

## 4.12 Public Health and Safety

### Affected Environment

#### Local Setting

The public health and safety environment typically is defined by first characterizing the area's human population and structures (i.e., sensitive receptors or residences). Then, the general health and safety typically are defined by identifying existing substances, activities, or circumstances that may dictate the likelihood of those people and structures being adversely exposed to such elements. Public health and safety issues relate to both short-term construction and long-term operations and maintenance.

Many issues discussed elsewhere in this document have the potential either directly or indirectly to affect public health and safety within the Restoration Project area. These include flood hazards, water quality, air quality, soil erosion, transportation, land uses, noise, and public services (including fire protection). The affected environment and potential effects that could lead to public health and safety impacts on these resources are discussed under the corresponding resource sections found elsewhere in this EIS/EIR (see Sections 4.3, "Hydrology"; 4.4, "Water Quality"; 4.6, "Land Use"; 4.7, "Geology and Soils"; 4.9, "Transportation"; 4.10, "Noise"; 4.11, "Air Quality"; and 4.13, "Public Services and Utilities").

This discussion will not include routine hazards associated with construction, such as incidental injury to construction workers. The analysis assumes that construction would occur in accordance with Occupational Safety and Health Administration (OSHA) workplace rules and Reclamation's own *Reclamation Safety and Health Standards* and that complying with these rules would avoid risks of incidental injuries. Where OSHA rules and Reclamation's *Standards* conflict, the most stringent requirements will apply.

The *Reclamation Safety and Health Standards* are made a part of all of Reclamation's construction contracts and are enforced comprehensively by Reclamation. The *Standards* address all aspects of construction work, including worker safety. This includes, but is not limited to:

- preparation and implementation of job hazard assessments;
- provision for medical services and first aid;
- preparation of emergency plans;
- occupational health;
- personal protective equipment;

- fire prevention and protection, including preparation and implementation of fire prevention plans for each job site;
- materials handling, storage, and disposal;
- electrical safety, including control of hazardous energy;
- walking and working surfaces;
- fall protection;
- operation of hand tools, power tools, and welding;
- hoisting equipment;
- helicopter operations;
- traffic safety;
- excavation operations;
- tunnel and shaft construction;
- blasting operations; and
- concrete, masonry, and steel construction.

## **Sensitive Receptors**

The Restoration Project is located in the rural portions of Shasta and Tehama Counties. The area is very remote and not heavily populated with either residences or other sensitive receptors. In addition, many of the Restoration Project sites and access roads to these sites are either on property owned by PG&E or on other private property. Public access to the sites is further discouraged by the use of locking gates at access road entry points. Public access to many of the Restoration Project sites (specifically including Wildcat, Eagle Canyon, and South Diversion Dams) is limited by the remote nature of the area and the rough terrain of the roads used to access the sites.

Sensitive receptors include members of the general public and the project construction crews during the construction phase, and PG&E staff during operations and maintenance. There are few residences within 1–5 miles of the Restoration Project sites. The Oasis Springs Lodge, a 3,000-acre fly-fishing lodge along South Fork Battle Creek, is located just upstream of Inskip Diversion Dam. Also, access roads to Inskip Diversion Dam cross private property and pass through a residential area with a posted speed limit of 5 miles per hour and a logbook for signing in and out. The Oasis Springs Lodge and the residential area are the closest sensitive receptors to any of the Restoration Project sites or access routes. Other residences adjacent to access roads would also be sensitive receptors, particularly during construction when traffic levels are expected to increase. Information on construction and removal activities, including the duration of these activities and the number of construction workers, is discussed or referenced in Water Management Alternatives (see Chapter 2, “Purpose and Need, Project Background, and Project Description”).

## Hazardous Materials

Public health aspects associated with construction, modification, or removal activities at the Restoration Project sites include the possibility of hazardous material releases from construction areas and the exposure of construction workers to these releases. Constructed in the early 1900s, the Hydroelectric Project has been owned and operated by PG&E since 1919 and was licensed by FERC in 1976. Because of the age of the facilities, hazardous materials including polychlorinated biphenyls (PCBs), lead-based paint, asbestos, and pentachlorophenol could be discovered during activities at the Restoration Project sites.

