

## **DECEMBER 3, 2007 CHEHALIS RIVER FLOODING EVENT DESCRIPTION:**

Prepared November 20, 2008; revised financial figures August 1, 2009

### **INCIDENT: The River Explodes Sending A 18-Foot Wall Of Water Through West Lewis County**

On Monday, December 3, 2007, record rainfall resulted from three Pacific Coast storms that slammed across much of Western Washington. Approximately 14"-20" of rainfall from the "super storm" fell in the Willapa Hills, causing widespread record flash flooding through PeEll, Boistfort, Doty, Adna and finally to the cities of Chehalis, and Centralia.

At the highest, Chehalis River crests at Mellen Street were nearly 10 feet over flood stage (74.78'). The previous record level was 74.30 reached in February, 1996.

The Doty river gauge was swept down the river after reaching a maximum of 30.04', 18.6 feet over flood stage (8.5' higher than the previous record level).

USGS scientists determined that the peak stream flow at their gauging station on the Chehalis River near Doty reached a flow of 63,100 cubic feet per second (cfs). By comparison, the previous record peak flow was 28,900 cfs, reached during the February 1996 flood.

Flood waters raged over many areas that had never been flooded previously and were not considered to be in the floodway.

By 2:30 a.m., local fire department personnel began evacuating residents along the river banks as a series of mud and log debris cracked against bridge abutments. Millions of board feet of timber and mud slides dammed up portions of the river, holding back waters until finally a wall of water 4'-18' crashed through the blockages and ripped through the valley floor. Residents were caught off guard by water slamming through one side of their homes while they escaped out the other. Thousands of dairy cows, horses, sheep, and pets were lost to the river.

Three transportation bridges were taken out by swiftly moving debris. Entire homes were washed into the river, many with families stranded on rooftops or in attics praying for rescue. Many areas of the county, including the local hospital, became islands in the middle of an ocean of muddy water and debris.

### **The Rescue**

The Lewis County EOC was activated at 0455, December 3, 2007 to organize rescues. (The NWS didn't issue a Flood Warning until 9:05 a.m.)

Lewis County Dispatch received over 1,400 calls in the first 24 hours of operation (more than 300 times their normal load). Lack of access forced the creation of 6 field commands that were coordinated from the Lewis County Forward Incident Command Post.

Water rescues self-deployed where possible with official water rescues and air rescues continuing for 5 days and nights. Semi-truck drivers were air-lifted by helicopter from their submerged units in local parking lots.

Local landmarks and street signs were covered by water making it difficult to see what area you were in or find any specific addresses. All helicopters were staffed with a LCSO deputy to provide rescue site coordinates by GPS. They also carried chain saws and axes to chop through roofs to reach victims trapped in attics. Over 500 rescues were completed without loss of life to any human being, victim or rescuer. Over 25 boats and 7 helicopters were used in the rescues.

Once flood waters were receding, the mission changed to fighting fires as wet hay inside barns began to smoke from spontaneous combustion due to moisture.

The EOC continued to operate approximately 10 days. As roads were opened, areas had to be searched to ensure all persons got out safely. Animal carcass disposal, health concerns and hazardous materials issues had to be addressed. Three large water systems were down. The Boistfort Valley Water Corporation, servicing approximately 2,800 residents, did not have potable water until March 21, 2008.

Sheriff's Office and County Department staff (112) provided over 7,000 hours of response and recovery time from December 3-13, 2008. Over 24 government and community groups assisted in the recovery efforts.

In the initial phase of the event, preliminary damage estimates exceeded \$166.1 million. This was estimated at only about one-third of the total damages.

None of the local levees failed during the event. The excessive amount of water simply spilled over the top of them.

This flooding event impacted a population of approximately 30,000 residents. Exit 77 of Interstate 5 was quickly inundated with 14 feet of water and remained closed for 4 days. Closure of this section of the freeway created a 440 mile detour route for transportation to continue.

Major shopping and business centers along I-5 and the Miracle Mile between Centralia and Chehalis took on 5-8 feet of water. Over 3,000 homes received some type of water damage. Approximately 1,000 of those homes were in the "major to destroyed" category. Fifty-five homes in the west county area were either swept into the river or had to be destroyed.

