



**Bundesstelle für Seeunfalluntersuchung**  
**Federal Bureau of Maritime Casualty Investigation**  
Federal Higher Authority subordinated to the Ministry of  
Transport, Building and Urban Affairs

Investigation Report 306/05

**Very Serious Marine Casualty**

**Foundering of the Motor Boat  
"SEEHUND I"  
on 9 August 2005  
in the Süderpiep area  
in the North Sea off Eiderstedt**

15 April 2006

The investigation was conducted in conformity with the law to improve safety of shipping by investigating marine casualties and other incidents (Maritime Safety Investigation Law - SUG) of 16 June 2002.

According to this the sole objective of the investigation is to prevent future accidents and malfunctions. The investigation does not serve to ascertain fault, liability or claims.

The German text shall prevail in the interpretation of the Investigation Report.

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## **1 Summary of the marine casualty**

During the transfer voyage from Tönning to Bremerhaven the Passenger Vessel SEEHUND I sustained water ingress on board near the Norderpiep Buoy on 9 August 2005. As a consequence of the water ingress the vessel foundered south-west of Tertius sand. The persons on board were able to transfer to a liferaft and were picked up from the liferaft by a helicopter.

At the time of the accident the vessel was running as a leisure craft. It was subsequently lifted and taken to the port of Büsum for wrecking.

## 2 Scene of the accident

Nature of the incident: Very serious marine casualty, foundering of the vessel  
 Date/Time: 9 August 2005, approx. 09:30 h HCEST<sup>1</sup>  
 Location: North Sea, in the Süderpiep navigation channel  
 Latitude/Longitude:  $\phi$  54°02'N  $\lambda$  008°34,5'E

Excerpt from Chart 105: The Eider, Norderpiep and Süderpiep;  
 Federal Maritime and Hydrographic Agency



Figure 1: Chart

<sup>1</sup> All times in CEST - Central European Summer Time

### 3 Vessel particulars

#### 3.1 Photo



Figure 2: Photo of vessel

#### 3.2 Particulars

Name of vessel:	SEEHUND I
Type of vessel:	Motor Boat/Passenger Vessel
Nationality/Flag:	German
Port of Registry:	Tönning
Call sign:	DJBP
Year built:	1944
Building yard:	De Vlucht Aalsmeer, Holland
Classification Society:	GL Reg. Nr.8568 (See-BG up to Nov.1996)
Length over all:	18.25 m
Width over all:	4.30 m
Gross tonnage:	30.25
Draft at time of accident:	1.47 m
Engine rating:	110 kW
Main engine:	Mercedes OM 407
Hull material:	wood
Hull design:	steel frames with wood intermediate frames
Number of crew:	4

### 3.3 History of the boat

The vessel was built in the years 1944 to 1945 in Holland at the De Vlut – Aalsmeer yard as a half-covered launch in wood composition construction (wooden planks on steel frames) for the steamship operator Wyker Dampfschiffs-Reederei. The final outfitting and installation of a 60 hp crude oil engine were carried out in Rendsburg. The vessel had two water-tight bulkheads, whereby the forward engine room bulkhead was at the same time formed as a collision bulkhead. The first sailing permit for carrying 60 persons and two crew members was issued under the vessel name RUNGHOLT.