Trace amounts of PCBs may be found in chlorinated hydrocarbon fluids that were once used in electrical equipment (primarily transformers) because they are electrically nonconductive and stable at high temperatures. PCBs were widely used until the mid-1970s, when the production and application of the chemicals were restricted because the chemicals were found to be injurious to living organisms. PCBs could be found in the transformers and other electrical components and could be present at some Restoration Project sites because of the upstream power plants.

Materials containing asbestos may also be found in the buildings that house the electrical equipment at some of the dam sites. At some sites, asbestos sheet packing may need to be removed or remediated as part of the dam removal. Asbestos can consist of several different types of fibrous minerals that range from extremely hazardous to less hazardous. Extremely hazardous asbestos fibers include amphibole fibers that are used commercially and that, once inhaled, can remain indefinitely in lung tissue and may cause cancer. Less hazardous asbestos fibers include chrysotile, which is less likely to remain suspended in the air and be inhaled. Ninety-nine percent of current asbestos production is chrysotile, which poses no health threat when small quantities are inhaled. However, before the 1970s, products were made with asbestos fibers of all types.

Facilities at some of the Restoration Project sites could have been painted with lead-based paint. Until the late 1970s, lead was a major ingredient in paint.

Some of the timber supports used at some of the Restoration Project sites may have been treated with pentachlorophenol, a manufactured chemical that was used as a biocide and a wood preservative. Short-term exposure to large amounts of pentachlorophenol or long-term exposures to low levels can harm the liver, kidneys, blood, lungs, nervous system, and gastrointestinal tract. The chemical may also be a carcinogen.

Other hazardous materials that may be encountered during removal, modification, and construction activities include small amounts of oils and grease.

## Traffic

Immediate vehicular access to the site is along paved county roads and unpaved, gravel or dirt private roads. These roads, particularly the private roads, typically carry very little traffic and practically no truck traffic at the present time. Residents, especially children and domestic pets, are not used to experiencing automobile and truck traffic along these roads.

## Helicopter Operations

Portions of the site cannot be accessed by road, including the following facilities:

- North Battle Creek Feeder Diversion Dam,
- Eagle Canyon Diversion Dam,
- Wildcat Diversion Dam, and
- South Diversion Dam and South Canal.

Where this is the case, helicopters will be used to deliver machinery and materials to the work site. Helicopter use would be limited to the construction period.

Helicopter operations would be subject to compliance with Section 19.22 of Reclamation's *Reclamation Safety and Health Standards*. This includes requirements for daily pilot and ground crew briefings on the daily plan of operations; requirements for the securing of suspended loads; personal protective equipment; visibility; working in the vicinity of helicopters; radio communications during operations; and inspection and maintenance.

## Environmental Safety/Mosquitoes

In addition to being persistent pests, mosquitoes can carry various strains of diseases known as arboviruses. Western equine encephalomyelitis and St. Louis encephalomyelitis (both commonly known as encephalitis) are of particular concern. Neither virus is usually reported unless patients develop acute symptoms; therefore, the prevalence of both viruses is considerably underreported. Mosquitoes are also known to transmit malaria (a parasitic blood disease) to humans and heartworms (a parasite) to dogs. Local mosquito control agencies have been developed to control mosquitoes and other vectors in an effort to control epidemics of human encephalitis, malaria, and West Nile virus. The mosquito abatement districts and control agencies adapt their practices in response to hydrologic conditions and the extent of areas that support appropriate breeding habitat.

Any environment in which water is allowed to stand in shallow areas can serve as breeding ground for mosquitoes. These environments include wetlands, wildlife

refuges, pastures, drains, and slack water areas along streams, canals, reservoirs, and other areas where water is relatively still.

## Regulatory Setting

Federal and state laws and regulations that establish standards relating to worker safety include those governed by:

- the *Reclamation Safety and Health Standards*,
- the Occupational Safety and Health Act of 1970 (29 USC 651 *et seq.*),
- OSHA, and
- the EPA.

