

MAN-MADE HAZARD IDENTIFICATION

Man-Made Hazard Identification⁴⁰

The original scope of the Jefferson County Hazard Identification and Vulnerability Assessment (HIVA) was to be an “All Hazard” assessment. Since many of the natural hazard risks we face are a function of man-made hazards or events, we have included those in this plan. The objective is to evolve the *Natural Hazard Mitigation Plan* into a full *All Hazard Mitigation Plan* and use it to improve Jefferson County’s ability to deal with the full spectrum of natural and man-made hazards.

9-1-1 OUTAGE or OVERLOAD⁴¹

SUMMARY

The Hazard: A 9-1-1 Outage is the loss of the ability of a Public Safety Access Point (PSAP) to function as a result of natural or man-made events. This can be through natural events destroying communication lines and towers, computer viruses, telephone switching centers being overloaded in an emergency, etc.

Impacts and Effects:

- Loss of access to emergency communications for citizens
- Loss of life or serious injury because of inability to get emergency aid
- Disruption of communications between dispatch and law, fire and EMS services
- Degradation of officer safety during incidents
- Loss of life or serious injury to first responders because of the inability to get back-up or adequate resources to deal with an incident

Previous Occurrences: Occurrences have happened in 2006, 2007, and 2008 for a variety of reasons. Some have been rectified within minutes, while others necessitated the opening of the back-up Alternate PSAP.

Probability of Future Events: Moderate – Portions of the 9-1-1 infrastructure are vulnerable to disruption by significant natural hazards such as wind or ice storms.

Definition

A 9-1-1 Outage is the loss of the ability of a Public Safety Access Point (PSAP) to function as a result of natural or man-made events. This can be through natural events destroying communication lines and towers, computer viruses, telephone switching centers being overloaded in an emergency, etc.

JeffCom 9-1-1 operates the PSAP, which is co-located with Jefferson County Department of Emergency Management and the Jefferson County Jail facility in Port Hadlock Washington. A back-up PSAP, the Alternate PSAP (APSAP) is located nine miles away in the East Jefferson Fire

& Rescue fire station 1-6 in uptown Port Townsend. The APSAP is co-located with the Alternate Emergency Operations Center and the City Command Center.

JeffCom's PSAP has three operator positions, and is manned 24/7. The APSAP has one operator position, and is only manned during emergencies or drills.

History of 9-1-1 Outages in Jefferson County

August 2005 – Three days after a new director took over control of JeffCom, it was hit by a computer virus that locked up the 9-1-1 positions. The APSAP was activated and providing 9-1-1 coverage within 30 minutes.

Winter Storms 2006 & 2007 – Tree branches falling on an above-ground fiber-optic line along Oak Bay Road between Port Ludlow and Port Hadlock severed the line, cutting 9-1-1 service in West Jefferson County.

August 25, 2008 – A state Department of Transportation employee drove a sign into a fiber-optic line and severed it, leaving West Jefferson County without telephone communications.⁴²

The outage left about 6,200 CenturyTel customers on the West End without long-distance phone or broadband services and made 9-1-1 service dependent upon an intercom system via the Olympic Public Safety Communications Network (OPSCAN) system.

December 31, 2008 – Severe windstorm snaps a Bonneville Power Authority feeder line plunging East Jefferson county into the dark. Dispatch

Hazard Identification and Vulnerability Assessment

The Jefferson County 9-1-1 system is a relatively small system (3 positions), but has a dedicated stream of income for infrastructure improvement from a 1/10th of 1% tax levy. It pays less than surround counties, and therefore sees significant turnover as people become experienced and move on to higher paying opportunities. As a result of turnover, and the length of time it takes to train new dispatchers, there are times when the 9-1-1 position is covered by one person. Two simultaneous incidents can easily overwhelm one person, and can necessitate managing multiple life and death situations in a high stress environment alone.

Much of the towers, repeaters and other infrastructure is over 25-years old, and does not meet current standards for grounding or tower safety. In portions of the county, the hilly terrain makes it so that law and fire cannot hear dispatch, thus making officer safety issues and EMS response times are an ongoing problem.

Portions of the 9-1-1 system travel over above-ground fiber-optic lines that are not redundant, and are vulnerable to being cut by falling limbs, ice, or accidents.