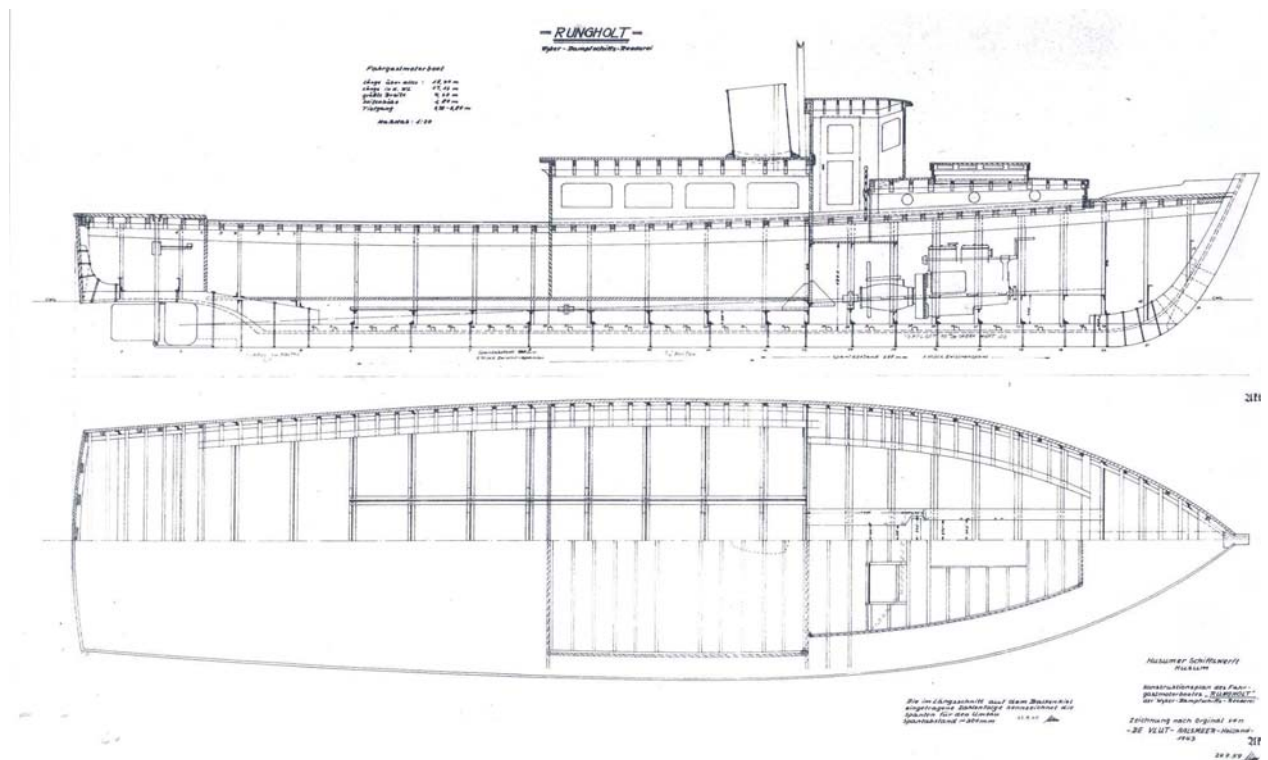


Figure 3: Drawing 1944

The largest conversion was carried out in 1960 at the yard Husumer Schiffswerft. The superstructure was changed and a new 147 hp MWM diesel engine was installed. The admissible number of passengers was extended to 80 persons and the vessel was given three water-tight bulkheads. After the vessel was sold in 1973 it was renamed LITH and the port of registry was now Nordstrand, later Tönning. According to the Voyage Permit Certificate it was now possible to carry 50 passengers in winter and 90 passengers in summer, in each case with a crew of 3. Ship's planks had been repaired and the outer plating caulked as required throughout the vessel's entire sailing life. The third owner had been operating the vessel since 1979, and after a cable fire in the engine room in June 1980 the vessel was to be transferred to Flensburg for wrecking. Instead of being wrecked, the vessel was overhauled at the yard in Arnis and sold at the end of 1981 to the fourth owner, the vessel operator Reederei Ziegert from Tönning. This operator had the vessel



transferred back to Tönning and had sundry timber work carried out on the aft ship. Part of this work included renewing two beam clamps, 6 deck beams and 34 deck planks. The vessel sailed again under the name SEEHUND I.