Other industry standards, laws, and regulations that may be applicable to the Restoration Project include:

- Uniform Fire Code and Uniform Fire Code Standards. The Uniform Fire Code contains provisions necessary for fire prevention and information about fire safety, special processes, explosives, and flammable, combustible, and hazardous materials. The standards are a companion publication to the code.
- California Building Code. The California Building Code is designed to provide minimum standards to safeguard human life, health, property, and public welfare by regulating and controlling the design, construction, quality of materials, and use and occupancy of buildings and structures.
- Section 112 of the Clean Air Act (42 USC 7401-7661). This section of the Clean Air Act established national emission standards for hazardous air pollutants, which include the release of asbestos fiber emissions into the air.
- The Asbestos Hazard Emergency Response Act (15 USC 2641 *et seq.*). This act contains regulations that cover protection for employees who work around asbestos-containing materials.
- The Toxic Substances Control Act (15 USC 2601 *et seq.*). Under this act, the EPA regulates the removal and disposal of PCBs.
- California Code of Regulations Title 22. The state regulations for the removal and disposal of PCBs are more stringent than their federal equivalents.

## Environmental Consequences

### Summary

The No Action Alternative is expected to have no impacts on public health and safety in addition to those already anticipated as part of the current operations at

the existing facilities. The Action Alternatives (Five Dam Removal, No Dam Removal, Six Dam Removal, and Three Dam Removal) discussed below would have health and safety impacts common to construction projects. However, they would be required to comply with standard safety procedures for the construction industry and the *Reclamation Safety and Health Standards* as part of their contracts for work on this project. Accordingly, the alternatives are not expected to create substantial risk of harm or injury to workers or the general public.

## Impact Significance Criteria

Based upon Appendix G and section 15065 of the CEQA Guidelines, adverse impacts would be potentially significant if the Proposed Action or an action alternative could:

- create substantial risk of harm or injury to workers or the general public,
- increase public exposure to toxic or hazardous materials or significant levels of pollutants,
- increase the potential for human exposure to disease-bearing animals or insects, or
- expose workers or the general public to hazardous conditions.

Impacts were identified by comparing the proposed facility changes for the action alternatives to these impact criteria. The significance of the impact was then assessed using the above-described criteria. Individual facility changes that would not meet these significance criteria would be considered to have no impact. Activities that would decrease the likelihood for adverse impacts to occur would be considered beneficial impacts.

## Impact Assessment

### No Action Alternative

Under the No Action Alternative, it is assumed that there would be no construction, modification, or removal of facilities at any of the Restoration Project sites. The No Action Alternative is expected to have no impacts on public health and safety in addition to those already anticipated as part of the current operations at the existing facilities.

### Five Dam Removal Alternative (Proposed Action)

Site operations and maintenance after completion of the Five Dam Removal Alternative are not expected to involve construction or generate substantial amounts of automobile and truck traffic. Operations and maintenance work

would comply with all federal and state laws relating to safety and safe handling of any hazardous or toxic materials (hazardous and toxic materials are expected to be limited to fuel and lubricants). Improvements installed as part of the Five Dam Removal Alternative, including adequate power and communications at the sites, trail improvements, and new or improved access roads, would reduce risk to workers and the public. As a result, operations and maintenance activities would not have an effect on the environment.

**Impact 4.12-1 Significant—Construction workers could be exposed to hazardous or toxic materials disturbed during construction, modification, or removal activities at the Restoration Project sites.**

Asbestos, PCBs, lead-based paint, pentachlorophenol, and other hazardous materials may be encountered during the activities proposed under the Five Dam Removal Alternative. Heavy metals have been found in tests of metal work paint at the Wildcat, Inskip, and Soap Creek Feeder Diversion Dams and may exist at other affected dam sites as well. While asbestos sheet packing is known to be present at Wildcat Diversion Dam, similar materials could be found at other diversion dam sites. Construction workers could come into contact with these hazardous materials. Workers could also be exposed to hazardous materials brought on site for use during the construction, modification, or removal of Restoration Project facilities. These materials could include petroleum-based materials, solvents, and lubricants. This impact is considered significant.

As a means to reduce the significance of exposure, Reclamation will require as a contract specification that contractors prepare a safety program for review and approval by Reclamation. The program will be required to cover all work phases. Part of the safety program will be specific operating procedures (SOP) and hazards analysis addressing hazardous operations and activities. The SOP will break down the operation into specific basic steps. The hazard analysis will define the hazards associated with each step and propose methods for eliminating or neutralizing the hazard. This will apply to all activities involving the use of hazardous and/or toxic materials.

