	17	11	8.4	9.1	8.9
Imlay	144	175	357	524	599	680	429	108	40	39	57	82
Rye Patch	59	59	147	422	609	535	419	261	151	106	33	35

Oil Spill Response Methods Matrix

Oil is commonly thought of as being a single substance, but there are actually many different kinds of oil. Oil types differ from each other in their viscosity, volatility, and toxicity. Viscosity refers to an oil's resistance to flow. Volatility refers to how quickly the oil evaporates into the air. Toxicity refers to how toxic, or poisonous, the oil is to people or other organisms.

When spilled, the various types of oil can affect the environment differently. They also differ in how hard they are to clean up. Spill responders group oil into four basic types. These four oil types, with general summaries of how each type can affect shorelines, are described below:

Type 1: Very Light Oils (Jet Fuels, Gasoline)

- Highly volatile (should evaporate within 1-2 days).
- High concentrations of toxic (soluble) compounds.
- Localized, severe impacts to water column and shoreline/marsh/wetland area resources.
- No cleanup possible.

Type 2: Light Oils (Diesel, No. 2 Fuel Oil, Light Crudes)

- Moderately volatile; will leave residue (up to one-third of spill amount) after a few days.
- Moderate concentrations of toxic (soluble) compounds.
- Will "oil" shoreline/marsh/wetland area resources with long-term contamination potential.
- Cleanup can be very effective.

Type 3: Medium Oils (Most Crude Oils)

- About one-third will evaporate within 24 hours.
- Oil contamination of shoreline/marsh/wetland areas can be severe and long-term.
- Oil impacts to waterfowl and fur-bearing mammals can be severe.
- Cleanup most effective if conducted quickly.

Type 4: Heavy Oils (Heavy Crude Oils, No. 6 Fuel Oil, Bunker C)

- Little or no evaporation or dissolution.
- Heavy contamination of shoreline/marsh/wetland areas likely.
- Severe impacts to waterfowl and fur-bearing mammals (coating and ingestion).
- Long-term contamination of sediments possible.
- Weathers very slowly.
- Shoreline cleanup difficult under all conditions.

The following table below provides a response methods matrix incorporating different water body types and the four oil types.

B = Consider
C = Not Recommended

Response Method & Water Body Type		Very-Light Oil Type Products (Jet Fuels, Gasoline, Bakken Crude)	Light-Oil Type Products (Diesel, No. 2 Fuel Oil, Light Crudes)	Medium-Oil Type Products (Most Crude Oil)	Heavy-Oil Type Products (Heavy Crude Oils, No. 6 Fuel Oil, Bunker C)
Deflection Booming	Open Water	C	C	C	C
	Large River	B	B	B	B
	Small River	B	B	B	B
	Wetland	C	C	C	C
Exclusion Booming	Open Water	A	A	B	C
	Large River	A	A	B	C
	Small River	A	A	B	C
	Wetland	A	A	B	C
Containment Booming	Open Water	A	A	A	A
	Large River	B	B	B	A
	Small River	B	B	B	A
	Wetland	A	A	A	B
Sorbents	Open Water	C	B	B	B
	Large River	C	B	B	B
	Small River	C	A	A	A
	Wetland	B	A	A	A
Underflow Dams	Open Water	C	C	C	C
	Large River	B	B	B	C
	Small River	A	A	A	C
	Wetland	C	C	C	C
Physical Herding	Open Water	B	B	B	B
	Large River	B	B	B	B
	Small River	B	B	B	B
	Wetland	C	C	C	C
Channel Diversion	Open Water	N/A	N/A	N/A	N/A
	Large River	B	B	B	B
	Small River	B	B	B	B
	Wetland	N/A	N/A	N/A	N/A