The Computer Aided Dispatch System (CAD) is unstable, and portions of it have never been successfully implemented since its purchase in 2002.

Due to the topography, direct radio communications between JeffCom and the West End are virtually impossible. Nine-one-one depends on fiber-optic lines, with a line-of-site public safety microwave network called OPSCAN providing an alternative path-way. The Olympic Public Safety Communications Alliance Network (OPSCAN) is a consortium of 43 local, state, federal, non-governmental, tribal, and transit agencies working together to address the communications interoperability needs on the Olympic Peninsula.⁴³ Phase I of OPSCAN is the implementation of a microwave backbone around the entire Olympic Peninsula, implementation of a network of interoperability gateways and solutions, and development of policies, procedures, and training to ensure proper functionality and operations. This has been completed, and is an evolving network.

Additionally, with a secure source of funding for infrastructure build-out, JeffCom has undertaken a multi-year project to rebuild its network of towers, repeaters, and equipment to improve coverage and reliability of radio communications throughout the county.

Vulnerability – Jefferson County (pop. 29,279) covers land area of 1,144,330 acres or 1814 square miles. Jefferson County, the 18th largest county in Washington, is situated in the upper half of the Olympic Peninsula in Northwest Washington. Mountains, rolling timbered hills and lowlands comprise the topography. Mountains comprise approximately 75% of the county's landmass and fall within the boundaries of the Olympic National Park and the Olympic National Forest. The county is bounded by the Pacific Ocean on its western edge. Beach areas on the Pacific are also part of the Olympic National Park.⁴⁴

The western and eastern areas of the county are separated by the Olympic National Park and Olympic National Forest properties. The mountain areas of the Park include mountains up to nearly 8,000 feet. These National Park and National Forest areas are among the most scenic areas of the state if not the entire country. The lower half of the eastern shoreline of Hood Canal is also part of the Olympic National Forest. The upper half of the eastern shoreline is an area of rich valleys leading to the foothills of the Olympic Mountains. Steep and rocky cliffs give way to low beaches and wetlands. The upper half of the eastern section of the county is where most of the population resides.

The City of Port Townsend (pop. 9,400) is the only six square miles, but is built in among hills and wooded areas, many of which have no through streets. The population is 1200 per square mile vs. the 14 per square mile in the county. East Jefferson Fire & Rescue provides coverage for both the city and a 75 square mile area of the county.

In 1980, the median age was in the range from 25- 44. By the year 2000, the median age range had grown to the 44 – 54 year olds. By 2030, it is predicted that the median age in Jefferson County will be 65+. As the population ages, demand for emergency medical services expands commensurately. In 2007, all Jefferson County fire districts reported 4,205 calls-for-service, with 69% being for medical or rescue reasons.

Jefferson County is also in an earthquake zone in which we have at least two significant earthquake zones capable of initiating incidents of magnitude greater than 7.0. During such an event JeffCom will almost certainly both lose towers and repeaters while simultaneously receive an overload of emergency calls.

CONCLUSION

Personnel availability, aging communication infrastructure, and exposed communication lines make Jefferson County's 9-1-1 system and law and fire dispatch communications vulnerable to disruption and /or overload during routine operations. A catastrophic event will almost certainly cause massive call overload at the same time the fragile infrastructure corridors are disrupted, disrupting communications to first responders.

JeffCom is addressing these issues with an infrastructure build-out that is intended to bring towers and repeaters up to current operational and safety standards, and to implement a simulcast system intended to provide resilient radio communications throughout East Jefferson County, where eighty percent of the population is located.

Nevertheless, the threat of losing 9-1-1 capability puts both first responders and the citizens of Jefferson County at risk. JeffCom, and local law, fire, and emergency management must find ways to build redundancy into emergency communications until failsafe systems can be implemented.

AIRCRAFT MISHAP⁴⁵ **(Commercial / Civil / Military)**

SUMMARY

The Hazard: This type of hazard is the failure of an aircraft to suspend itself in flight due to mechanical or human error resulting in a collision with the ground.⁴⁶

Impacts and Effects:

- Possible loss of life
- Possible injuries to aircraft occupants and to people on the ground
- Loss of aircraft
- Loss of property on the ground at the crash site
- Increased danger of fires

Previous Occurrences: The last occurrence in Jefferson County was in 2007 when a small private aircraft experienced a low-impact crash on landing at the Jefferson County airport. There were no injuries. Pilot claimed a gust of wind caused momentary loss of control resulting in the wingtip touching the ground and spinning the aircraft around.⁴⁷

Probability of Future Events: Low – The lack of regularly scheduled air service limits the probability of events to small general aviation operations that occur most frequently on weekends.

