INVESTIGATION INTO THE CIRCUMSTANCES SURROUNDING THE HARD LANDING OF THE M/V WENATCHEE AT PIER 52, SEATTLE (COLMAN DOCK) ON AUGUST 30, 2009

Submitted: September 30, 2009

Captain George A. Capacci
North Region Port Captain
Washington State Ferries

Reviewed:

Captain Kelly J. Mitchell
Senior Port Captain
Washington State Ferries

Approved:

Steve Rodgers
Director of Operations
Washington State Ferries

M/V WENATCHEE
Hard Landing at Colman Terminal (Pier 52)
Seattle, Washington
on August 30, 2009

EXECUTIVE SUMMARY

At approximately 11:00 hours on Sunday, August 30, 2009, the M/V *Wenatchee* (ON 1061309), carrying out her normal operating schedule on the Seattle - Bainbridge Island route, was making an approach to Colman Terminal (Pier 52) in heavy fog when the vessel did not stop and impacted the left wingwall of berth #3 (viewed from land) with the bow of the ship with sufficient force to cause moderate damage to the vessel and berth wingwall structure. No crew injuries were experienced. One passenger fell to the deck as a result of the lurching motion and sustained a facial injury. Damage to the ship was contained to the foremost portion of the main car deck and supporting structure completely above the waterline. No environmental impact was experienced. Immediately after the incident, the ferry was successfully moored in the berth #2 and traffic was discharged uneventfully. Following inspection of the ship and terminal by WSF and US Coast Guard representatives, berth #3 was deemed out-of-service. The vessel was permitted to proceed directly to Todd's Shipyard for emergency dockside repairs.

Vessel repairs were completed by Friday, September 4, 2009 and, following sea trials, the vessel resumed service that day. Total cost of vessel repairs was approximately $86,000. Repairs to berth #3 were completed on Thursday, September 3, 2009 at a cost of approximately $140,000.

The proximate cause of the accident was a shiphandling misjudgment complicated by restricted visibility, and a delay in requesting the third alternator placement on the line aboard the M/V *Wenatchee*. Contributing to the incident was a loss of situational awareness through distracted focus on small boat traffic along the Seattle waterfront and a breakdown in Bridge Resource Management communicating distances and speeds to the conning officer. No deficiencies or mechanical problems were discovered in the propulsion system of the vessel. All navigational and electronic equipment was functioning properly.

FINDINGS OF FACT

On Sunday, August 30, 2009, the M/V *Wenatchee* was assigned on the Seattle - Bainbridge Island Washington State Ferry route as the number 1 vessel following the pattern as detailed in Attachment (19). In company on this route was the M/V *Tacoma* as the number 2 vessel. The vessel displaces 4,815 tons with a full load displacement of 6,184 tons and is certificated for a passenger capacity of 2,499 persons. Other vessel particulars are contained in the latest US Coast Guard Certificate of Inspection dated 15 Jan 2009. See Attachment (1).

The assigned *Wenatchee* crew consisted of fifteen (15) personnel, eleven Deck Department and four Engineering Department. Deck "B" Watch was on a 7 hr day (05:05 to 12:05 hrs) watch on Day #5 of 10 (10 days on, 4 days off rotation). Engineering "C" Watch was on a 12 hr watch (06:00 to 18:00 hrs) on Day #5 of 7 (7 days on, 6 days off). See Attachment (4) for personnel listings.

The Deck Department (11 personnel) consisted of the following personnel: Master, Chief Mate, 2nd Mate, four A/B, and four OSE. Engineering Department (4 personnel) consisted of the following personnel: Chief Engineer, Assistant Engineer, and two Oilers. See Attachment (4).

The Master has over 22 years experience with Washington State Ferries, starting as Ordinary Seaman, Able Bodied Seaman, Mate, then Master in 1996. This Master has worked on the Seattle-Bainbridge Island route for approximately 3 years.

The current collective agreement in force required a crew of 15. US Coast Guard requirements called for a crew of 15 as Detailed in the Certificate of Inspection as Attachment (1). Fifteen crew members were aboard and properly assigned.