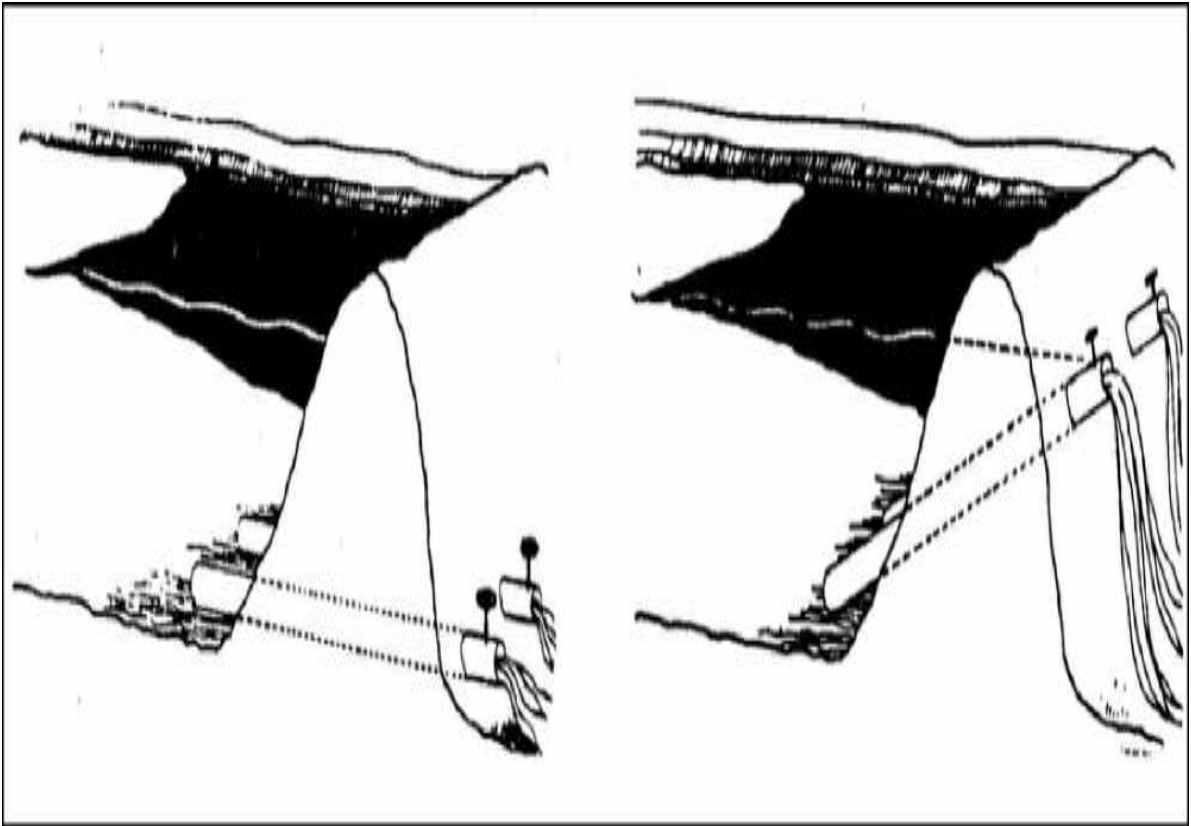
Adapted from NOAA Options for Minimizing Environmental Impacts of Freshwater Spill Response

Potential Collection Methods

The following are construction methods for material collection/recovery listed within the site strategies (**Blue Tab**) and additional methods that may be helpful to control a spill:

Underflow Dams

Dams can be built in shallow rivers, culverts, and inlets using hand tools or heavy machinery, as available. Pipes are used to form an underflow dam to allow downstream water passage while oil remains behind, as seen in the earth underflow dam and sandbag underflow dam depictions below. The inlet of the pipe is cut at an angle to permit a larger entrance area for the water in order to reduce the inlet velocities and the possibility of oil drawdown due to formation of vortices. Caution should be taken to prevent whirlpools from forming and pulling the oil down. Face the cut pipe opening down (or insert a 90-degree angle) to help eliminate this. This technique is effective for water bodies less than two feet deep where flow volume can be accommodated by pipe flow. This method can also be used in deep, narrow culverts.