Definition

In the context of emergency management and disaster planning, airplane accidents refer to major accidents, resulting in the loss of the hull with multiple fatalities. Civil aviation is a very strictly regulated activity. A complex web of federal regulations and protocols governs airplanes manufacture, maintenance, and operation. This has resulted in falling accident rates in spite of the persistent increase in air traffic. But major crashes result in the sudden and catastrophic loss of life. A large airplane accident can result in more deaths in an instant than almost any other kind of event. Hence, the public and the media are very concerned with air safety and they expect strict regulation of civilian aviation.⁴⁸

History of Aircraft Mishaps in Jefferson County

There has not been a major air accident in the Puget Sound region, including Jefferson County, in recent history. However, accidents in other parts of the country allow us to examine the potential vulnerabilities we face in this area. In October 2007, ten people died when a plane carrying a party of skydivers from Idaho back to Shelton Washington crashed near Yakima Washington.⁴⁹ In February 2009, a commuter plane with 49 people on board crashed near Buffalo, NY, killing everyone on board.⁵⁰ And finally, in January 2009, there was the heroic landing of a U.S. Airways

Airbus A320 with 154 passengers in the Hudson river after the plane lost all engines due to a bird strike during take-off.⁵¹ Everyone survived.

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Hazard Assessment and Vulnerability Assessment

The Puget Sound region is vulnerable to two types of major air transportation accidents. One is a crash involving a large passenger aircraft, while the other is an airplane crash causing casualties on the ground. Despite the large number of planes flying over heavily populated areas, the number of crashes killing or injuring non-passengers is quite small. In general, crashes are most likely to occur within five miles of an airport, typically along flight paths.⁵³ Weather is a significant factor in these air transportation accidents. Down bursts, thunderstorms, and ice are the primary weather-related events that increase risk.

The Jefferson County International Airport is a general aviation facility with a single 3000' east-west runway at an elevation of 107 feet above sea-level. The City of Port Townsend is within a five mile radius of the Jefferson County airport, but is not along the take-off and landing flight path; therefore, the probability of a mass casualty event if a plane crashed in this area is small unless the plane itself is a passenger aircraft. There are two home owners associations located along the flight path one each off of either end of the runway, but both are somewhat protected by a ring of hills surrounding the airport.

Large passenger aircraft originating from SeaTac Airport in Seattle, and military over flights originating from the region's numerous military bases add to the possibility of a mass-casualty event if they were to crash in Jefferson County or within the city of Port Townsend. Since these flights are at high altitudes and supersonic speeds, the probability is small that any given aircraft would have a simultaneous combination of problems, direction, and speed to cause it to drop into the few concentrated population areas of Jefferson County.

As a response to the closing of State Highway 104 at the Hood Canal Bridge for two months in May and June of 2009, a private float plane service from Port Hadlock to Seattle has been created. The nature of the aircraft and its landing zone somewhat increase the probability of a mishap, but the plane is small enough that a mishap would be tragic but not necessarily catastrophic. There will be three flights per day, each capable of holding a pilot and 10 passengers. There is a possibility that the service will be extended beyond the bridge closure and brought directly into Port Townsend.

CONCLUSION

Although a rare possibility, the catastrophic potential of a major aircraft crash in Jefferson County or the City of Port Townsend cannot be ignored. Significant damage to property, utilities and transportation routes could result. Significant financial impact could occur, as well as the inevitable heavy loss of life.

The biggest concern is that the Northwest Maritime Center has leased its pier to be used as a major runway for large commercial jet passenger flights, thus aiming the landing aircraft into the center of the city. See attached article from the Port Townsend Leader, dated April 1, 2009, below.

BANKRUPTCY⁵⁴

SUMMARY

The Hazard: A large-scale regional or national event such as an earthquake, pandemic, a severe economic recession or depression or simply strategically placed massive incompetence or malfeasance can cause such severe economic disruption as to force a governmental entity into bankruptcy.