The *Wenatchee* had departed Bainbridge Island terminal at 10:29 hrs from a scheduled 10:25 hrs departure time, approximately 4 minutes behind schedule due to minor accumulated delays and reduced visibility. See Attachment (19). Destination was WSF Terminal at Pier 52, Seattle (Colman Dock). This leg is approximately 8.6 nautical miles, and in experience takes approximately 35 minutes at a speed of 17 knots given to acceleration and deceleration.

Weather on this crossing was overcast, fog, nearly calm winds, calm seas, 59°F, and steady barometer at 30.04 inches. Visibility had been good earlier in the morning; however fog rolled into the Puget Sound area restricting visibility to 100 yds at times.

The Zone Description for timekeeping is (+7 T) PDT. Greenwich Mean Time (GMT) or Universal Time Coordinated (UTC) is 7 hours ahead of local time.

The tidal predictions on August 30th at Eagle Harbor indicated low water of 0.7 ft at 08:07 hrs through a tidal range of 9.7 ft to a high water of 10.4 ft at 16:16 hrs. Similar tidal predictions at Duwamish Waterway predicted a rising tide throughout the day. See Attachment (17).

NOAA has incomplete tidal current predictions for Elliott Bay and West Point. The closest Tidal Current station with predictions is "0.3 mile west of West Point" and predicted a 0.7 kt flood in a direction of 225° at 11:00 hrs. See Attachment (17).

Sunrise on August 30, 2009 was at 06:26 hrs with sunset predicted at 19:54 hrs.

With the exception of fog at Bainbridge Island terminal, the departure of the *Wenatchee* was uneventful. The Master was in the wheelhouse eastbound to Seattle with the Quartermaster at the wheel. In addition, the Chief Mate joined the Bridge team in the #2 wheelhouse and stood by the port window as an additional lookout. The 2nd Mate stood by and monitored the second radar.

The Master directed fog navigation procedures including the posting of an additional lookout in the bow on the main car deck as far forward as possible with communication to the bridge via handheld radio; running lights were energized; fog signals were sounded; engineroom was notified of restricted visibility; all watertight doors were closed; the Chief Mate and 2nd Mate were in the wheelhouse augmenting the bridge team.

Transit speed across Elliott Bay was approximately 18 knots.

The Seattle Pier 52, berth #3 axis is 090 deg True. The berth fog siren was not operating at the time of the incident.

The Captain reportedly slowed the vessel to stern handle position 5 which he considers as 11 knots about one mile from Pier 52. Globe Electronic Chart replay, contained in Attachment (20) indicates the *Wenatchee* did not start to slow until approximately .65 nautical mile from Pier 52 at 10:56:55, about 3 minutes before ultimate arrival at Pier 52. Engineering Data Log in Attachment (24) confirms the Stern Handle position moved to position 5 at 10:57:00 when the Wenatchee was about 6/10 of a nautical mile from Pier 52.

The Captain stated he asked for the "third engine" as he slowed to Stern handle position 4 which he equates to about 10 knots. The Engineering Data Log depicts a slowing to. Stern handle position 2 about 10:59:00. See Attachment (24).

A small vessel detected by radar was monitored and the lookout reported the wake of a vessel. The lookout then reported seeing the "floater" or floating lead between berth #2 and berth #3.

The floating lead becomes visible on the *Wenatchee's* forward looking CCTV camera at 10:59:10, although there is no way to confirm the exact time of observation by the lookout or vessel crew. See attachment (29).

During the transit of Elliott Bay and approach to Pier 52, the engineroom watch reports the third diesel was running and available for insertion into the propulsion loop.

The Captain reported it was his bridge team's practice for the Quartermaster to read off the speed of the vessel as they made their final approach to the berth. As the floating lead came into view, the *Wenatchee* was moving at 9 knots. The Captain reports he usually passes the floating lead at 5 knots so he backed down to Bow handle position 6 on the inshore propeller and realized he was not getting the backing sensations typically felt, namely shaft vibrations and stern thrust. At that point, the Captain backed to handle position 10 on both bow and stern propellers.

Attachment (24) Engineering Data Log depicts full backing Bow and Stern handle positions at position 10 after 10:59:00 and before 11:00:00 hrs.