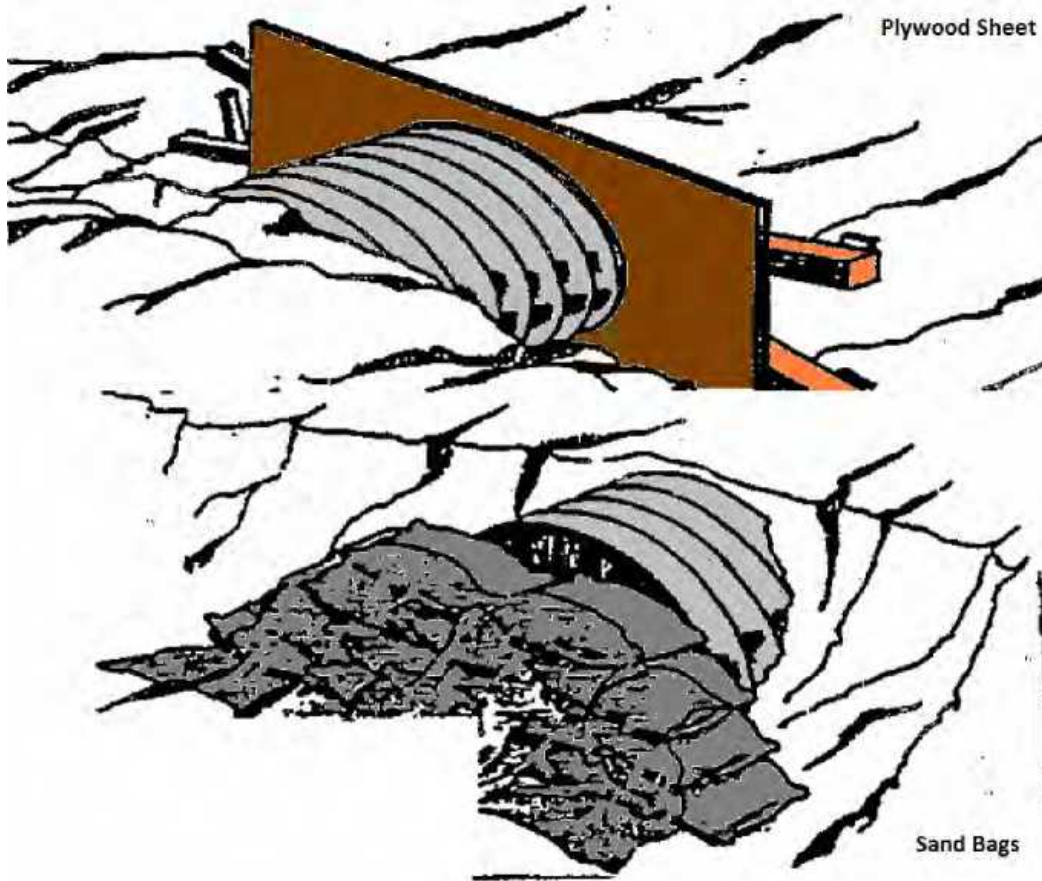
Earth underflow dam (DOWCAR 1997)



Sandbag underflow dam

Culvert Block

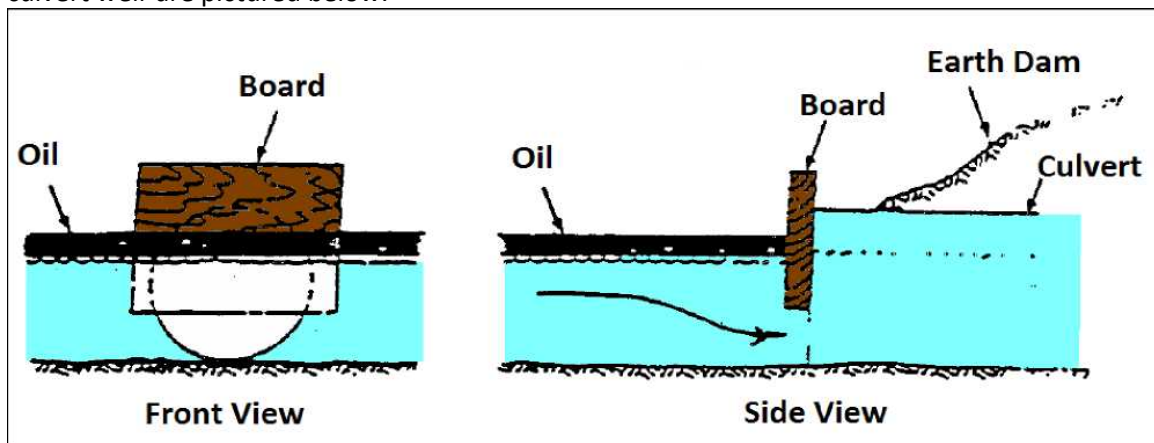
If a culvert is downstream of a spill, a culvert block can be employed to prevent contamination from entering the culvert, as shown in the picture below. Recovery of the contaminant can be conducted where the stream/river water pools upstream of the culvert after it is blocked.