Impacts and Effects:

- Breakdown of governmental institutions
- Imperilment of life due to the inability to provide life-support services and medicines
- Compromise of immediate response such as emergency shelter, food, water, and medical treatment due to lack of adequate inventories
- Impairment of long term recovery if businesses cannot function
- Permanent loss of businesses if recovery is delayed
- Loss of schools, homes, and businesses as people abandon a moribund geographic area

Previous Occurrences: During the period from 1890 to 1893, Port Townsend experienced a severe local depression when the railroads stopped at Seattle and Tacoma rather than continuing all the way to Port Townsend.⁵⁵

Probability of Future Events: Moderate – In 2008, the U.S. entered into a recession. The Port Townsend paper mill, the largest employer in the area, was teetering on the edge of bankruptcy, and the county had to lay off 13 people to balance its budget. The possibility of a bankruptcy scenario is possible, although the circumstances are not as bleak as in previous events.

Definition

A large-scale regional or national event such as an earthquake, pandemic, a severe economic recession or depression or simply strategically placed massive incompetence or malfeasance can cause such severe economic disruption as to force a governmental entity into bankruptcy.

History of bankruptcy in Jefferson County

During the late 1880's, there was a boom period in which Port Townsend leaders thought the city would become the capitol of Washington. In the fiscal year 1884-1885, for example, a larger number of steamships entered and cleared through Port Townsend than in any other port in the United States. In 1889, Port Townsend's leading real estate speculators created the Port Townsend Southern Railroad with the intention of building a line from Port Townsend to Portland, Oregon. "Port Townsend's population suddenly swelled to some 7,000. During a brief few years were constructed the majority of mansions and major business buildings revered today for their history."⁵⁶

In the spring of 1890 the Port Townsend Southern Railroad negotiated a deal with the Oregon Improvement Company, a subsidiary of Union Pacific, to build the proposed railroad. By the summer of 1891, the line had been built from Port Townsend to Quilcene, but no farther. By Thanksgiving, The Oregon Improvement Company was put into receivership as a combination of bad management and a national depression drove the economy down. “By the time the depression reached panic proportions in 1893, the city’s population had dwindled to some 2,000 souls.”⁵⁷

Although it did not declare bankruptcy, the Port Townsend economy languished in the doldrums until the 1920’s when the paper mill was built.

HAZARD IDENTIFICATION AND ANALYSIS

In 1994, Orange County California declared bankruptcy when their county treasurer of 24 years drove the county into insolvency by “investing” in derivatives to subsidize the county’s reliance on interest income. Leveraged with two dollars borrowed for every dollar of capital, falling interest rates made it impossible to pay back creditors. When the state refused to help the county, it was left with no choice to file Chapter 9 bankruptcy.

The circumstances deserve consideration for a number of reasons:

- California Proposition 13 had limited local government ability to raise taxes.
- In FY94, interest made up 12% of Orange County’s revenues vs. 3% for all other California counties. By FY95, it was intended that interest would be 35% of revenues.
- The county turned to riskier investments to offset declining revenues in the face of increasing costs.
- County government declared bankruptcy on December 6, 1994.
- The state refused to intervene, thus negating an implied moral obligation of states to help their municipalities.
- Voters rejected a half-cent sales tax increase as part of a recovery plan.

In *When Government Fails: The Orange County Bankruptcy*, Mark Baldassare identified three conditions necessary for a municipal bankruptcy: **political fragmentation, voter distrust, and state fiscal austerity.**⁵⁸

The Jefferson County Parallel

In 2009, Jefferson County was experiencing similar financial difficulties as Orange County did in 1994:

- Washington Proposition 747 limited the growth of property taxes to 1% per year without specific taxpayer approval. Overturned by the State Supreme Court, its provisions were quickly reenacted by the legislature because of public outcry.
- A major recession, started by the collapse of the subprime mortgage market, dried up both building permit revenues and interest income to the county.
- By the end of February 2007, the county had earned \$283,924 in interest income on the \$1,094,358 it had collected for the full year. By the end of February 2009, the county had taken in \$26,051 in interest income.⁵⁹
- County voters have rejected two bond measures to fund the building of a new elementary school, thus forcing the consolidation of schools and laying off of teachers.

