



National Transportation Safety Board
Office of Railroad, Pipeline and Hazardous Materials Investigations
Human Performance and Survival Factors Division
Washington, D.C. 20594

January 18, 2001

**SURVIVAL FACTORS GROUP CHAIRMAN'S FACTUAL REPORT OF
INVESTIGATION**

A. Accident

Location: Bellingham Water Treatment Plant, 3201 Arbor St.
Bellingham, Washington
Carrier: Olympic Pipeline Company
Date: June 10, 1999
Time: 1624 Pacific Daylight Time
Number: DCA-99-MP008

B. Group Members

James J. Gildea	NTSB	Chairman
Ron Morehouse	Bellingham Fire Department	
Allen Jensen	Bellingham Police Department	
Glenn Brautaset	Deputy Washington State Fire Marshal	
Ron Holcomb	Washington State Department of Ecology	
Neil Clement	Whatcom County Sheriff's Office	

C. Summary

About 1624, a 911-telephone call receiver (operator) received a telephone call at the Bellingham Fire Department Communications Center. The caller experienced an unusual odor and had difficulty breathing, after driving on the Woburn Street Bridge over Whatcom Creek. The 911-call receiver notified the Bellingham Fire Department dispatcher. The Bellingham Fire Department dispatcher immediately dispatched a Bellingham Fire Department engine company to investigate the odor. Shortly thereafter, gasoline that had been flowing in Whatcom Creek from a ruptured Olympic Pipeline Company transmission line ignited and burned for approximately one hour.

Fire consumed vegetation along both sides of the creek downstream from the Bellingham Water Treatment plant for 1-½ miles. The fire destroyed a single story wood frame dwelling at 1900 Valencia Street. The gasoline spill and explosion destroyed aquatic life in the effected parts of Whatcom Creek and Hannah Creek.

As a result of the fire, three pedestrians who were near the creek at the time of the ignition received fatal injuries.

D. Details of the Investigation

1. Medical and Pathological

Fatal Injuries

According to the Whatcom County medical examiner, Liam Wood, an 18-years-old, male died as a result of chemical asphyxia from hydrocarbon inhalation poisoning. The body was located in Whatcom Creek by members of the Bellingham Mountain Search and Rescue Team. Bellingham Police Department investigators arrived at the creek and documented the body as being found partially submerged near the north bank of Whatcom Creek, west of the confluence of Hannah Creek.

According to the King County medical examiner, two 10-year-old males sustained fatal thermal burns as a result of the fire. Stephen Tsiorvas, and Wade King each received extensive second and third degree thermal burn injuries of the head, trunk and extremities (80-90% total body surface area).

A police officer patrolling in the 1900 block of Iowa Street was alerted by residents and told that the two boys needed medical assistance. The police officer immediately called for the assistance of a Bellingham Fire Department medic unit. The two patients were taken by ambulance from the 1900 block of Iowa Street to St. Joseph Hospital, Bellingham, Washington. Hospital staff stabilized them before each patient was flown by helicopter to the burn unit of Harborview Medical Center, Seattle, Washington. Both patients died on June 11, 1999.

Survivor Injuries

Eight persons complained of minor inhalation injuries.

2. Emergency Response

Fire Department Response

About 1624, a 911 telephone call receiver at the Bellingham Fire Department communication center received a telephone call from a citizen who stated that she had driven across the bridge on Woburn Street and experienced an "incredible odor" which made breathing difficult. See

attachment 1 for summary of the phone/radio log of the Bellingham Fire Department dispatcher.

At 1625, Bellingham Fire Department engine 51 was dispatched for an “outside odor investigation” to the area of Iowa Street and Woburn Street. However, at 1626, the crew of Bellingham Fire Department engine 54 had just completed a training assignment and answered the call, since the location was in their area of response.

At 1627, the resident of the dwelling at 1900 Valencia Street called 911 and told the call receiver that he had experienced a strong petroleum odor and that Whatcom Creek was discolored. A short time later, the same resident made a second telephone call to 911 and stated that his dog was convulsing and that he was evacuating his residence since the odor was overwhelming.

At 1629, while enroute to Woburn St., the fire captain of engine 54, was advised by the fire department dispatcher that more telephone calls for unusual odors were being received. The fire captain advised the fire department dispatcher that he was upgrading the response to a HAZMAT 1 incident¹. As a result, Bellingham Fire Department engine 51 and ladder truck 41 were notified to respond.

As part of the notification process, the fire department dispatcher placed a recorded message on the Whatcom Creek fish hatchery telephone advising the hatchery personnel of the product in the creek.