Culvert block examples

Culvert weir

Another option for containment and recovery with respect to a downstream culvert is a culvert weir. A culvert weir performs similarly to an underflow dam in that it allows water to flow through the culvert from the bottom of the water column such that containment and recovery of contaminants floating on the water surface can be expedited. Front and side views of a culvert weir are pictured below.



Culvert Weir Examples

Spill of Volatile Compounds

Volatile, or easily evaporated, contaminants can change states from a liquid or solid to a vapor impacting the air quality at a release site. This vapor can be transported by wind impacting areas or communities down wind of the release location. Should a release of volatile contaminants occur, please call the National Weather Service in Elko at (775) 778-6720 for up-to-date weather information, including wind speed and direction.

If a release of hazardous volatile material occurs, isolate the area and make the necessary notifications as detailed in the **Red Tab**. **Do Not** enter the area without proper training, respiratory protection, and/or air monitoring devices.

Procedures for Managing the Discovery of Human and Cultural or Historic Resources

If human and cultural or historic items are encountered during a spill response, several entities must be notified and specific procedures must be followed. Specific instructions for discovery of human skeletal remains and of cultural and/or historic resources are provided below.

Procedures for the Discovery of Human Skeletal Remains: Any human remains, burial sites or burial-related materials that are discovered during a spill response must be treated with respect at all times and the following applicable instructions should be followed:

- All work must be stopped immediately and the Incident Commander and Cultural Resource Specialist notified if any person monitoring work activities or involved in spill response believes that human skeletal remains have been discovered.
- The Incident Commander is responsible for taking appropriate steps to protect the discovery. The immediate area of discovery should be flagged. Vehicles and equipment must not be permitted to traverse the discovery site. In no case should further disturbance be caused prior to consultation with the State Historic Preservation Office (SHPO). Exposed human remains should not be left unattended.
- The Incident Commander (or representative) must immediately report the discovery to SHPO, local law enforcement (with jurisdiction), and the local coroner (with jurisdiction). The coroner (or medical examiner) will determine whether the discovery site is a crime scene or human burial site.
- If the remains are determined to be non-Native American, or connected with criminal activity, local law enforcement will take charge of the discovery site and remains.
- If the remains are determined to be Native American and not related to a crime scene, then a tribal archaeologist or cultural representative, the state archaeologist and the Incident Commander will confer on a treatment plan for the remains.

Procedures for the Discovery of Cultural and/or Historic Resources: If the Incident Commander (or representative) believes that a discovery of historic and/or cultural resources has been made, the Incident Commander should consult with the SHPO. If the SHPO believes that the discovery is a cultural or historical resource, the Incident Commander will take the following appropriate steps to protect the discovery site:

- The immediate area of the discovery site should be flagged. Vehicles or equipment must not be permitted to enter the discovery site. Work in the immediate area cannot resume until treatment of the discovery has been completed.
- The Incident Commander (or representative) must work with SHPO to arrange for the discovery to be evaluated by a professional archaeologist. The archaeologist will determine whether the discovery is potentially eligible for listing on the National Register of Historic Places. (36 CFR 60.4)
- The professional archaeologist will consult with SHPO on the eligibility of the discovery for entry into the National Register. If SHPO determines that the discovery is eligible, they will consult with the Incident Commander to determine an appropriate treatment for the discovery.
- If adverse impacts to an eligible site cannot be avoided, a treatment plan will be developed and implemented.

The *Secretary of the Interior's Standards for Archaeological Documentation* must be followed, including provisions for research design, reporting, and curation of recovered material and samples. The particular data recovery measures applied to any given historic property will depend on the development of research questions and the design of excavation strategies to acquire the data needed to answer those questions. Field notes, maps, plans, profiles, and photographs will document the process. The final report will follow style guidelines of the professional archaeological journal *American Antiquity*; it will synthesize the data collected and address the research questions posed.