Over 20 shelters were established in the first few weeks of the event. Red Cross opened 9 shelters and served 2,115 meals and 2,766 snacks. The Salvation Army became an island itself and sheltered many residents there. The EOC coordinated serving 1,500 meals a day from December 5 through December 23 to victims and volunteers that came to help with the clean-up activities.

Approximately 500 of the impacted residents were rental homes that were a double loss to the community for as much as six months. Due to the lack of affordable rental properties, many of these people had to relocate outside the Lewis County area. Schools reported over 400 children homeless in the weeks after the flood.

## **SUMMARY:**

The response phase stretched the capacity of this small community, but the on-going recovery phase has taken months and in some cases, will continue for years to reach full restoration. An outpouring of donated goods and organizations wanting to assist with the rebuilding are still continuing today.

An event of this nature is estimated to be a “medium” sized event for the State of Washington; however, it is an event of catastrophic proportions to the limited resources in a rural county such as Lewis. The lack of loss of human lives is attributed to a well-practiced response team that performs annual full-scale exercises and a well-prepared, self-sufficient community. The preparedness of the Boistfort Community resulted in the first Boistfort Valley home being ready to be re-occupied in 5 weeks! Within 8 months, the Dryad community had 85 of 100 substantially damaged homes occupied. A self-directed recovery of this size is unprecedented anywhere else in the Nation!

## **One – Year later:**

Many small, independent businesses failed to reopen after the flood. Twenty-nine businesses reopened anywhere from 6-11 months after the flood. It remains to be seen in this declining economy if their resources are enough to sustain them through the next 2-3 years as they continue to rebuild.

The Lewis County Assessor reduced the property values by \$46 million. Those tax losses are re-appropriated to the non-impacted properties when taxes are levied.

Lewis County Public Works is approximately 95% completed with the flood damage repairs, except for rebuilding two bridges that are pending FEMA approval. Unfortunately, they have had to delay their regular maintenance schedule to complete the flood damage projects, and are now almost a full year behind in their routine road work.

The Long Term Recovery Organization (LTRO) has received 225 requests for assistance. Only about 25 of those family case files have been closed. This means 91% of those families still need assistance with construction, household goods, financial management and emotional issues. Volunteers continue to contribute approximately 1,200 hours per months in assistance for recovery needs.

The town of PeEll continues to struggle to find funding for the estimated \$2.2 million needed to make repairs to the city water system.

Washington State Department of Transportation reported that the 4-day closure of Interstate 5 resulted in a \$47 million loss to the freight shippers. These losses are part of an on-going push by the State Legislature to find a solution to the I-5 flooding problem.

The Curtis Rail Line (Port of Chehalis) has a project pending for \$1.8 million in grant funds for flood repair of a 10-mile stretch of rail track that is also used by the Historic Steam Train.

The residential recovery is a stellar example that everyone in Lewis County and the supporting community can take great pride in:

<i>Lewis County 12-03-07 Chehalis Flood</i> Flood Damage Recovery Report One Year Later				
Category	Lewis County	Chehalis	Centralia	Totals
Homes Substantially damaged in 12-3-07 flood	<b>149</b>	<b>139</b> (270 impacted)	<b>350</b> (600 impacted)	<b>638</b> (1,019)
Repair Permits issued	<b>*149</b>	<b>71</b>		
Moisture Inspections			<b>350</b>	
Destroyed/Demolished Homes	<b>55</b>	<b>30</b>	<b>20</b>	<b>105</b>
Elevated Homes	<b>62</b> (more pending)	<b>15</b> (30 needed)	<b>10-12</b> (Grant for up to 30 more)	<b>89</b>
Considered for Abatement (buy-out)		<b>15</b>		<b>15</b>
<b>*Dec 3, 2007 through February 29, 2008</b>				