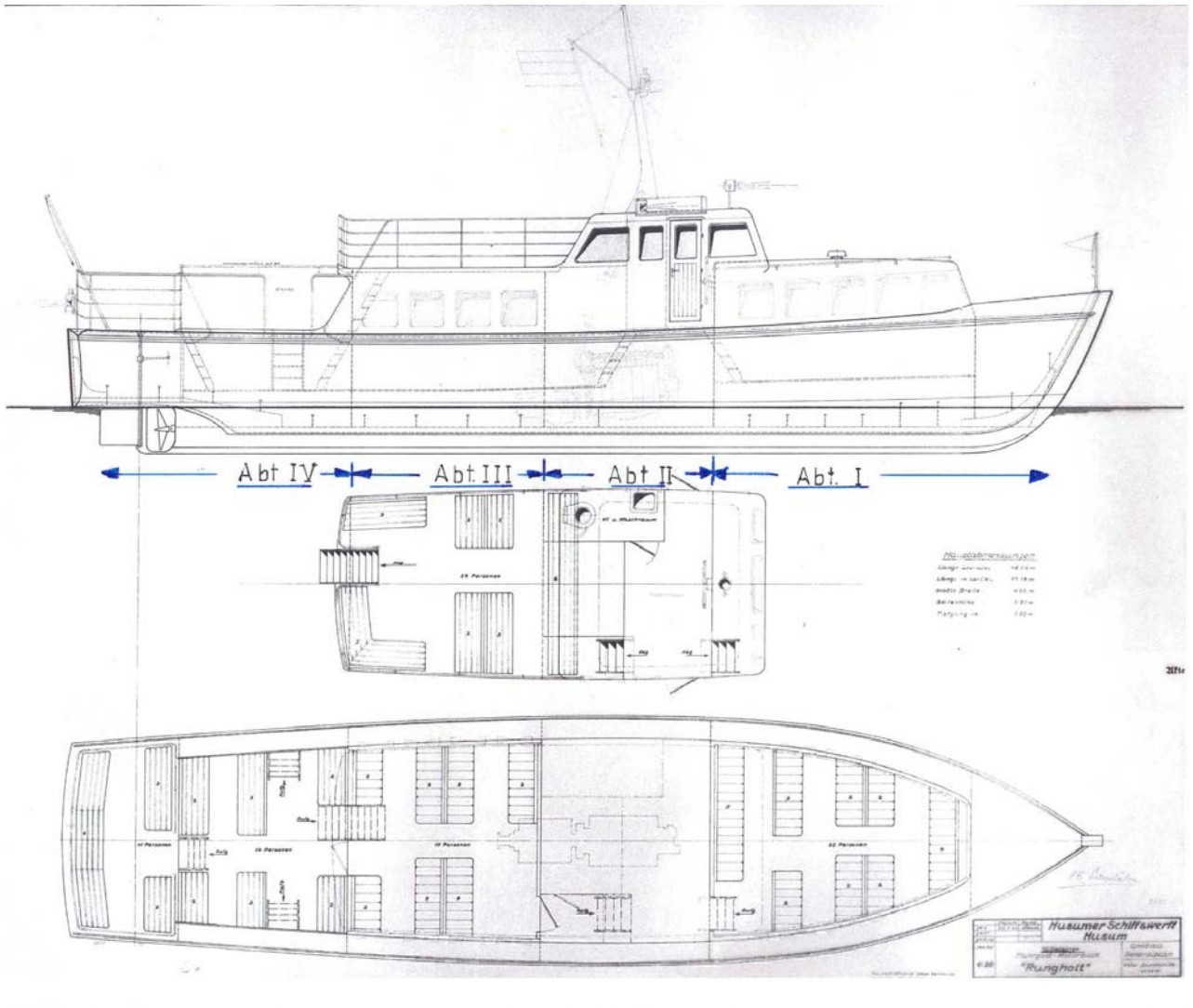


Figure 4: Drawing 1960

The newly issued Ship's Crewing Certificate specified as crew: 1 Captain AKü/BKü, 1 Nautical Ship's Officer AKü/BKü, 1 Chief Technical Officer C-Mot<sup>2</sup>. The Chief Engineer could be replaced by the holder of a Nautical Certificate of Competence, if this latter officer also held the necessary Technical Certificate of Competence. When the Voyage Permit Certificate was issued in 1984 the Nautical Ship's Officer was left out and replaced by a deckhand.

In 1992 the port and starboard sheer strakes and the transom stern were completely renewed, and a used engine, Mercedes OM 407 with approx. 110 kW, was installed.

<sup>2</sup> AKü/BKü/C-Mot

Major, comprehensive caulking works were carried out in 1995 in Büsum and 1996 in Tönning. During this work one plank each was renewed midships on both the port side and the starboard side.