Humboldt River Corridor Maps

The figures following this text present an overview of the Humboldt River Basin with tributary basins highlighted in different colors (Figure 1); an overview of dams and diversions along the Humboldt River (Figure 2); a map location overview (Figure 3) showing the locations of individual emergency response sites and the locations of inserts for Figures 4 through 7; and smaller scale maps of sections of the Humboldt River (Figures 4 through 7) enlarged to more clearly show the locations of individual emergency response sites. As previously described, the individual emergency response sites are those which were identified as being easily accessible to personnel and equipment as well as being suitable for boom placement and recovery of floating products.

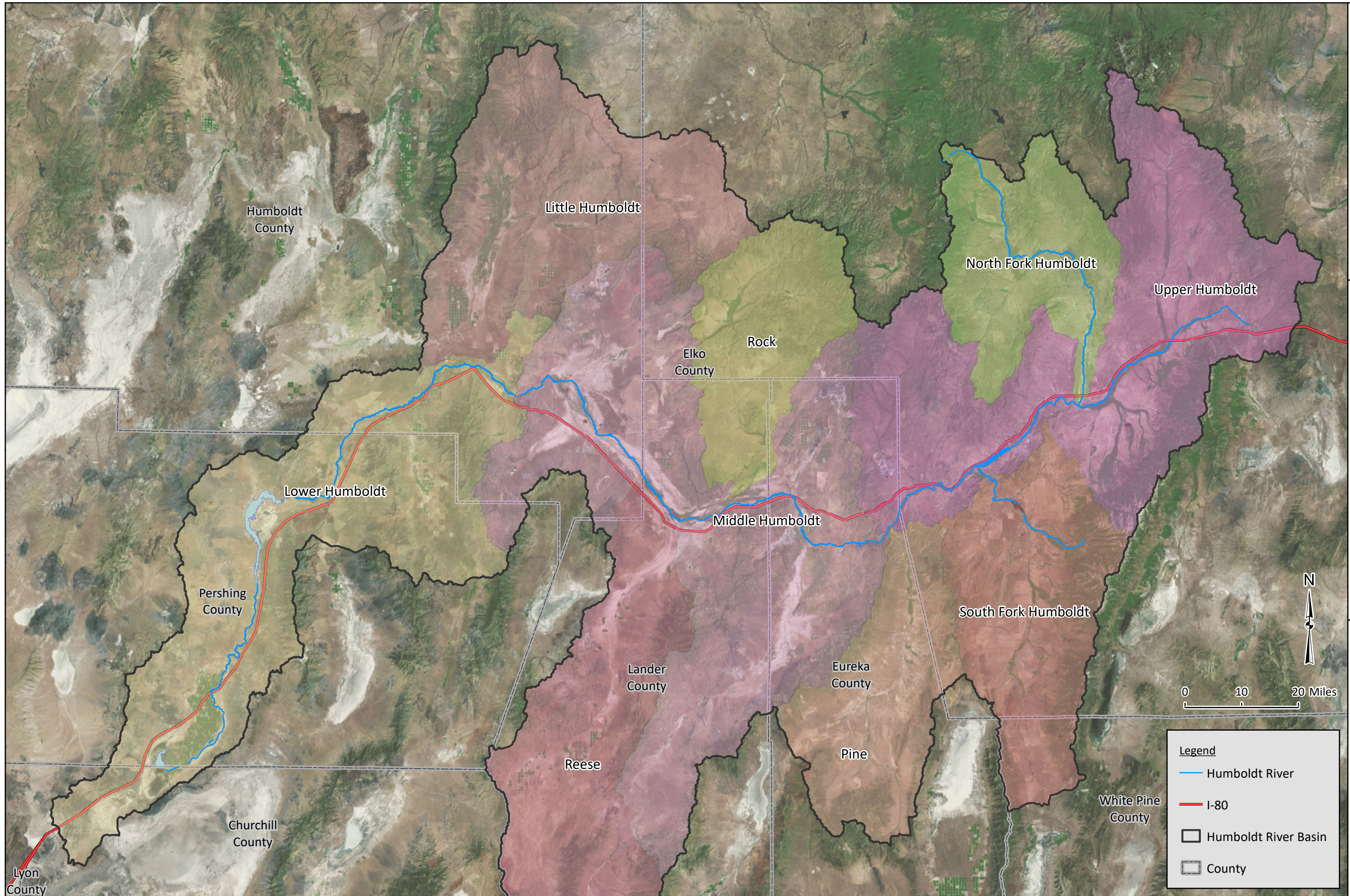


Figure 1: Overview of Humboldt River Basin