**December 3, 2007 Flood - Financial Losses**  
**\*One Year Later Figures**

Compiled 12-20-08, Updated July 20, 2009

<b>Residential losses</b> (3,000 structures, personal property, insured losses, elevation costs)	\$ 192,402,000
<b>Business losses</b> (222 preliminary reports minus major stores)	\$ 26,500,000
<b>Business losses - Major</b> (17 large corporations)	\$ 93,640,000
<b>Agriculture/Farm Losses</b> (126 farms, animal replacement, feed)	\$ 4,641,000
<b>**Aid &amp; Grant Contributions</b> (Non-profit, social services, faith-based)	\$ 24,164,000
<b>Public Infrastructure - Local</b> (Buildings, debris, roads, bridges)	\$ 58,613,000
<b>Government Revenue Losses - Permitting, taxes</b>	\$ 68,963,100
<b>Other Local Agencies Losses</b> (Fire Services, Port Districts)	\$ 1,659,000
<b>State Agencies &amp; Parks</b>	\$ 19,241,000
<b>Federal Agency Costs</b> (Railroads, Levees, Federal Highways)	\$ 22,245,000
<b>Total losses:</b>	<b><u>\$ 512,068,100</u></b>

**December 3, 2007 Flood - Financial Losses  
One Year Later Figures**

Compiled 12-20-08, Updated July 20, 2009  
Residential/Business/Farm and Aid Reported Losses

**Residential Losses:**

Structure Repairs (approx. 3000 homes)	\$75,236,000	
Personal Property Losses (clothing, vehicles)	\$62,600,000	
Insured losses (Approx. 15% of total damages)	\$20,676,000	
Homes <b>destroyed</b> in County (based on 55 homes x \$175,000)	\$9,625,000	
Homes <b>elevated/repaired</b> cost (based on 211 homes x \$115,000):	\$24,265,000	
<b>Foreclosures-Homes - Pending</b>		
Residential Loss Section Sub Total		\$192,402,000

**Business Losses:**

*222 Reports, excluding 17 on separate sheet tab	\$26,500,000	
Closed Business Loss Estimate		
Business Losses Section Sub Total		\$26,500,000

**Agriculture/Farm Losses:**

Farms -		
Animal Indemity Program - Farn Bureau	\$406,000	
Feed/hay supplement - Farm Bureau	\$1,235,000	
Equipment-Structure Losses (126 farms)	\$3,000,000	
Weyerhaeuser - Timber/erosion/roads	declined to participate	
Nurseries - Hobby Farmers		
Agriculture/Farm Losses Section Sub Total		\$4,641,000

**Aid & Grant Contributions:**

American Red Cross Aid	\$832,000	
United Way Aid	\$1,200,000	
Donated animal medical, feed, hay	\$250,000	
Small business Administration Loans	\$19,615,500	
FEMA ONA (rental assistance)	\$2,266,500	

**Non-Reimbursed Govt. Costs:**

Aid & Grant Contributions Section Sub Total		\$24,164,000
<b>Total Residential/Business/Farm/Aid Reported Losses:</b>	<b>\$247,707,000</b>	

**December 3, 2007 Flood - Financial Losses  
One Year Later Figures**

Compiled 12-20-08, Updated July 20, 2009

**Public Agencies' Losses  
Infrastructure Damages-Insured Losses**

**Structures:**

Preliminary LC public buildings/emergency: \$ 45,047,000

**Centralia Debris Costs:**

Cleanup/Debris Removal/Equip loss \$ 876,000

**Chehalis Debris Costs:**

Cleanup/Debris Removal/Equip loss \$ 700,000

**Town of PeEll**

Water & Wastewater Treatment Plant \$ 7,000,000

**Non-FEMA/Insured County Losses** \$ 3,916,000

**Non-Reimbursed (FEMA) Costs-County:**

Debris disposal (not FEMA covered): \$ 828,000

Mobile Home Removal/hauling: \$ 234,000

Free water testing (480 samples x \$25): \$ 12,000

Public Agencies Section Sub Total \$ 58,613,000

**Govt. Revenue Losses:**

**Permitting revenue loss:**

County: \$ 1,300,000

City of Chehalis:

City of Centralia:

Refunds to taxpayers for destroyed valuations (by the Assessor) \$ 68,100

County/City Property tax assessment loss: \$ 67,295,000

City of Chehalis sales tax revenue loss: \$ 300,000

Government Revenue Losses Section Sub Total \$ 68,963,100

**Other Local Agencies Losses:**

LCFD #13 Boistfort \$ 103,000

LCFD #15 Winlock \$ 56,000

**Port Districts Damages:**

Centralia (not reported in Prelimin. figures) \$ 1,500,000

Section Sub Total \$ 1,659,000

**STATE AGENCY COSTS:**

**State Agencies:**

WA State Patrol	\$ 401,000	
DNR	\$ 63,000	
Employment Security	\$ 19,000	
DSHS-Chehalis CSO	\$ 10,000	
DNR Debris clearance	\$ 387,000	
State Lands Cleanup	\$ 1,300,000	
<b>State Parks</b>		
Rainbow Falls:	\$ 5,789,000	
Willipa Hills Trails	\$ 472,000	
Replace 2 RR Bridges - estimate	\$ 10,000,000	
Bridges Removal Costs	\$ 800,000	
State Agency & Parks Section Sub Total		\$ 19,241,000
<b>FEDERAL AGENCY COSTS:</b>		
Federal highways (LC)	\$ 970,000	
Interstate 5 Highway damages	\$ 18,000,000	
Ecology - Public Sanitation	\$ 221,000	
Ecology - Hazardous Waste Cleanup	\$ 115,000	
Curtis Railroad Line	\$ 1,800,000	
<b>Levees Repairs:</b>		
Chehalis-Centralia Airport	\$ 405,000	
Salzer Creek (Fair)	\$ 182,000	
Skookumchuck	\$ 267,000	
Long Road	\$ 285,000	
Federal Agency Costs Section Sub Total		\$ 22,245,000
<b>Total Public Agency Losses:</b>	<b>\$ 170,721,100</b>	



**December 3, 2007 Flood  
Major Business losses**

Prepared November, 2008; Updated July 20, 2009

(Losses not included in Preliminary damage reports)

	<b>Inventory</b>	<b>Salaries and/or cleanup</b>	<b>Structure</b>	<b>Equipment or donations</b>	<b>Revenue</b>	<b>Repairs</b>	<b>Total Losses</b>
Walmart	\$10,000,000	\$2,100,000		\$60,000	\$5,000,000		\$17,160,000
Shop n Kart	\$5,000,000	\$750,000	\$350,000	\$70,000	\$400,000		\$6,570,000
Home Depot							
Blakley & Hout	\$160,000	\$20,000					\$180,000
Sunbirds	\$750,000	\$350,000					\$1,100,000
Staples							
Imperial Homes	\$800,000	\$30,000					\$830,000
WA Home Center		\$50,000				\$300,000	\$350,000
Fairway Shopping Center			\$6,000,000				\$6,000,000
Sorenson Trucking				\$500,000	\$500,000		\$1,000,000
K-Mart	\$600,000						\$600,000
Curtis Store	\$20,000		\$75,000				\$95,000
Fairlane Bowling Alley			\$650,000				\$650,000
City of Chehalis Business							
Revenue loss					\$3,900,000		\$3,900,000
Kluh Jewelers	\$300,000						\$300,000
Rose's Furniture	\$500,000	\$200,000	\$300,000			\$500,000	\$1,500,000
Boistfort Valley Water			\$200,000			\$610,000	\$810,000
I-5 Closure Losses- Transportation Industry					\$48,000,000		\$48,000,000
Other Contracts for cleanup							\$ 2,011,000
Other Rentals/misc equipment/supplies							\$ 2,584,000
<b>Total Major Business Losses:</b>							<b>\$93,640,000</b>

## Lessons Learned:

The **THREE most important lessons learned** in the 2006 Cowlitz River flooding event served as a spring board to improve capacities and capabilities from lessons learned in a smaller, more manageable incident. Since the 2006 Flood, three major improvements were made that were a significant boost to getting the recovery started while still in the response phase:

### 1. **Initiating a Boistfort Valley Community Preparedness Committee**

The Year-long local preparedness program established pre-staging and an EOC Activation Program that the community initiated in less than an hour. This advanced preparedness contributed to saving many lives and leading the recovery operations for that area. Preparedness works! Family – Neighborhood – Community.

### 2. **Deployment of “helping hand” organizations** immediately to assist homeowners in coping with the recovery activities as soon as roads were reopened was essential.

Rapid deployment is essential to assist the impacted families in finding a “starting place” when overwhelmed and shocked by devastation. Time is essential to drying-out of homes and preventing further damages.