- Washington State was nine billion dollars in the red for the 2010-2011 biennium, and cutting back programs and levels of funding to local governments.

Jefferson County is unique in Washington in that it is becoming a retirement county. By 2030, over half the population will be over 65.⁶⁰ Over sixty percent of revenues are transfer payments, contingent on the health of the financial markets. The primary commercial sectors of the county economy are the paper mill, a thriving maritime industry, and tourism. The majority of Jefferson County economic assets are north of State Highway 104 on the Quimper peninsula. The Quimper Peninsula has three main arterials, Highway 104, U. S. 101, and the State Ferry System. The loss of any one of these for a significant period of time impacts sales tax and business tax revenues; forces some businesses to close; and puts stress on local government services.

Although many states, counties, and municipalities have been hard hit by the 2009 recession, circumstances are such that most have not reached a tipping point yet. Jefferson County, however, does show evidence of the precursors that make it vulnerable to entering a bankruptcy scenario. In an emergency management context, this could result in the outsourcing of 9-1-1 capabilities to other counties, the elimination of emergency management as a separate entity and its being brought back under the auspices of the Sheriff's Office or outsourced, as well. Emergency services in the county would have to go on an austerity program even as the influx of retirees is putting an increased demand on health and EMT services.

CONCLUSION

Jefferson County and the City of Port Townsend are vulnerable to significant economic disruptions due to their geography, location and the ease with which they can be isolated. The precursors to municipal bankruptcy are present and suggest that it is possible for circumstances to degrade sufficiently to push Jefferson County in that direction. Strong cooperation among county and city officials is necessary to weather the storm and prevent a local economic disaster

CIVIL DISTURBANCE⁶¹

SUMMARY

The Hazard: Any incident that disrupts a community to the degree that police intervention is required to maintain public safety is a civil disturbance or civil disorder. Demonstrations, riots, strikes, public nuisances, domestic disputes, terrorism, and/or criminal activities fall into this category.

Impacts and Effects:

- Loss of life
- Loss of property
- Closure of businesses
- Looting
- Arson
- Long term divisiveness in the community
- Adverse impacts on tourism and economic development
- Increased demands on law enforcement and emergency response resources
- Increased demands on mental health resources

Previous Occurrences: Multiple domestic disputes, criminal activities, and public nuisances occur each month and are routinely dealt with by local law enforcement authorities. In 1998, the Washington State EOC was activated in response to the Makah Indian Nation proposed whale-hunting activities at Neah Bay.

Probability of Future Events: High – The broad definition assures occurrences. Even with a narrow definition, local schools receive bomb threats once or twice a year, and local “peace” groups hold regular sit-ins at the front gate of U.S. Navy Magazine – Indian Island.

DEFINITION

Any incident that disrupts a community to the degree that police intervention is required to maintain public safety is a civil disturbance or civil disorder. Demonstrations, riots, strikes, public nuisances, domestic disputes, terrorism, and/or criminal activities fall into this category. The hazard could surface in any community, and can be sparked by disagreements ranging from simple family disturbances to political, racial, belief, social and economic differences that escalated beyond an exchange of words.

HISTORY OF CIVIL DISTURBANCES IN JEFFERSON COUNTY

Jefferson County has not experienced the violence associated with riots occurring in nearby Seattle in the 1990s. In Seattle, a small-scale riot occurred after the 1992 Rodney King verdict. After the jury’s decision was announced small groups of people roamed downtown Seattle streets smashing windows, lighting dumpster fires and overturning cars. In 1999, during the World Trade Organization Ministerial Conference, riots resulting in injury and death of participants and bystanders occurred. The City of Seattle declared an emergency and the Governor signed a

proclamation of emergency allowing commitment of state resources to support affected local jurisdictions.

In 1998, the Washington State EOC was activated in response to the Makah Indian Nation proposed whale-hunting activities at Neah Bay. At the request of the Clallam County Sheriff, the State of Washington provided resources from the National Guard, Washington State Patrol, Department of Fish and Wildlife, Department of Natural Resources and Emergency Management Division to control disturbances between protestors and residents.