At 1630, an employee of Olympic Pipeline Company made a cellular phone call to the 911-call receiver. He advised her of the presence of gasoline fumes; gave his location as the Woburn Street bridge over Whatcom Creek; told the 911-call receiver that he would remain at that location until the fire department arrived.²

At 1633, the incident was upgraded to a HAZMAT 2 incident³ by the fire captain. At 1634, the fire captain on engine 54 advised the fire department dispatcher that gasoline was present in Whatcom Creek. The fire captain requested the battalion chief, who was already enroute at 1633, to come to the scene. The fire captain requested the Bellingham Police Department to respond and close the bridges crossing Whatcom Creek and close streets adjacent to the creek.

¹ A Hazmat 1 incident is defined as an incident or threat of a release that may be controlled by the first response agencies. It may only require evacuation of the incident site. Does not pose an immediate threat to life or property.

² See the statement of Richard Keene Jr., given to investigators of the National Transportation Safety Board at Bellingham, WA on June 25, 1999.

³ A Hazmat 2 incident is defined as an incident involving a greater hazard or larger area which poses a potential threat to life, property or the environment and /or may require a limited evacuation of the area surrounding the incident; or an incident requiring expertise or resources of the state government, or private organizations/individuals.

At 1637, the Specialized Emergency Response Program⁴ team was notified by page that the incident was presently a HAZMAT 2 incident. At 1642, the supervisor of the Specialized Emergency Response Program team activated the team.

At 1637, the public works department was notified by the fire department dispatcher that resources in the form of barricades would be needed to stop access to the Whatcom Creek area. At 1640, the deputy director of the Whatcom County Division of Emergency Management was notified, although the deputy director had been monitoring the fire department's response.

At 1645, the Bellingham Fire Department Battalion Chief 1, who was the incident commander, arrived on scene and at the same time a command post was established at Woburn Street and Iowa Street.

At 1646, the fire department dispatcher called the Olympic Pipeline Company emergency response number. The Olympic Pipeline Company call receiver stated, "We got people on the way and our line is shut down at this particular point." The Olympic Pipeline Company control center supervisor stated to the fire department dispatcher that they had field personnel on site.

At 1648, the fire department dispatcher notified the incident commander that personnel at the Whatcom Creek fish hatchery had been notified, that Olympic Pipeline Company had personnel on site, and that the pipeline was shut down.

At 1653, radio station KGMI was called by the fire department dispatcher. The radio station was requested to alert the public of the incident and to notify the public to avoid the Whatcom Creek area.

At 1657, Olympic Pipeline Company called the fire department dispatcher to report a possible release of product into Whatcom Creek.

At 1702, the fire ignited in Whatcom Creek. The paramedic in Bellingham Fire Department medic 1 located near Whatcom Creek at Woburn Street and Iowa Street made a general fire department radiobroadcast. He stated, "Look up the hill. It's running. It's running. Get out of the way."

At 1703, the incident commander requested the full response of the Bellingham Fire Department and the response of mutual aid fire and police departments. The incident commander estimated that the gasoline in Whatcom Creek burned for approximately one hour.

⁴ The Specialized Emergency Response Program team is a hazardous materials response team, which is administered by the Bellingham Fire Department and consists of members of professional and volunteer fire departments, and industries who have expertise in hazardous materials response.

Small brush fires continued to burn along the creek banks and eventually were extinguished by the Whatcom County Fire Protection Districts 1-8. At 1430, June 14, 1999 foam was applied to extinguish the fire at the location of the ruptured transmission line near the Bellingham Water Treatment Plant.

Police Department Response

At 1634, the incident commander requested the Bellingham Police Department to close streets and bridges. At the same time, four Bellingham Police Department units responded and began to stop traffic and establish a perimeter around the area of Woburn Street and Iowa Street and Valencia Street and Iowa Street. See attachment 2 for the Bellingham Police Department report.

At 1655, a Bellingham Police Department sergeant arrived at the command post. The incident commander requested that the police department evacuate an area 150 to 200 feet on the north and south sides of Whatcom Creek from Woburn Street to the mouth of the creek at Maritime Heritage Park. The incident commander requested that no traffic be permitted to cross Whatcom Creek. Shortly thereafter, a Bellingham Police Department lieutenant arrived and began to devise a plan to evacuate the Whatcom Creek area from the Woburn Bridge to Interstate Route 5. The lieutenant requested assistance from the Washington State Patrol and the Whatcom County Sheriff's Office.

At 1702, the Bellingham Police Department personnel experienced the explosion of the gasoline in Whatcom Creek. The Bellingham Police Department lieutenant immediately requested all police units to patrol in their vehicles along the 200-foot evacuation area of Whatcom Creek and use the vehicles' public address systems to warn residents and pedestrians to evacuate the area. The Bellingham Police Department lieutenant advised all responding police personnel who were not in the process of evacuating buildings to stop all traffic near the creek.