By letter of 8 August 1997, retroactive to 8 July 1997, the operator deregistered the Passenger Vessel SEEHUND I from the See-BG (Marine Insurance and Safety Association). It was pointed out that as a leisure craft the vessel should now be subject to § 2a of the "Regulations on Commercial Renting of Leisure Craft" of 24 July 1996. A photocopy of a boat certificate under the Sea Leisure Craft Renting Regulation issued by the Waterways and Shipping Office (WSA) Tönning, dated 9 July 1997, valid up to 30 June 1999 was submitted as annex. According to this boat certificate sea, the maximum admissible number of persons on board was to be 35. On 19 July 1997 the vessel ran into the port of Tönning with 20 passengers on board. As a consequence of water ingress the fore ship was dipping into the water up to the rubbing strake. The vessel was grounded with the fore ship on a slip facility since drainage using on-board equipment was not possible. The boat certificate was not withdrawn and nothing was noted in the files of Waterways and Shipping Office (WSA) Tönning about the marine casualty and causes of the water ingress.



Figure 5: Entering Tönning 19 July 1997

The second boat certificate of Local Office for Waterways and Shipping (WSA) Tönning in the files of the See-BG (Marine Insurance and Safety Association) was dated 18 December 2000 and was valid up to 30 June 2003. The last boat certificate was issued by WSA Tönning on 27 June 2002 and was valid up to 31.10.2004.

In October/November 2003 the vessel was on the slipway in Tönning. Approximately 16 m of planks in the fore ship and midships port and starboard were renewed and other maintenance work worth € 7600.- was carried out.

On 27 December 2003 Reederei Ziegert sold the vessel to Insel- und Halligreederei Sven Paulsen for a sum of € 20,000.-. Three advance bookings for the 2004 season were also taken over. However, these voyages were then evidently carried out by another vessel. Apparently SEEHUND I lay dry in Tönning in 2004 and 2005.

On 13 July 2005 the vessel was sold to the present owner for a sum of € 5,800.-. Before this the vessel, lying in the water, was inspected for one hour on 28 May by the husband of the owner and a second person. These persons did not ascertain any defects. Only the bilges were full of water as is normal for a wooden vessel, and this water was removed at the inspection.

The second inspection was carried out when the vessel was handed over on 13 July 2005 in the presence of the later skipper for the transfer voyage. During this inspection that also lasted one hour the bilges were again full of water. The engine was switched on and the navigation equipment was explained. The rudder was not working due to a defective hydraulic line. The previous owner subsequently repaired this line.

## **4 Course of the accident**

### **4.1 Reason for the voyage**

The new owner intended to transfer the vessel to Portugal together with her husband and to use it as a passenger vessel again there. Before this the vessel and engine were to be reconditioned during an intermediate stop in Bremerhaven.

### **4.2 Persons on board**

During the transfer on 8/9 August 2005 altogether 4 persons were on board. The responsible 43-year-old skipper is a master automotive mechanic by profession and has held a Leisure Craft Operator's Licence since May 1983. A second person on board, the also 43-year-old husband of the owner, stated that he had been to sea on a fishing vessel for many years. However, he did not have any licences or certificates (boat operating licences). The third person, who did not hold any capability certificates either, was a 37-year-old man who stated that he had been to sea during his two-year training as ship's mechanic. The fourth person was the 15-year-old son of the skipper.

### **4.3 Course of the voyage according to the information supplied by the transfer crew**

On 8 August 2005 at approx. 18:00 h the transfer crew met in the port of Tönning with a staff member who had formerly worked for the firm Reederei Ziegert, which had been dissolved in the year 2003. This person was extremely familiar with the vessel and sailed with them on the Eider from Tönning to the Eider barrage structure. In the port of Tönning instruction lasting 30 minutes was given. It was ascertained that the rudder position indicator was not working due to a defective rudder position transmitter.

The former staff member of Reederei Ziegert also ran the vessel from the port up to the filling station at the exit from the port. Then the vessel took fresh water on board - the day before approx. 400 l diesel had been bunkered by the previous owner of Reederei Ziegert - and after this, up to 19:00 h, the vessel proceeded to the berth at the Eider barrage. During this voyage the bilges were drained and instruction concerning the navigational instruments was provided. The skipper later stated to the Federal Bureau of Maritime Casualty Investigation (BSU) that they had not needed to go into the engine room since all the equipment including the engine could be operated from the bridge.