Datum: NAD 1983 UTM Zone 11N Image Source: ESRI World Imagery



Figure 2: Overview of Dams and Diversions

Datum: NAD 1983 UTM Zone 11N Image Source: ESRI World Imagery

- Legend**
- ◆ Dam or Diversion
 - Humboldt River
 - I-80
 - County

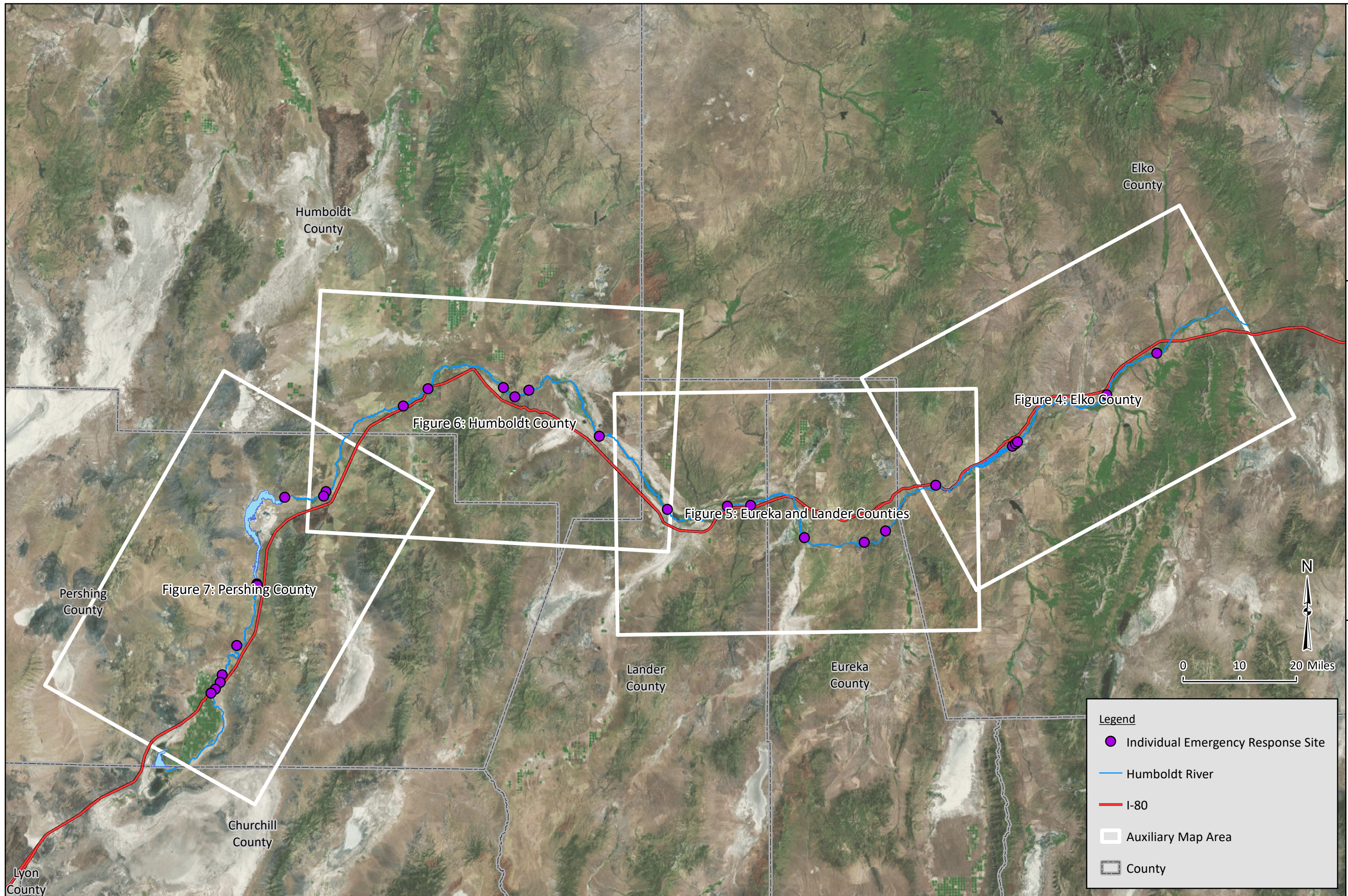


Figure 3: Humboldt River Map Location Overview

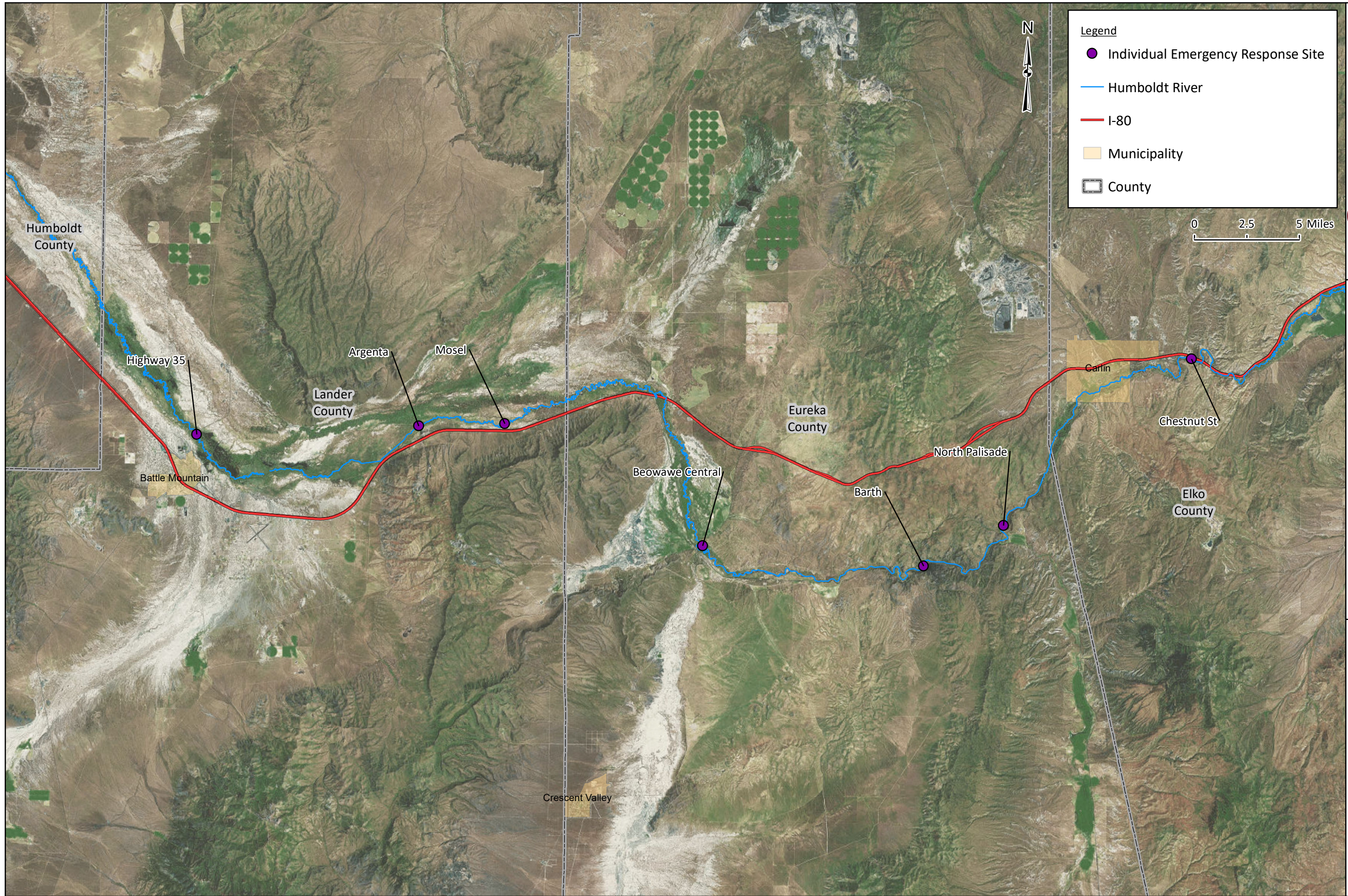


Legend

- Individual Emergency Response Site
- Humboldt River
- I-80
- Municipality
- County