At 1730, a Bellingham Police Department command post was established at Woburn and Iowa Streets for the 29 Bellingham Police Department personnel who had been involved in the incident. The Bellingham Mountain Search and Rescue team arrived and began a primary search of Whatcom Falls Park and Whatcom Creek. The search and rescue team subsequently located the body of Liam Wood. The search and rescue team of the same areas conducted a secondary search for victims.

The Bellingham Police Department, the Bellingham Fire Department and the Washington State Fire Marshall's Office conducted a joint investigation into the deaths of Liam Wood, Wade King and Steven Tsiornvas. On June 16, 1999, the Mayor of the City of Bellingham, the Chief of the Bellingham Police Department and the Chief of the Bellingham Fire Department conducted a joint

press conference in which they released the information that the investigator had gathered concerning the three deaths. See Attachment 1 for the City of Bellingham News Release dated 06/16/99.

The Whatcom County Sheriff's Office responded with 15 deputies. The following police departments were on site to assist: Washington State Patrol, Western Washington University Police Department, and Ferndale Police Department.

4. Disaster Preparedness

At 1633, the deputy director of the Whatcom County Division of Emergency Management was monitoring the Bellingham Fire Department radio. The deputy director called the Whatcom County Division of Emergency Management program specialist by mobile telephone to confirm that he had been monitoring the call for the "outside odor investigation". When conditions were escalated to a HAZMAT 2 incident, the deputy director and the program specialist agreed that the program specialist would respond to the incident command post and represent the Whatcom County Division of Emergency Management.

At 1702, while the deputy director and the program specialist were communicating by telephone, the gasoline in Whatcom Creek ignited. At the same time the Whatcom County Disaster Plan was implemented and the deputy director activated the emergency operations center. The emergency operations center was staffed and notifications of the incident were made to key personnel.

After the initial explosion and fire, the emergency operations center was expanded to accommodate the unified command structure in order to mitigate the gasoline spill. The expansion included the participation of federal, state and local governments as well as Olympic Pipeline Company.

The purpose of the Whatcom County Comprehensive Emergency Plan was designed to address any disaster or major emergency situation in which there was a need for the Whatcom County Emergency Management Organization to respond. The plan applied to natural disasters such as earthquakes, floods, and volcanic eruptions, technological emergencies involving hazardous materials releases, and other incidents requiring county response.

In 1998, the Whatcom County Division of Emergency Management conducted, helped plan or participated in 15 exercises that involved elements of the county's hazardous materials plan. The 15 exercises are as follows:

1998

March 31 St. Joseph Hospital bomb threat exercise
April 2 County Fire Training Academy HAZMAT tabletop exercises
April 4 Air National Guard/RACES communications exercise
April 8 Trans Mountain Oil Pipeline Company full scale exercise
April 23 Washington State Patrol HAZMAT tabletop exercise
April 29 State Health Dept. Conference tabletop exercise
April 30 State earthquake drill
May 2 Intalco mass casualty exercise
May 6 Whatcom County jail earthquake drill
May 29 ARCO oil spill response drill
June 23 CAN/US West Crossborder HAZMAT tabletop exercise
July 8 Olympic Pipeline Company deployment drill
Sept. 9 Olympic Pipeline Company full scale exercise
Sept. 19 Bellingham Airport full scale exercise
Sept. 22 Soundshake 98, King County, Washington

1999

Mar. 25 Full Scale Whatcom County earthquake drill
April 30 Whatcom County jail fire exercise
May 22 Tosco Refinery Hazmat spill exercise by SERP team

Hospital Response

At 1720, St. Joseph Hospital, Bellingham, issued a staff alert after the fire department dispatcher advised the hospital staff of the fire in Whatcom Creek. The hospital staff prepared to receive a large number of patients and made additional notifications to the staff at Harborview Medical Center Burn Center, Seattle, Washington.

At 1730, the St. Joseph Hospital emergency room staff was notified that the two 10-year-old patients were being transported by ambulance to the hospital. The two patients arrived at 1740.

At 1750, Airlift Northwest helicopter, Seattle, Washington was notified to respond to transport one victim to Harborview Medical Center. At the same time, Medflight helicopter located at St. Joseph Hospital, Bellingham, Washington was requested to transport the second victim to Harborview Medical Center.

At 1825, both helicopters transported the victims to Harborview Medical Center.

Eight persons who went to St. Joseph Hospital by private vehicles received medical treatment in the emergency room for minor inhalation injuries. All eight patients were released after treatment.

James J. Gildea
Accident Investigator