In addition to the preceding contract requirements, implementing the following mitigation measures would reduce this impact to a less-than-significant level.

**Mitigation Measures for Impact 4.12-1.** Construction contractors will implement the following measures to reduce construction workers' exposure to hazardous or toxic materials.

- Comply with all applicable regulations, including the use of appropriate transportation, storage, use, and disposal procedures.
- Develop and implement a spill prevention, containment, and countermeasure plan. This plan will ensure that all personnel are aware of the proper handling techniques and appropriate responses and actions to be taken if hazardous materials are accidentally released. It will include specific handling techniques for those hazardous materials with the greatest potential to occur in the area (including PCBs, asbestos, lead-based paint, and pentachlorophenol).

- Implement measures to reduce the amounts of hazardous materials in use at the Restoration Project sites.
- Evaluate the potential hazards at each dam site as part of the preconstruction design work. This evaluation will be followed by a more detailed evaluation to confirm the presence and extent of any existing hazardous materials and to develop a plan that recommends appropriate procedures to remove the materials and thus minimize the risk to public health.

**Impact 4.12-2 Significant—The public could be exposed to hazardous or toxic materials associated with or disturbed during construction, modification, or removal activities at the Restoration Project sites; public access to construction areas could also increase the potential for exposure to hazardous materials.**

The implementation of the Five Dam Removal Alternative could result in an increased risk to the public associated with equipment use, exposure to potentially hazardous materials used during construction, and other hazards including open trenches and increased access to hydroelectric facilities. This risk is a possibility despite many of the diversion dam sites being located in remote areas away from public access areas. The site closest to a sensitive receptor is Inskip Diversion Dam, which is located downstream of the Oasis Springs Lodge. Because the lodge typically operates from May through mid-November, any construction activities at Inskip Diversion Dam during this period would potentially result in an increased public presence at and around the construction sites.

Although many of the proposed activities are located in remote locations away from populated areas, it is possible that the increased traffic and activity at the Restoration Project sites and along access roads could also increase public curiosity and draw them to construction sites. Because access to these sites would increase the potential threat to public health and safety, unrestricted public access would be considered a potentially significant health and safety impact.

Reclamation, as a contract specification, requires contractors to limit the use of hazardous materials during construction to those described in the List of Hazardous Materials and Material Safety Data Sheets submitted to Reclamation. Further, no hazardous materials that are not on either of these lists may be delivered to the job site. This contract provision restricts hazardous materials on the job to those that are known and for which safety information is readily available. Contract requirements for preparation of SOPs and hazard analysis as part of a contractor safety program will also reduce this impact. In addition, implementing the following mitigation measure would reduce this impact to a less-than-significant level.

**Mitigation Measures for Impact 4.12-2.** Reclamation will implement the following measures to reduce exposure of the public to hazardous or toxic materials.

- Clearly mark all construction areas around each dam site as hazardous and off-limits to the public.



- Backfill or cover any excavated areas and other particular areas of hazard at the end of each workday.
- Fence off areas around the Restoration Project sites and gate and lock all access roads to deter public access.
- Notify nearby sensitive receptors and residents (including the management of the Oasis Springs Lodge) of the schedule of activities expected to occur at the Restoration Project site.

**Impact 4.12-3 Significant—Increased vehicle traffic along private access roads during construction activities could endanger residents and domestic animals.**

Increased traffic associated with construction would increase hazards to people and domestic animals that live along Restoration Project access roads. Hazards to people and domestic animals would increase especially during peak morning and evening commuting hours when work crews typically arrive and leave from the project sites. Truck traffic, consisting of trucks delivering materials to the job sites and hauling away waste materials from the job sites, would greatly increase over current levels and contribute to public hazards. In addition, equipment such as road graders used to improve roads for construction access, as described in Chapter 3, would contribute to these hazards.