0 2.5 5 Miles



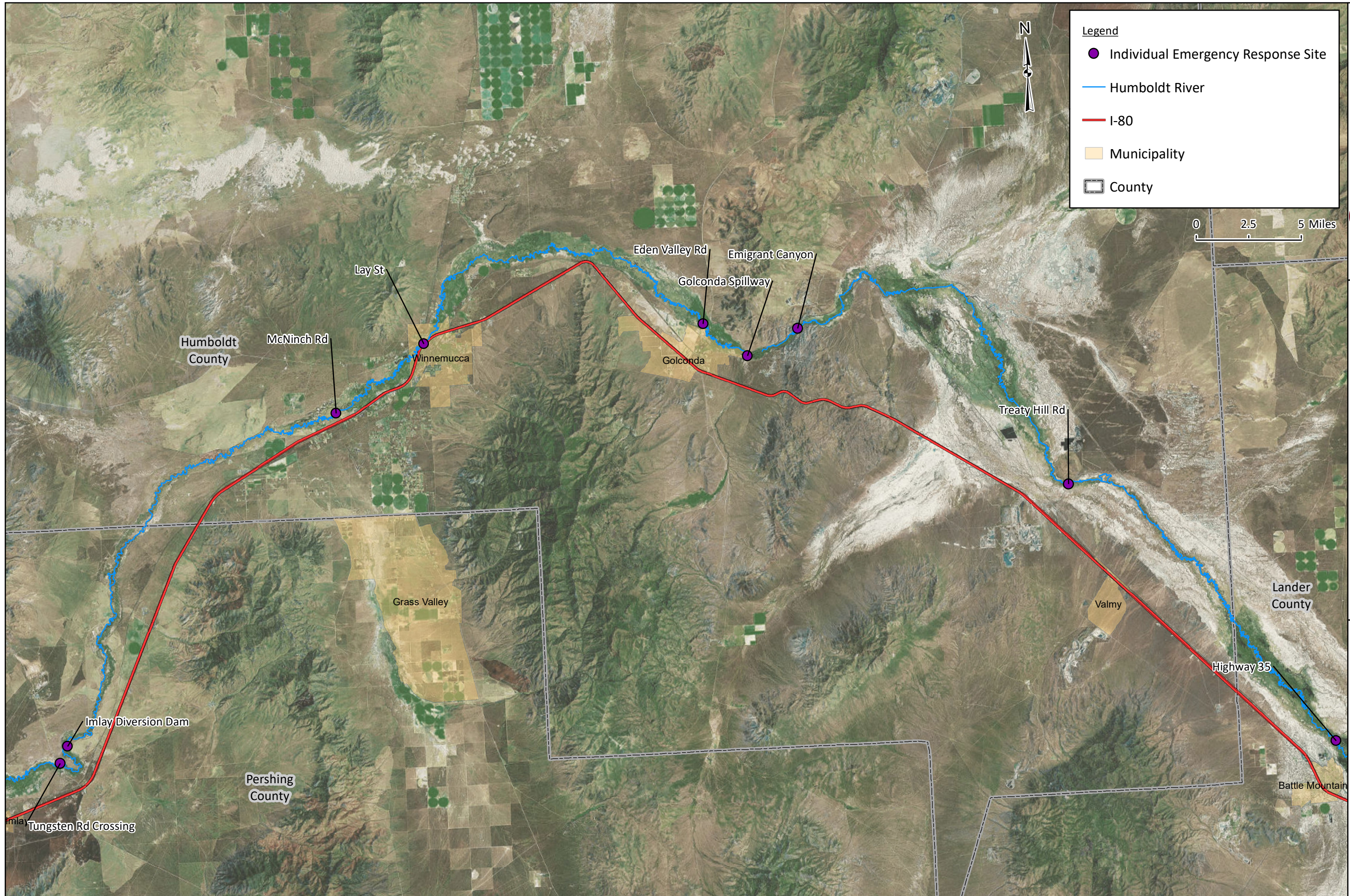


Legend

- Individual Emergency Response Site
- Humboldt River
- I-80
- Municipality
- County

0 2.5 5 Miles





Legend

- Individual Emergency Response Site
- Humboldt River
- I-80
- Municipality
- County



Legend

- Individual Emergency Response Site
- Humboldt River
- I-80
- Municipality
- County

0 2.5 5 Miles

Churchill County

Pershing County

Unionville

Grass Valley