The Captain called the Engineering Operating Station (EOS) on the ship's intercom saying he wasn't getting any backing power.

Depictions of the shaft RPMs from the Engineering Data Log (Attachment 24) indicate the number 2 (inshore) propeller attained 100 SRPMs and the number 1 (offshore) propeller attained 140 SRPMs just before or at 11:00:00 hrs. These were the maximum RPMs attained during this event providing maximum backing power.

When the Captain realized the vessel had too much way on, he sounded the danger signal on the ship's whistle. A member of the bridge team made a public address announcement to brace for impact.

The M/V *Wenatchee* contacted the left wing wall, berth #3 (facing seaward) at 11:00:02. At that time the vessel was still traveling at approximately 3.1 knots as shown in Fleet Watch data. See Attachment (20).

Attachment (29) contains a number of screen print photo from the Pier 52, Seattle security cameras and shipboard cameras that document the chain of events.

Attachment (25) provides pictures of the wheelhouse equipment configuration of the Jumbo Mark II class vessels of the WSF fleet.

During the course of this investigation, it was determined that the *Wenatchee* Engineering Data Log had a consistent timing offset of approximately 2 minutes and 50 seconds, therefore all time events in the vessel's engineering log (Attachment 10) require a time correction addition of 2 minutes 50 seconds.

The actual Globe Electronic Charts replay of the *Wenatchee* actual speeds and distances off Pier 52 are contained in Attachment (20). A recap of selected portions of this data is summarized below:

Time	Distance to Pier 52 (nm)	Distance to Pier 52 (feet)	Speed (kts)
10:55:50	.99	6034	18.6
10:56:08	.90	5469	18.7
10:56:28	.81	4902	18.6
10:56:44	.71	4332	18.7
10:57:08	.60	3620	16.3
10:57:20	.54	3299	15.5
10:57:38	.47	2867	14.7
10:58:00	.37	2260	14.0
10:58:31	.25	1549	13.4
10:59:00	.15	893	13.2
10:59:30	.05	313	9.0
10:59:46	.02	125	6.4
11:00:02	Contact	Contact	3.1

Note: Minor variations between the table data and screen print data in Attachment (20), particularly with regard to minor time variations (one second or so), are due to AIS cycle rate updates. The tabularized data represents the most accurate information.

The Master as well as the Chief Engineer prepared a Report of Marine Accident, Injury or Death (CG-2692) as attachment (2). The ship's crew did not report any injuries. One passenger was knocked to the passenger deck as a result of the allision and sustained a facial injury. WSF incident report was submitted for this injury as well as one Property Damage Incident Report sustained by a vehicle from a lurching motorcycle. See Attachment (3).

The Captain's estimate of passengers aboard this sailing was approximately 950. The M/V *Wenatchee* was at Tier One status at the time of the hard landing.

Significant damage was sustained by the left wing wall of Bert #3, Pier 52 totaling approximately $140,000. Photo evidence is contained in Attachment (28).

Vessel damage was contained to the main car deck rubbing strake and forward starboard side of the *Wenatchee* main car deck. See Attachment (27) for photos of the damage. The cost to repair this damage to the vessel was approximately $86,000.

No environmental damage took place.

Post incident a survey of major bridge electronic equipment was ordered. The following equipment was inspected: Gyrocompass, Furuno radar 2125, Furuno 2127, Furuno landing radar FMD 1832, AIS transceiver, GPS receiver (2 each), Satellite compass. All electronic equipment tested satisfactorily and was operating normally. See Attachment (26).

Initial notification of the hard landing came via a call to the US Coast Guard from a member of the public stating the vessel sounded five (5) short blasts on the ship's whistle and then hit the dock hard.

The Captain advised USCG Vessel Traffic Service about the "hard landing" once the situation was stable and the vessel was in the berth.

Attachment (18) is the WSF Operations Center log entries for this incident.

Ops Center passed appropriate information to the Port Captains office and Customer Information Manger for action.

The Senior Port Captain directed that the bridge team and selected engineering watchstanders be available for post-accident testing. By 13:00 hrs, the Seattle Terminal Supervisor boarded the M/V *Wenatchee* and conducted drug and alcohol testing as required by current directives.