County High Schools including Port Townsend, Chimacum, and Quilcene have all had bomb scares and have had instances of students bringing weapons to school. Following the Columbine High School experience in Colorado, such incidents have been approached with intense seriousness. Although nothing approaching the level of Columbine has occurred, school officials are aware and cognizant of the possibilities.

As the conflict in Iraq became more of a certainty, several protesting groups promised “civil disobedience”. While the larger marches were held in Seattle and Tacoma, there was vocal opposition evident in Jefferson County. Participants did not resort to violence, but wherever there are strong opposing views, the potential existed for words and signs to be replaced by more violent activities.

HAZARD IDENTIFICATION AND VULNERABILITY ASSESSMENT

Civil disturbances are divisive, often complex in their origin, and are possible in nearly every community in the nation. As the population continues to grow, so will the concentrations of ethnic groups, varied perspectives, and disparate economic status. Jefferson County has experienced a growth rate that has outpaced the rest of the State of Washington. Diverse philosophies exist in county residents. As the economy fluctuates due to economic realities of declining fishing and forest industries, emotions tend to run high. Tourism, a major source of revenue for county businesses could be affected by an increasing potential or the actual developments of civil disturbances.

CONCLUSION

The potential for civil disturbances exists in Jefferson County. Main participants might not be residents of the county. County law enforcement resources are aware and have practiced response scenarios if such disturbances occur.

DAM FAILURE⁶²

SUMMARY

The Hazard: Dam failure is the uncontrolled release of impounded water resulting in downstream flooding that can affect life and property. Flooding, earthquakes, blockages, landslides, lack of maintenance, improper operation, poor construction, vandalism or terrorism can cause dam failures.⁶³

Impacts and Effects:

- Loss of life
- Loss of homes and businesses
- Loss or long-term disruption to water supplies
- Firefighting water sources adversely impacted
- Business depending on large quantities of water severely impacted
- Road and bridge washouts
- Loss of crops and livestock
- Damage or destruction of salmon streams
- Damage or loss of recreation facilities
- Loss of jobs due to damaged equipment and facilities

Previous Occurrences: Dam failure has not been a major concern for the residents of Jefferson County. There has been no history of lives lost, property loss, or other damage as the result of dam failures.

Probability of Future Events: Low – Regular inspections mitigate the possibility of a spontaneous dam failure without an external factor. A severe earthquake could cause the destruction of any given dam, but the probability of a severe earthquake is low, even as the consequences are high.

Definition

Dam failure is the uncontrolled release of impounded water resulting in downstream flooding that can affect life and property. Flooding, earthquakes, blockages, landslides, lack of maintenance, improper operation, poor construction, vandalism or terrorism can cause dam failures.

History of Dam Failure in Jefferson County

Dam failure has not been a major concern for the residents of Jefferson County. There has been no history of lives lost, property loss, or other damage as the result of dam failures.

HAZARD IDENTIFICATION AND VULNERABILITY ASSESSMENT

There are four publicly owned, and one privately owned dams of consequence in the county. All four publicly- owned dams are property of the City of Port Townsend. Dam information in Jefferson County is shown below:

Dam	Yr Built	Normal Surface Area (Acres)	Normal / Max Storage (Acre feet)	Drainage Area (Sq mi)
City Lakes	1928	16.3 acres	800/800 acre feet	.20
Lords Lake East	1956	56.0	1480/1860	.50
Lords Lake North	1957	56.0	1480/1860	.50
Morgan Hill Reservoir	1926	2.0	20/20	.01
Witter Dam (Private)	1965	2.5	5/14	.00

It should be noted that the Lords Lake East, Lords Lake North and the Morgan Hill Reservoir are categorized as having a “High Downstream Hazard Potential” with a population risk of 31 – 300. Economic loss that could result if these dams were to fail is rated as extreme with 11-100 inhabited structures downstream of the dam. High hazard dams (dams located upstream of three or more residences) are supposed to be inspected on a 6-year inspection cycle.

The Morgan Hill Reservoir is no longer used and is currently dry. The City intends to surplus the land in the future.

Figure DF-1, below, shows that a failure of the Lords Lake East Dam has the potential to inundate a significant portion of the Quilcene area of Jefferson County.