The voyage continued at 06:00 h on 9 August 2005 with the vessel running out of the lock from the Eider barrage. The vessel proceeded along the line of buoys on the Ausseneider without any problems. After buoy 5, approx. 14 nm away from the barrage, the vessel steered an SSW course in the direction of the Süderpiep buoy, with good visibility. After a further 6 nm, at approx. 09:00 h and just after passing the Norderpiep buoy, water ingress was noticed and it was decided to make for Büsum

as port of refuge. It had not been possible to observe whether drainage water was being pumped outboard because of the sea swell. The rudder was increasingly more difficult to control and ultimately it was even necessary to have two men steering. It was not possible to avoid running a zig-zag course here.

The vessel was then contacted by radio by the "SAR"<sup>3</sup> who asked what was the matter, as the vessel was not steering a straight course and the present course would very soon take them into shallows. SEEHUND I reported that they deliberately wanted to beach the vessel in shallow water because of the water ingress so that it would subsequently be easier to salvage the vessel. However, as the vessel was continuously sagging further, SEEHUND I was set down on the sand south-west of Tertiusand at approx. 10.00 h, about 6 nm after the water ingress was noticed. As it had not been possible for the "SAR" to reach the foundering, stranded vessel because of the shallow water, the crew entered the liferaft and were subsequently recovered by the rescue helicopter.

The transfer crew had sailed a total distance of approx. 32 nm from the port of Tönning up to stranding.

#### **4.4 Wind, sea and tide**

According to the weather expertise from the Germany's National Meteorological Service (DWD) commissioned by the Federal Bureau of Maritime Casualty Investigation (BSU), on the day of the accident a north-west wind of force 5 Bft was blowing, with gusts up to 7 Bft. A sea swell of 1.5 to 2.0 m with periods of 8 s was coming from the north.

Low water Büsum: 9 August 2005 10:00 h

High water Büsum: 9 August 2005 16:17 h

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<sup>3</sup> In response to enquiries by the Federal Bureau of Maritime Casualty Investigation (BSU) the name of the vessel was stated as "The SAR". This was evidently the Rescue Cruiser "HERRMAN MARWEDE" or "HANS HACKMACK", which arrived at the scene of the accident after 10.00 h.



## 5 Investigation

### 5.1 Salvage

The vessel was first examined by divers of a salvage firm after it had been under water for 10 days. The salvage firm stated with regard to the condition of the vessel that they had in the past salvaged many a vessel after it had been under water for a relatively long time, but that they had rarely seen one that had looked as bad as this one. The vessel had already been scrap (painted over scrap) before it had left the port.

On 20 August 2005 the vessel was lifted with lifting cushions filled with compressed air, kept afloat with these buoyancy bodies, and towed into the port of Büsum.

On 23 August 2005 the vessel was placed ashore on the pier with the aid of two mobile cranes and immediately examined by the Federal Bureau of Maritime Casualty Investigation (BSU).



Figure 6: Salvage

## 5.2 Condition of the vessel

At the time of the survey on shore several planks from the aft ship area were missing. In the way of the superstructures nearly all the windows had been ripped out of their anchorage. On the basis of the damage found it is to be assumed that the hull of the vessel and the superstructures were intact before foundering and that the damage to the planking and superstructures evidently only occurred after the foundering and during salvage and towing to Büsum.

When the vessel was lifted out of the water, water ran out of the plank seams in several places.

## 5.3 Planks, frames and deck and superstructure

The outer shell was 20 to 30 mm thick in many places. The original thickness of the planking according to the construction drawing should have been 40 mm. The mode of construction and dimensions of the frames in the fore ship area were one 75 x 50 x 5 mm steel angle every 650 mm and always one intermediate frame in 50 x 40 mm oak. From midships to the stern the frame spacing of the steel frames was 900 mm, with two intermediate frames made of oak installed between in each case.