At total of seven personnel were tested including the Master, Chief Mate, 2nd Mate, Quartermaster, Bosun, Chief Engineer, Assistant Engineer on watch gave urine samples for routine post-incident testing with negative results. Breath samples were negative for alcohol consumption. See Attachments (15) and (16).

ANALYSIS

Data was studied from Fleet Watch AIS data base. The last two minutes before contact with the berth are tabularized in Attachment (20). Contact with the left wingwall (looking seaward) took place at 11:00:02 on Sunday, August 30, 2009. The *Wenatchee* was travelling at 3.1 knots when the hard landing or allision took place. The table further displays the "Distance to Pier 52" compared to "Speed Over Ground" (SOG).

A number of comparative landings at Pier 52 for Jumbo Mark II vessels (*Wenatchee* and *Tacoma*) were studied to analyze the speed decay curves and approach speeds. See Attachment (21) for a graphic representation of comparative landings. Observed speed in knots was plotted versus time (min:sec). The last twelve minutes of comparative landings were studied, because in all cases the vessels were at full transit speed before twelve minutes before arrival at Pier 52. Typically, Jumbo Class vessels begin to decelerate approaching the berth somewhere between 6 to 9 minutes before arrival. Then the deceleration curve falls off rapidly in the last 2 minutes to arrival at Pier 52.

The actual speed versus actual time from the August 30, 2009 transit of the M/V *Wenatchee* was plotted using the same graph paper. See Attachment (22) for this graphic display. It was determined that the vessel was underway at transit speed of approximately 18 knots until approximately 10:56:38, or 3 minutes and 22 seconds before impact. At that point the vessel decelerates to approximately 14 knots at 10:58:00 and very gradually to 13.2 kts at 10:59:00. At this point, one minute from impact, the speed curve rapidly decelerates 10 kts to the impact point while still carrying 3.1 kts of speed at the time of impact.

Sea trials were conducted aboard the M/V *Tacoma* (a sister ship of the M/V *Wenatchee*) on September 01, 2009 to explore stopping distances using various engine combinations. Emergency stopping times from full ahead (~ 18 kts) to dead in the water (DIW) using:

3 alternators in the propulsion loop = 1 min 15 sec
2 alternators in the propulsion loop = 1 min 35 sec

Therefore, the third alternator provides additional propulsive power to stop the vessel approximately 20 seconds sooner.

During sea trials before returning to service on Friday, September 4, the above emergency stopping distances/speeds/times aboard the *Wenatchee* were confirmed. With 2 alternators on the line, time to stop from full speed was 1 min 35 sec, and with 3 alternators providing power, time to stop was 1 min 20 sec.

During the course of this investigation a timing correction was identified. The Engineering Data Log timer was slow by approximately 2 minutes and 50 seconds when compared to Global Positioning System (GPS) satellite timing standard. Therefore, all Engineering Data Log event times displayed in Attachment (10) need to have 2 minutes

and 50 seconds added to the time listed. All times contained in Attachment (24) have had a constant correction factor of 2 minutes and 50 seconds added to the recovered engineering data log, and thus the graphed data reflect actual or GPS time in Attachment (24).

The Engineering Data Log provided details of handle position and shaft RPMs during the voyage. A graphic display of Bow and Stern Handle position is contained in Attachment (24). Note that the Stern Handle position shows a transiting mode of operation at full speed until slightly after 10:56:00 when the Stern Handle goes from ahead position "8" to ahead position "5". At 10:59:00 a further decrease to ahead position "2" is recorded. Also just before 10:59:00, the Bow Handle position controlling the inshore or forward propeller, moves from transit mode "-10" to a backing position of about "6" then rapidly to a backing position of "10", or backing full, just after 10:59:00 when AIS data shows the *Wenatchee* was approximately 900 feet or .15 nautical mile from the berth.