Traffic is expected to increase substantially over current levels during long-term operations and maintenance activities; therefore, the Five Dam Removal Alternative would have a significant impact on public health and safety. The contract specifications for work on this project include traffic control measures intended to reduce the impact of construction traffic. These specifications include:

- submitting a traffic control plan for Reclamation's approval;
- limiting speeds to a maximum of 15 miles per hour, except near residences where a lower speed may be required;
- informing affected residents along the routes about changes in traffic levels and providing reasonable accommodations to ensure traffic safety, such as fencing or lower speed limits;
- providing a hot line for public input regarding traffic concerns through the community of Manton;
- providing necessary traffic control devices and flag persons to prevent accidents and damage or injury;
- delaying work along public and private roads until proper traffic control devices are in place;
- providing unobstructed, smooth, and dustless passageway for one lane of traffic through construction operations; and
- maintaining traffic flow to minimize obstruction and inconvenience to public traffic.

In addition, implementing the following mitigation measures would reduce this impact to a less-than-significant level.

**Mitigation Measures for Impact 4.12-3.** Reclamation will implement the following measures to reduce traffic hazards to people and domestic animals that live along Restoration Project access roads.

- During construction, traffic on private roads within 500 feet of residences and near the Oasis Springs Lodge will be limited to a speed of 5 miles per hour. Notice of the upcoming speed zone will be visibly posted in advance of the zone. The speed limit will be posted visibly at the beginning of the restricted speed zone. Reclamation will specify this limit in contract specifications with construction contractors.
- During construction, truck traffic on private roads will be limited to daylight hours only. No trucks will operate on private roads within 1 hour of sunset. Reclamation will specify construction time constraints in contract specifications with construction contractors.
- Reclamation will establish a complaint line where residents may report allegations of excessive speed. When a complaint is made, Reclamation will inform the contractor and advise them of the contract provisions limiting speeds along private roads.

**Impact 4.12-4 Significant—Dewatering activities at the Restoration Project sites could provide breeding grounds for mosquitoes.**

Removal of surface water and/or groundwater is expected to be required at some Restoration Project sites. Whether these activities are accomplished by using temporary cofferdams to stop the water flow, diverting the flow, or pumping the water to a temporary detention pond, the activities could produce standing water in shallow areas that can serve as breeding ground for mosquitoes.

At many of the Restoration Project sites, rock, rubble, and cement materials would be broken up into small pieces and distributed downstream. Existing sediment behind some of the dams would also be left in place for larger flow events to distribute downstream. An excavator would be used to channel in some streambeds and facilitate the distribution of the sediments. It is expected that, until they are distributed downstream by natural flows, these materials could initially result in some ponded or standing water that could serve as breeding ground for mosquitoes. Proposed activities conducted during the winter, when mosquitoes are dormant, would not result in increased populations. However, activities conducted in the summer have the potential to result in increased quantities of breeding ground. This impact is considered significant. Implementing the following mitigation measure would reduce this impact to a less-than-significant level.

**Mitigation Measures for Impact 4.12-4.** Reclamation will implement the following measures to reduce mosquito breeding grounds during construction at the Restoration Project sites.

- Maximize the protection of public health in the area of the Restoration Project sites during the summer months with applicable mosquito abatement districts and control agencies.
- Inform workers during the worker education program of the potential for increases in mosquito breeding populations and of the appropriate precautions to take to protect their health.

**Impact 4.12-5 Less than Significant—Helicopter operations at some of the Restoration Project sites could result in worker injury or fire.**

Helicopters will be used at the facilities listed above. Without proper operational safeguards, accidents or crashes could result in injuries to workers and wildfire. The helicopter operations requirements of Reclamation's *Standards* will be made a part of all construction contracts. In addition, the contract specifications imposed by Reclamation on its contractors will include the following measures to reduce the risk from injuries:

- provide the on-site services of an Emergency Medical Technician (EMT) during all construction activities,
- provide the EMT with a direct line of communication with local medical services, and
- provide dependable ambulance service.

These measures will reduce the risk of worker injury to a less-than-significant level.

Section 10 of Reclamation's *Standards* require the preparation and implementation of a fire prevention plan for each job site. In addition, the *Standards* require that each facility prepare a fire protection plan, including provisions for fire suppression equipment and, where community fire department services are not available, providing a trained fire fighting brigade. Fire fighting equipment must be in place at each facility as well. These project requirements will reduce the risk of fire to a less-than-significant level.