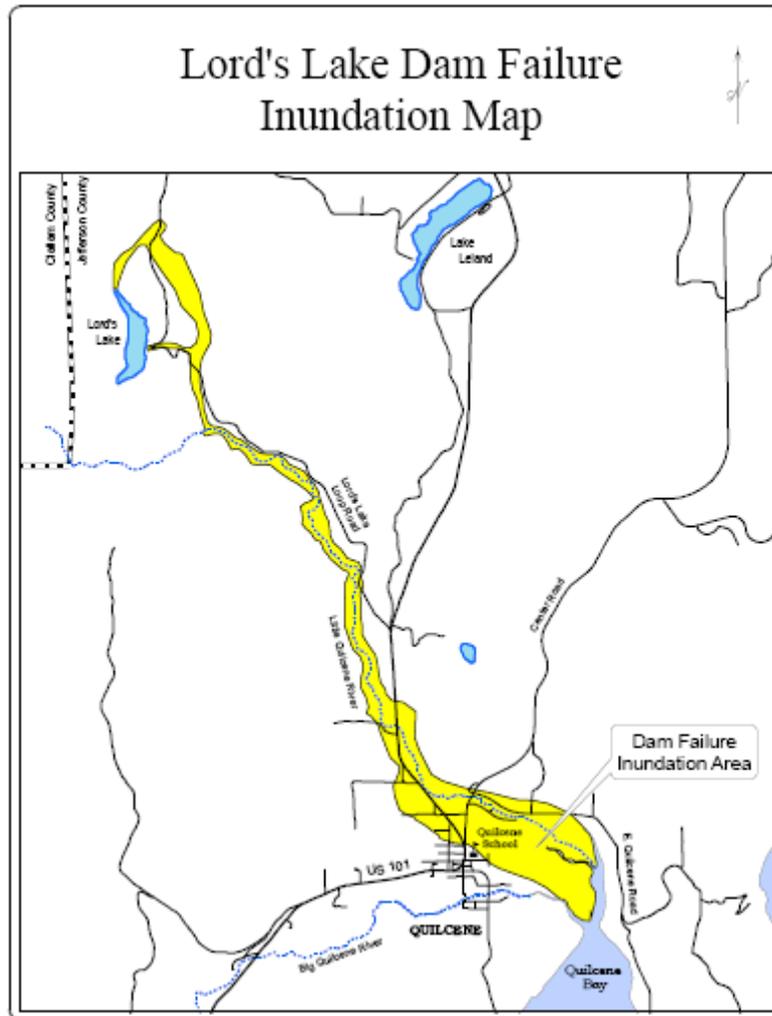


Figure DF-1 – Lord’s Lake East Dam Failure Inundation Zone^{2,3}

All of the State’s 116 high hazard dams have previously been inspected, although during the years of 1999-2000, some of the inspections were deferred due to heavy workloads in plan reviews and construction inspections of new projects. Previous history, inspections, and information received by the Department of Ecology, however, indicated that Jefferson County’s dams did not have significant safety deficiencies. As a result, the Washington State Department of Ecology’s “2000 Report to the Legislature—Status of High and Significant Hazard Dams in Washington State with Safety Deficiencies” does not indicate that these dams have significant safety deficiencies.

In general, periodic inspections and follow-up engineering analysis are conducted to:

- Identify defects, especially due to aging
- Evaluate dam operations and maintenance
- Assess dam structural integrity and stability
- Assess the stability of dam structures under earthquake conditions

Inspections look not only at the dam, but also at the downstream development that has taken place to ensure that encroachment into the area project to be flooded in the event of

a dam failure has not taken place. Such encroachment would change the hazard classification. The State Dam Safety Office is also attempting to examine smaller dams such as city's old reservoir systems. These dams were often built many years before stringent requirements were in place. The State Dam Safety Office is attempting to get these smaller dams on a schedule for comprehensive inspections and repair as well.

While the failure of projects with a high potential for loss of life and property is remote, the number of failures of low hazard projects that provide important infrastructure roles may be on the rise.

CONCLUSION

Three state statutes deal with safety of dams and other hydraulic structures: Chapters 43.21A, 86.16, and 90.03 RCW. These laws provide authority to approve plans for dams but also to inspect hydraulic works and require appropriate changes in maintenance and operation. Periodic inspections are the primary tool for detecting deficiencies at dams that could lead to failure. Periodic inspections help identify dams where significant development has occurred downstream resulting in the need for more stringent building and planning codes due to greater population at risk. County building permits consider dams in the permit process.