When an alternator is called for to be placed on the line, the engineering watchstander must start the main diesel engine, ensure the engine idles properly, then runs the diesel engine to full speed and ensures proper operation of the diesel engine. Assuming the engine/alternator is ready to put on the line, the watchstander throws the "Breaker Close Switch" for the respective alternator and HOLDS the switch closed until the automatic software of the logic circuit synchronizes the frequency and the system engages the alternator on the line. Experience in the WSF fleet indicates that normally this synchronization generally takes 3 to 4 seconds. With fluctuating loads on the propulsion system, this synchronization could take an additional 5 to 6 seconds making the total time to synchronize the third propulsion alternator into the propulsion loop to 8 to 10 seconds. While it is not possible to state a maximum amount of time it will take for an alternator to synchronize, the longest time to synchronize the alternator coming on line was no more than 15 seconds.

The Engineering Data Log also provided an approximation of the time the third alternator (generator) was synchronized and entered the propulsion loop. See Attachment (24) which displays the A401 Generator 4 Circuit Breaker Closed switch. This graph displays two functions, namely "0" for "off" or "not engaged" to "1" for "on" or "engaged" concerning the third alternator. Given that the graph only displays the status to the nearest whole minute, it is concluded that the third alternator became available to the wheelhouse ("in the loop") as early as 10hr 59min 30sec or as late as 11hr 00min 29sec. Since the contact was made at 11:00:02 on August 30th, we can conclude the third alternator did not become available to the bridge at the earliest until the last 30 seconds before impact.

The analysis of this data indicates that load changes on the propulsion loop of a Jumbo Mark II vessel changes the frequency of the alternators already online which could make it difficult to synchronize the third alternator into the propulsion loop. Changes in the ship service load or hotel load of the vessel are not significant; however major rudder changes could have an effect on the load of a propeller and consequently affect the propulsion load.

All Jumbo Mark II vessel operators should be aware that some time lag is involved in placing a third alternator on the line. It could take up to a minute or so to add the third alternator depending on the status of the prime mover diesel engine (cold, pre-lubed, warmed, running). Once the "Breaker Close Switch" is thrown it will still take some short time (seconds) for the now three alternators on line to normalize and properly share the circuit load.

A review of Safety Management System (SMS) procedures was conducted as a matter of practice in this safety investigation. The vessel specific manuals for the Jumbo Mark II class vessels (M/Vs WENATCHEE, PUYALLUP, and TACOMA) in procedure "DECK 0030, Propulsion/Control System" state that "in the normal operating set up, three engines are on line providing power to four drive motors that generate approximately 170 shaft RPM." (DECK 0030, page 2 of 8). An additional reference to the normal propulsion/control system procedure on page 5 of 8 states "Any three of the four engines should be on line for normal operations." Clearly, the current edition of the SMS (November 2004) indicates that for normal operations, the Jumbo Mark II class of vessels should be operated with three engines on line.

In May 2006, following evaluation, a Fleet Advisory (FA003907) was issued to authorize two engine operations aboard the Jumbo MK II vessels in support of fuel conservation and emission reduction efforts. The test period was begun on May 6, 2006, and the evaluation period supported the efficiency and effectiveness of two engine operation with the Jumbo Mark II vessels. This two engine arrangement for transits became the normal mode of operations, while adding the third alternator on-line for maneuvering mode when approaching the berth, or in special circumstances. Of relevance from the Fleet Advisory (FA003907) is the paragraph that states "Nothing in this Fleet Advisory prevents the Master from operating the vessel in a prudent and seamanlike manner."

This Fleet Advisory expired on July 08, 2007, but further states "If successful, this will become the standard operating procedure for these vessels and the SMS will be changed accordingly." This outcome specifically refers to two engine operation for transit mode aboard Jumbo Mark II vessels. While verbally directed and incorporated into daily operations, the SMS was not changed by WSF management to reflect this normal mode of engine configuration during transit.

Similarly, the operators of this class of vessels did not point out the conflict between the vessel specific SMS manual and the transit mode of vessel operations following the expiration of the Fleet Advisory.

CONCLUSIONS

No mechanical deficiencies were apparent aboard the M/V *Wenatchee* on August 30, 2009. All navigation electronic equipment was functioning effectively.

The Master of the M/V *Wenatchee* failed to slow the vessel appropriately as was normal practice. The restricted visibility contributed to the loss of visual cues or lateral ranges for slowing the vessel upon approach to the berth.

The Master's attention, as well as the Bridge team's attention, was diverted at times during the final approach focusing on small boat traffic along the Seattle waterfront.