## **No Dam Removal Alternative**

Although the specific activities at some of the Restoration Project sites may vary from those of the Five Dam Removal Alternative (e.g., no construction is proposed at the Soap Creek Feeder and Lower Ripley Creek Feeder), the No Dam Removal Alternative could create risk of harm or injury to workers or the general public similar to the Five Dam Removal Alternative.

**Impact 4.12-6 Significant—Construction workers could be exposed to hazardous or toxic materials disturbed during construction, modification, or removal activities at the Restoration Project sites.**

This impact is similar to Impact 4.12-1 described under the Five Dam Removal Alternative. Construction activities under the No Dam Removal Alternative

would include installing new fish screen and ladder facilities at the North Battle Creek Feeder, Eagle Canyon, Wildcat, South, Inskip, and Coleman Diversion Dams. Construction workers may encounter hazardous materials during construction at these project sites. Because the No Dam Removal Alternative does not include the removal of dams, the likelihood of exposure to hazardous or toxic materials is less than for the Five Dam Removal Alternative; however, this impact is still considered significant. Reclamation's contract specifications and the Mitigation Measures for Impact 4.12-1 would reduce this impact to a less-than-significant level.

**Impact 4.12-7 Significant—The public could be exposed to hazardous or toxic materials associated with or disturbed during construction, modification, or removal activities at the Restoration Project sites; public access to construction areas could also increase the potential for exposure to hazardous materials.**

This impact is similar to Impact 4.12-2 described under the Five Dam Removal Alternative. Under the No Dam Removal Alternative, construction would occur at the North Battle Creek Feeder, Eagle Canyon, Wildcat, South, Inskip, and Coleman Diversion Dams. Similar to the Five Dam Removal Alternative, the No Dam Removal Alternative could expose the public to hazardous or toxic materials, although exposure would be less because no construction would occur at the Soap Creek Feeder or the Lower Ripley Creek Feeder Diversion Dams. This impact is considered significant. Reclamation's contract specifications and the Mitigation Measures for Impact 4.12-2 would reduce this impact to a less-than-significant level.

**Impact 4.12-8 Significant—Increased vehicle traffic along private access roads during construction activities could endanger residents and domestic animals.**

Construction activities under the No Dam Removal Alternative would require access to six dam sites to remove and install fish screens and fish ladders (i.e., North Battle Creek Feeder, Eagle Canyon, Wildcat, South, Inskip, and Coleman Diversion Dams). Increased traffic associated with construction activities would increase hazards to people and domestic animals that live along Restoration Project access roads. Hazards to people and domestic animals would increase especially during peak morning and evening commuting hours when work crews typically arrive and leave from the project sites. Truck traffic, consisting of trucks delivering materials to the job sites and hauling away waste materials from the job sites, would greatly increase over current levels and contribute to public hazards. These potential impacts are similar to Impact 4.12-3 described for the Five Dam Removal Alternative and considered significant. Implementing Mitigation Measures for Impact 4.12-3 and Reclamation's contract specifications would reduce this impact to a less than significant level.

**Impact 4.12-9 Significant—Dewatering activities at the Restoration Project sites could provide breeding grounds for mosquitoes.**

This impact is similar to Impact 4.12-4 described under the Five Dam Removal Alternative. Similar to the Five Dam Removal Alternative, the No Dam Removal Alternative would require dewatering activities, which could provide

breeding habitat for mosquitoes. This impact is considered significant. Implementing Mitigation Measures for Impact 4.12-4 would reduce this impact to a less-than-significant level.

**Impact 4.12-10 Less than Significant—Helicopter operations at some of the Restoration Project sites could result in worker injury or fire.**

This impact is similar to Impact 4.12-5 described under the Five Dam Removal Alternative. Similar to the Five Dam Removal Alternative, the No Dam Removal Alternative would require helicopter operations during construction to serve sites without vehicular access. This impact is considered less than significant, based on the requirements that will be imposed by Reclamation's *Reclamation Safety and Health Standards* and contract specifications.

## **Six Dam Removal Alternative**

The Six Dam Removal Alternative would remove Eagle Canyon Diversion Dam in addition to those dams to be removed under the Five Dam Removal Alternative (i.e., Wildcat, South, Soap Creek Feeder, Lower Ripley Creek Feeder, and Coleman Diversion Dams). Similar to the Five Dam Removal Alternative, the Six Dam Removal Alternative could create risk of harm or injury to workers or the general public.