HAZARDOUS MATERIALS INCIDENT⁶⁴

SUMMARY

The Hazard: FEMA defines hazardous materials in a broad sense to include: explosive, flammable, combustible, corrosive, oxidizing, toxic, infectious, or radioactive materials that, when involved in an accident and released in sufficient quantities, put some portion of the general public in immediate danger from exposure, contact, inhalation, or ingestion.

Impacts and Effects: Any or all of the following could occur: illness and injuries, loss of life, first responders, population and workers at risk until abatement is effective; explosions resulting in destruction and fires; permanent loss of fishing, clam beds, and oyster beds from chemical spills; loss of recreation sites and tourism; potential contamination of water supplies, business closures; long term loss of property use; potential lawsuits tying up property and funding for years.

Previous Occurrences: Hazardous material spills occur frequently with varying degrees of response necessitated. The last significant response was in 2008 when a leak developed in a propane truck. Nearby restaurants and a school were evacuated and State Highway 19 was closed until the situation was brought under control.

Probability of Future Events: High – Hazardous material spills happen 25 – 30 times per year. Most are small and are not reportable. The State Department of Ecology requires spills to be reported if they are over 25 gallons.

Definition: The production, use, storage, transportation and disposal of hazardous material substances and wastes, places the public and the environment at significant risk. A release may occur by spilling, leaking, emitting toxic vapors, or any other process that enables the materials to escape its container, enter the environment, and create a potential hazard. The nature and extent of this risk is difficult to determine as the process involved in hazardous materials and toxic waste management are dynamic. Many federal laws and regulations exist to manage the manufacture, utilization, and disposal of hazardous materials.

History of Hazardous Materials Spills Affecting Jefferson County

Data reported to Jefferson County about occurrences happening to hazardous materials averages from 25 to 30 per year. Clean up is the responsibility of the spiller; however the spiller or waste-dumper may not be known. Occurrences have ranged from marine oil spills during bunkering operations to spilled fuel or oil on the road from accidents or overturned containers. Calls are received regarding illegal burning, propane leaks, illegal dumping, blasting caps, sewage, and many other various incidents.

During the Persian Gulf operations known as “Desert Storm” and during Operation Iraqi Freedom, several thousand tons of explosive passed through eastern Jefferson County between the Hood Canal Bridge and Naval Magazine Indian Island. The type of cargo that is loaded/offloaded at NAVMAG Indian Island is primarily ammunition (e.g., bombs, bullets and

missiles). Contract trucks and trailers made several trips each day moving materials between Indian Island and Naval installations in Kitsap County. Trucks moving hazardous materials to Port Angeles and locations in Clallam County often also transit Jefferson County roads.

Hazard Identification and Vulnerability Assessment

Areas at risk for hazardous materials transportation incidents lie along highways, pipelines, rivers, and seaport areas. These risks are compounded by natural hazards (e.g. earthquakes, floods, and severe storms). Each incident's impact and resulting response depends on a multitude of interrelated variables that range from the quantity and specific characteristic of the material to the conditions of the release and area/population centers involved.

The county Local Emergency Planning Committee (LEPC) was established under the provisions of the State and Federal law (The Community Emergency Planning and Community Right-to-Know Act--EPCRA). The purpose of the LEPC is to coordinate the development of emergency plans and procedures for dealing with a hazardous materials incident. The committee's charter is to conduct hazard identification, vulnerability analysis, and risk management activities. Additionally, they are chartered to develop and maintain emergency response plans appropriate to hazardous materials based on the volumes and types of substances found in, or transported through their jurisdictions.

Conclusion

The Hazardous Material Emergency Preparedness (HMEP) Grant of 1998 made it possible for Jefferson County to revise plans to address the mandates of the Superfund Amendments and Reauthorization Act (SARA) and EPCRA.

For major marine oil and hazardous material spills, the Northwest Area Contingency Plan (ACP) will be used for all responses. It combines the resources of the local, State, and Federal governments. Two Geographic Response Plans (GRPs) cover the shorelines of Jefferson County, specifically the Washington Outer Coast and Hood Canal/Admiralty Inlet. They include resource priorities, protection and clean-up strategies, and local logistical information.