The Master of the M/V *Wenatchee* lost situational awareness and approached Pier 52 berth #3 with too much speed to make a safe landing. Attention is made to SMS manual DECK OPER 0020 Vessel Arrival – (p2) which states "Slow the vessel at an appropriate distance from the dock with due regard for the vessel characteristics and the weather/tidal conditions at the time". And also, "Begin backing the vessel early to ensure control/propulsion system is responding normally. If it is not, utilize propulsion control backup systems and procedures."

The additional vigilance and allowances called for with the inherent dangers of restricted visibility as outlined in SMS DECK NAVG 0020 were not apparent the morning of August 30, 2009. The bridge team of the *Wenatchee* should have been at a state of heightened vigilance and should have communicated to the Captain of the excessive speed during the final approach to the berth.

The Bridge Team augmented by the Chief Mate, the 2nd Mate and an additional lookout due to restricted visibility did not effectively advise the Captain of the vessel's speed and proximity of the berth.

The Master did not call for the third alternator early enough to assist in braking the vessel. The vessel specific manual SMS WENA DECK 0030 in the section about "Making the Landing" recommends when approaching a dock that at approximately 6/10 miles from the dock, slow the vessel by setting the stern throttle handle at position 4 Ahead (90 SRPM). Thence establish communications with the Engineering Operating Station (EOS) and putting the EOS on Standby for arrival. At 3/10 mile from the dock the vessel should be slowed to maneuvering mode by setting the stern throttle handle position at 2 Ahead (50 SRPM) and the bow throttle handle to position 1 Astern.

The propulsion system operated as designed. The third alternator may have been delayed a few seconds from coming on line due to varying load demands on the propulsion system such as handle position changes or rudder changes, however the time delay was measured in seconds, most likely 5 to 6 seconds and for sure less than 10 seconds.

No injuries were sustained by the crew. The passenger injury was minor in nature. Nonetheless, the injury will be fully investigated and processed.

Minor vehicle damage (scrapes) was sustained as a motorcycle lurched into a parked vehicle on the car deck.

Crew endurance (fatigue) was not a factor in this incident.

Alcohol or drugs were not a factor in this incident.

The resultant "hard landing" caused moderate physical damage to the Seattle Pier 52 berth #3 wing wall. The berth was out of service for 5 days and returned to service on Friday, September 4, 2009. Cost to repair berth #3, Pier 52 in Seattle was $140,000.

The ship sustained moderate damage to the main car deck and rubbing strake. No other damage was noted throughout the vessel. While this damage caused the vessel to be out of service for approximately 5 days, the major forces of the allision were absorbed by the ship structure and protected the rest of the ship. The crumple zone did what it was designed to do.

M/V *Wenatchee* conducted sea trials on Friday, September 4, 2009 following the emergency shipyard repairs and returned to service that afternoon before the start of Labor Day weekend traffic. Shipyard repairs to *Wenatchee* was approximately $86,000.

The discrepancies between the Vessel Specific SMS Manuals and the de facto normal mode of operations for Jumbo Mark II ferries, that is, two engine transit mode, are considered administrative in nature and did not have a direct bearing on this event. Nonetheless, it is troubling that this discrepancy was not caught by WSF management nor pointed out by vessel operating crews between the time of the expiration of the Fleet Advisory in July 2007 and August 2009.

A WSF Quick Note 5772 was issued on September 10, 2009 to point out considerations for operators while putting another alternator on-line, including cautions about maneuvering and rudder changes with the Jumbo Mark II vessels. There was additional direction to operate with three alternators in restricted visibility, as well as direction to operate in two engine mode during normal transit as a fuel conservation measure.

Postscript:
The guidance provided in QN 5772 was formulized in a Fleet Advisory directive dated October 22, 2009 and will be incorporated in SMS manuals during the next regular revision.