**Impact 4.12-11 Significant—Construction workers could be exposed to hazardous or toxic materials disturbed during construction, modification, or removal activities at the Restoration Project sites.**

This impact is similar to Impact 4.12-1 described under the Five Dam Removal Alternative. Construction activities under the Six Dam Removal Alternative would include removing the Eagle Canyon, Wildcat, South, Soap Creek Feeder, Lower Ripley Creek Feeder, and Coleman Diversion Dams, and installing fish screens and fish ladders at the North Battle Creek Feeder and Inskip Diversion Dam. Construction workers may encounter hazardous materials during construction at these project sites. This impact is similar to Impact 4.12-1 and is considered significant. Reclamation's contract specifications and the Mitigation Measures for Impact 4.12-1 would reduce this impact to a less-than-significant level.

**Impact 4.12-12 Significant—The public could be exposed to hazardous or toxic materials associated with or disturbed during construction, modification, or removal activities at the Restoration Project sites; public access to construction areas could also increase the potential for exposure to hazardous materials.**

This impact is similar to Impact 4.12-2 described under the Five Dam Removal Alternative. Under the Six Dam Removal Alternative, construction would occur at the North Battle Creek Feeder, Eagle Canyon, Wildcat, South, Soap Creek Feeder, Inskip, Lower Ripley Creek Feeder, and Coleman Diversion Dams. Under the Six Dam Removal Alternative the public could be exposed to hazardous or toxic materials similar to exposure under the Five Dam Removal

Alternative. This impact is considered significant. Reclamation's contract specifications and the Mitigation Measures for Impact 4.12-2 would reduce this impact to a less-than-significant level.

**Impact 4.12-13 Significant—Increased vehicle traffic along private access roads during construction activities could endanger residents and domestic animals.**

Construction activities under the Six Dam Removal Alternative would require access to eight dam sites to remove diversion dams or install fish screens and fish ladders (i.e., North Battle Creek Feeder, Eagle Canyon, Wildcat, South, Inskip, and Coleman Diversion Dams, as well as Soap Creek Feeder and Ripley Creek Feeder). Increased traffic associated with construction activities would increase hazards to people and domestic animals that live along Restoration Project access roads. Hazards to people and domestic animals would increase especially during peak morning and evening commuting hours when work crews typically arrive and leave from the project sites. Truck traffic, consisting of trucks delivering materials to the job sites and hauling away waste materials from the job sites, would greatly increase over current levels and contribute to public hazards. These potential impacts are similar to Impact 4.12-3 described for the Five Dam Removal Alternative and are considered significant. Implementing Mitigation Measures for Impact 4.12-3 and Reclamation's contract specifications would reduce this impact to a less-than-significant level.

**Impact 4.12-14 Significant—Dewatering activities at the Restoration Project sites could provide breeding grounds for mosquitoes.**

This impact is similar to Impact 4.12-4 described under the Five Dam Removal Alternative. Similar to the Five Dam Removal Alternative, the Six Dam Removal Alternative would require dewatering activities, which could provide breeding habitat for mosquitoes. This impact is considered significant. Implementing Mitigation Measures for Impact 4.12-4 would reduce this impact to a less-than-significant level.

**Impact 4.12-15 Less than Significant—Helicopter operations at some of the Restoration Project sites could result in worker injury or fire.**

This impact is similar to Impact 4.12-5 described under the Five Dam Removal Alternative. Similar to the Five Dam Removal Alternative, the Six Dam Removal Alternative would require helicopter operations during construction to serve sites without vehicle access. This impact is considered less than significant, based on the requirements that will be imposed by Reclamation's *Reclamation Safety and Health Standards* and contract specifications.

## **Three Dam Removal Alternative**

Although the specific activities at some of the Restoration Project sites may vary from those of the Five Dam Removal Alternative (e.g., no construction is proposed at the Soap Creek Feeder and Lower Ripley Creek Feeder), the Three

Dam Removal Alternative could create risk of harm or injury to workers or the general public similar to the Five Dam Removal Alternative.