### 3. **Deployment of crisis counseling teams** immediately when roads are reopened.

An essential service to be available at gathering locations to assist those who may be so overwhelmed they are unable to seek out assistance themselves.

Other Lessons Learned and their impact are as follows:

- The National Weather Service warning system begins with the City of Centralia; therefore, there were no advanced flood warnings for the 32-miles west of the Centralia-Chehalis area.  
Solution: November 1, 2008 the Doty and Newaukum Gauges were added to the National Weather Service Warning system. This will result in an additional 10-12 hours of warning notification time to allow residents to make preparations and evacuations.  
Optimum solution: Additional gauges in the valley. Projects are pending.
- The valley contains many farms and dairies that had no advanced warning to move livestock to high ground.  
Solution: More advanced notice will assist with this item; however, farmers need to have “high-ground” areas to move their livestock when necessary.
- Communications in the Valley were an issue. Cell coverage was spotty at best.  
Solution: An additional US Cellular Tower antenna was placed in Boistfort, enhancing the coverage.
- Providing Education on the need for Flood Insurance. The misunderstanding that FEMA will restore you to pre-disaster condition has been “eradicated” in Lewis County. Home and

business flood insurance is no different from automobile insurance: **If you cannot afford to lose everything to a flood, then don't risk it, get flood insurance.**

Solution: More citizens than ever have been purchasing flood insurance.

Education has been provided that premiums can be frozen at their current rate and not increase after new flood maps take effect.

- Enhancements to current Weather Prediction Programs have been undertaken.  
The River Watchers Program has resurrected for the Chehalis, Cowlitz and Newaukum rivers.
  
- NOAA Weather Radio is the best means to receive immediate emergency information. Now all Lewis County schools have them installed.
- We have expanded our EOC training for responders to provide a greater depth of knowledge and more personnel for the larger events.
  
- Continued Emergency Management coordination with the Corps of Engineers to inspect and repair the four (4) local levees/dikes. Discussions are continuing on modifications to the Airport levee that would provide flood gates that could be opened to allow the water to escape rather than having to breach the levee to release it.

Hazardous Debris Cleanup / Disposal Report From Chehalis River Flood 12-03-07 Prepared 11-20-08	
Material	Quantity
Oil, gas, paint materials	3,500 gallons
Oil-contaminated debris & containers	17,000
Containers	2,800
Tires (stockpiled)	800

### **Business Closures as of 11-20-08:**

1. CLS Communications (16 years business), closed 5-31-08
2. Bedroom World (Fairway Shopping Center, Lost hundreds of thousands in inventory and closed its doors, never reopening after the flood.
3. Kluh Jewelers – (34 years - \$300,000 in damages)
4. Great Music Company (Open since 1978 in three locations-30 years) – 7-31-08
5. Fairway Shopping Center lost three businesses, not named

### **Businesses that Reopened prior to 11-20-08:**

#### **Within a Month:**

1. Chehalis-Centralia Airport (10 days)
2. Twin City Town Center – Chehalis
3. Walgreens
4. Big 5 Sporting Goods
5. Aarons
6. Home Depot
7. Shop ‘n Kart
8. Sunbirds Shopping Center
9. Gootee Chevrolet - Pontiac – Buick
10. Sorensen Trucking – Chehalis (lost \$500,000 in revenue to due I-5 Closure plus \$500,000 in lost products and repairs to vehicles)

#### **Four Months:**

1. Boistfort Valley Water System (2,500-3,000 customers, \$810,000 in damages)

#### **Six Months:**

1. K-Mart
2. Dirty Thumb Nursery

3. Fairway Lanes (Bowling Alley \$650,000)
4. Camera Exchange
5. Secrets Family Hair Salon (Fairway)
6. El Dorado Restaurant
7. Veterans memorial Museum
8. Boistfort Valley Farm

**Seven Months:**

1. SWW Fairgrounds

**Eight Months:**

1. Peppertree Park & RV Park
2. Kresky Plaza. Includes: Cellular connections, Molto Bello Spa Salon, Allstate Insurance & Picture This Family Portrait Studio)

**Nine Months:**

1. Kilmer's Flooring America – (Kresky Ave, Centralia)

**Eleven Months:**

1. Twin City Senior Center
2. Curtis Store