RECOMMENDATIONS

1. That Jumbo Mark II vessels traveling in restricted visibility should have three alternators available for immediate maneuvering as necessary.
Action Required: Senior Port Captain

2. That whenever possible in a hard landing situation, announcements should be made over the public address system to all passengers and crew to "brace for possible impact" to hopefully minimize any injuries caused by unfamiliar ship motions. Safety Management System procedures should be reviewed for modification as necessary with any appropriate additions.
Action Required: Senior Port Captain

3. That the principles of sound Bridge Resource Management (BRM) should be reinforced and discussed in WSF training sessions involving Staff Masters, Licensed Deck Officers and bridge team members. An appropriate communication to all watch standers should be developed.
Action Required: Port Captain's Office, All Masters

4. That a standard policy be developed to guide Masters in their actions introducing the third alternator into the propulsion loop aboard Jumbo Mark II vessels. The previous Fleet Advisory (Attachment 30) and recent Quick Notice (Attachment 31) should be memorialized in the Safety Management System (SMS) manuals including all the Jumbo Mark II Vessel Specific Manuals.
Action Required: Port Captain's Office/Port Engineers Office

5. That SMS training plans to all levels of the organization incorporate the ISM Code philosophy of continuous review and improvement of WSF SMS manuals. The Safety Management System should not only reflect how operations are carried out, but also adapt to reflect changing procedures. SMS communications to all levels of the organization should stress that input is needed by all concerned to update the SMS manuals to make it a living document.
Action Required: SMS Designated Person, Safety Department

6. That Washington State Ferries develop and promulgate a system by which "Lessons Learned" from Marine Incidents such as this can be shared with operational crews.
Action Required: SMS Designated Person, Safety Department

Attachments:

(1) M/V *Wenatchee* Certificate of Inspection dated 15Jan2009
(2) Report of Marine Accident, Injury or Death (CG-2692) Two Versions
(3) WSF Incident Report DOT Form 690-010 & WSF Patient Assessment
(4) Crew lists for M/V *Wenatchee* – Deck & Engineering - 08/30/2009
(5) Statement by Capt Tom Webster Master, M/V *Wenatchee* on Aug 30, 09
(6) Statement by Captain Paul Bellesen, Chief Mate on Aug 30, 2009
(7) Statement by 2/Mate Gregory Faust on Aug 30, 2009
(8) Statement by Quartermaster John "Butch" Conrad on Aug 30, 2009
(9) Statement by Bosun Jennifer Hausdorf on Aug 30, 2009
(10) Statement by Chief Engineer David Lindeman on Aug 30, 2009
(11) Statement by Asst Eng Mike Stewart on Aug 30, 2009
(12) Statement by Oiler Steven Walker on Aug 30, 2009
(13) Statement by Oiler Alexander Krupin on Aug 30, 2009
(14) 96-Hour Work/Rest History Worksheets for M/V *Wenatchee* crew (5)
(15) Report of Required Chemical Drug and Alcohol testing Following a Serious Marine Incident (CG-2692B); USDOT Alcohol Testing Forms (7)
(16) HealthForce Results Summary verified 9/1/2009
(17) Tide and Tidal Current predictions for 30 August 2009
(18) WSF Operations Center Log of 8/30/2009
(19) Fleet Watch printout for Sunday, August 30, 2009
(20) FleetWatch transit Information for August 30, 2009 10:58:00 to 11:03:55 Including GLOBE Electronic Chart reprints of Aug 30, 2009
(21) Comparative Landings (Duwamish Head to Pier 52) Jumbo Mark II vessels
(22) M/V Wenatchee Hard Landing August 30, 2009
(23) M/V Wenatchee graph Distance/Speed/Handle Position vs Time Aug 30, 2009
(24) Engineering Data Log graphs of Handle Positions/Shaft RPMs/Generator Circuit Breaker graph/Generator Amps/Generator MW
(25) Photos of Bridge Equipment Jumbo Mark II vessels
(26) Electronic Service Reports of M/V *Wenatchee* Navigational Equipment
(27) Photos of damage sustained by M/V *Wenatchee*
(28) Photos of damage sustained by Berth #3, Pier 52 (Colman Dock),
(29) Screen prints from various CCTV cameras – shipboard, Pier 52
(30) WSF Fleet Advisory of May 6, 2006 Subject: Jumbo MkII 2 Engine Operations
(31) WSF Quick Notice 5772 dated Sep 10, 2009 Subject: Jumbo Mk II Three-Generator vs. Two-Generator Operations