**Impact 4.12-16 Significant—Construction workers could be exposed to hazardous or toxic materials disturbed during construction, modification, or removal activities at the Restoration Project sites.**

This impact is similar to Impact 4.12-1 described under the Five Dam Removal Alternative. Construction activities under the Three Dam Removal Alternative would include installing new fish screen and ladder facilities at the North Battle Creek Feeder, South, and Inskip Diversion Dams. Dam removal would occur at Eagle Canyon, Wildcat, and Coleman Diversion Dams. Construction workers may encounter hazardous materials during construction at these project sites. Because the Three Dam Removal Alternative does not include the removal of Soap Creek Feeder and Lower Ripley Creek Feeder, the likelihood of exposure to hazardous or toxic materials is less than for the Five Dam Removal Alternative; however, this impact is still considered significant. Reclamation's contract specifications and the Mitigation Measures for Impact 4.12-1 would reduce this impact to a less-than-significant level.

**Impact 4.12-17 Significant—The public could be exposed to hazardous or toxic materials associated with or disturbed during construction, modification, or removal activities at the Restoration Project sites; public access to construction areas could also increase the potential for exposure to hazardous materials.**

This impact is similar to Impact 4.12-2 described under the Five Dam Removal Alternative. Under the Three Dam Removal Alternative, construction would occur at the North Battle Creek Feeder, Eagle Canyon, Wildcat, South, Inskip, and Coleman Diversion Dams. Although construction activities under the No Dam Removal Alternative would be less than under the Five Dam Removal Alternative, because no construction would occur at the Soap Creek Feeder or the Lower Ripley Creek Feeder the public could still be exposed to hazardous or toxic materials similar to exposure under the Five Dam Removal Alternative. This impact is considered significant. Reclamation's contract specifications and the Mitigation Measures for Impact 4.12-2 would reduce this impact to a less-than significant level.

**Impact 4.12-18 Significant—Increased vehicle traffic along private access roads during construction activities could endanger residents and domestic animals.**

Construction activities under the Three Dam Removal Alternative would require access to six dam sites to remove three diversion dams (Eagle Canyon, Wildcat, and Coleman Diversion Dams) and install fish screens and fish ladders at North Battle Creek Feeder, South, and Inskip Diversion Dams. Increased traffic associated with construction activities would increase hazards to people and domestic animals that live along Restoration Project access roads. Hazards to people and domestic animals would increase especially during peak morning and evening commuting hours when work crews typically arrive and leave from the project sites. Truck traffic, consisting of trucks delivering materials to the job sites and hauling away waste materials from the job sites, would greatly increase

over current levels and contribute to public hazards. These potential impacts are similar to Impact 4.12-3 described for the Five Dam Removal Alternative and considered significant. Implementing the Mitigation Measures recommended for Impact 4.12-3 and Reclamation's contract specifications would reduce this impact to a less-than-significant level.

**Impact 4.12-19 Significant—Dewatering activities at the Restoration Project sites could provide breeding grounds for mosquitoes.**

This impact is similar to Impact 4.12-4 described under the Five Dam Removal Alternative. Similar to the Five Dam Removal Alternative, the Three Dam Removal Alternative would require dewatering activities, which could provide breeding habitat for mosquitoes. This impact is considered significant. Implementing Mitigation Measures for Impact 4.12-4 would reduce this impact to a less-than-significant level.

**Impact 4.12-20 Less than Significant—Helicopter operations at some of the Restoration Project sites could result in worker injury or fire.**

This impact is similar to Impact 4.12-5 described under the Five Dam Removal Alternative. Similar to the Five Dam Removal Alternative, the Three Dam Removal Alternative would require helicopter operations during construction to serve sites without vehicular access. This impact is considered less than significant; based on the requirements that will be imposed by Reclamation's *Reclamation Safety and Health Standards* and contract specifications.

## Cumulative Impacts

Cumulative public health and safety impacts associated with the Proposed Action and past, present, or probable future projects (including those mentioned in Chapter 6) that would occur in the Battle Creek watershed could potentially be significant. However, implementing the proposed mitigation measures would minimize impacts associated with public health and safety. With the implementation of the proposed mitigation measures, the Restoration Project is not expected to result in or contribute to any cumulative impacts on public health and safety in the Battle Creek Watershed.