Figure 7: Construction method frames/planks

The planks were connected with the intermediate frames using copper nails that were still intact in many places, while the steel frames were connected with the planking with machine bolts, many of which were missing. The wooden planks had become disintegrated in the way of the screw heads. These disintegrated

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connections were not evident from the exterior, as the plugs placed on top of them from the exterior looked apparently good.



Figure 8: View of planking, interior

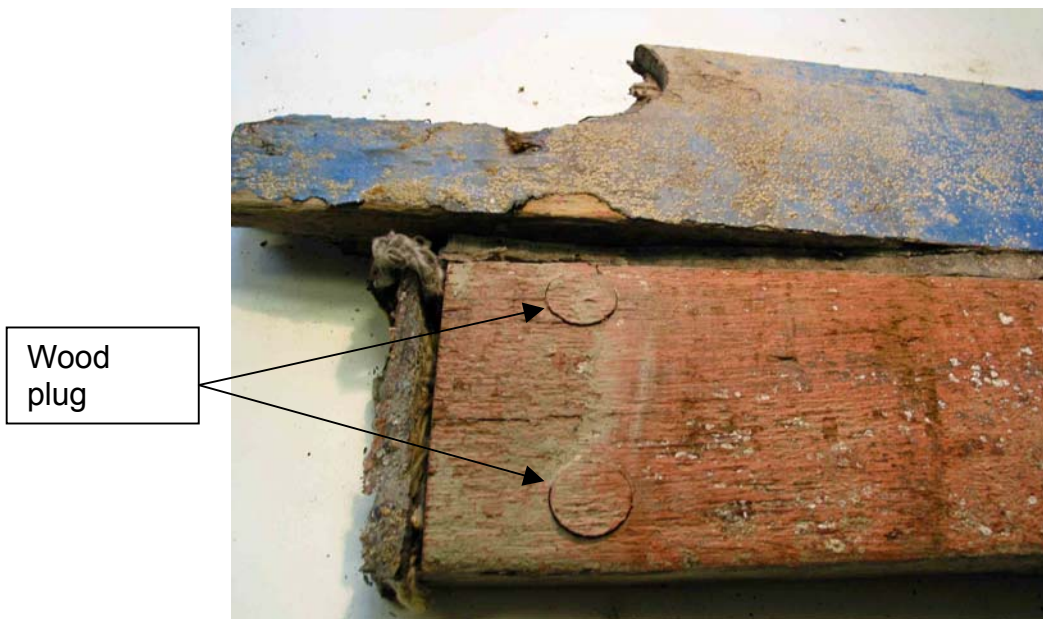


Figure 9: Planking exterior



The longitudinal seams and plank joints were caulked with cotton. The layers in the plank joints had been inserted straight. In many of the partly very wide longitudinal seams eyes consisting of caulking cotton had been placed, turned in and pushed back.

From the exterior the caulking had been sealed with sealing compound (polyurethane, trade name Sikaflex and Pantera). The sealing compound was no longer sticking to the plank joints over large areas, but instead to the caulking cotton and could easily be drawn out of the seams.



Figure 10: Under-water seams

The steel frames and steel bulkheads were very badly corroded. Several intermediate frames were broken and very badly damaged by scouring and poor conservation. The bottom beams were largely completely corroded. Although the deck was in a well-painted condition, the caulking of the deck planks was largely no longer present.



Figure 11: Floor timbers

In many places the superstructure was massively corroded. The areas round the windows had furthermore been provisionally repaired by doubling plates. The windows had been inserted in the 2.5 mm thick steel structure with rubber surrounds. Nearly all the glass panes had jumped out of these surrounds and were no longer present.

#### **5.4 Draining device**

There were three draining facilities on board. After recovery, due to the loose, ripped off cover panel of the switch panel on the bridge, it was no longer possible to determine precisely which of the three pumps installed on board had been switched on at the time of the accident.

##### **5.4.1 Main draining facility**

The main drainage facility had been installed when the vessel was still licensed as a passenger vessel with the See-BG (Marine Insurance and Safety Association). This drainage pump had been driven by the main engine with toothed belts and could be activated with an electromagnetic coupling that could be switched on electrically from the bridge.

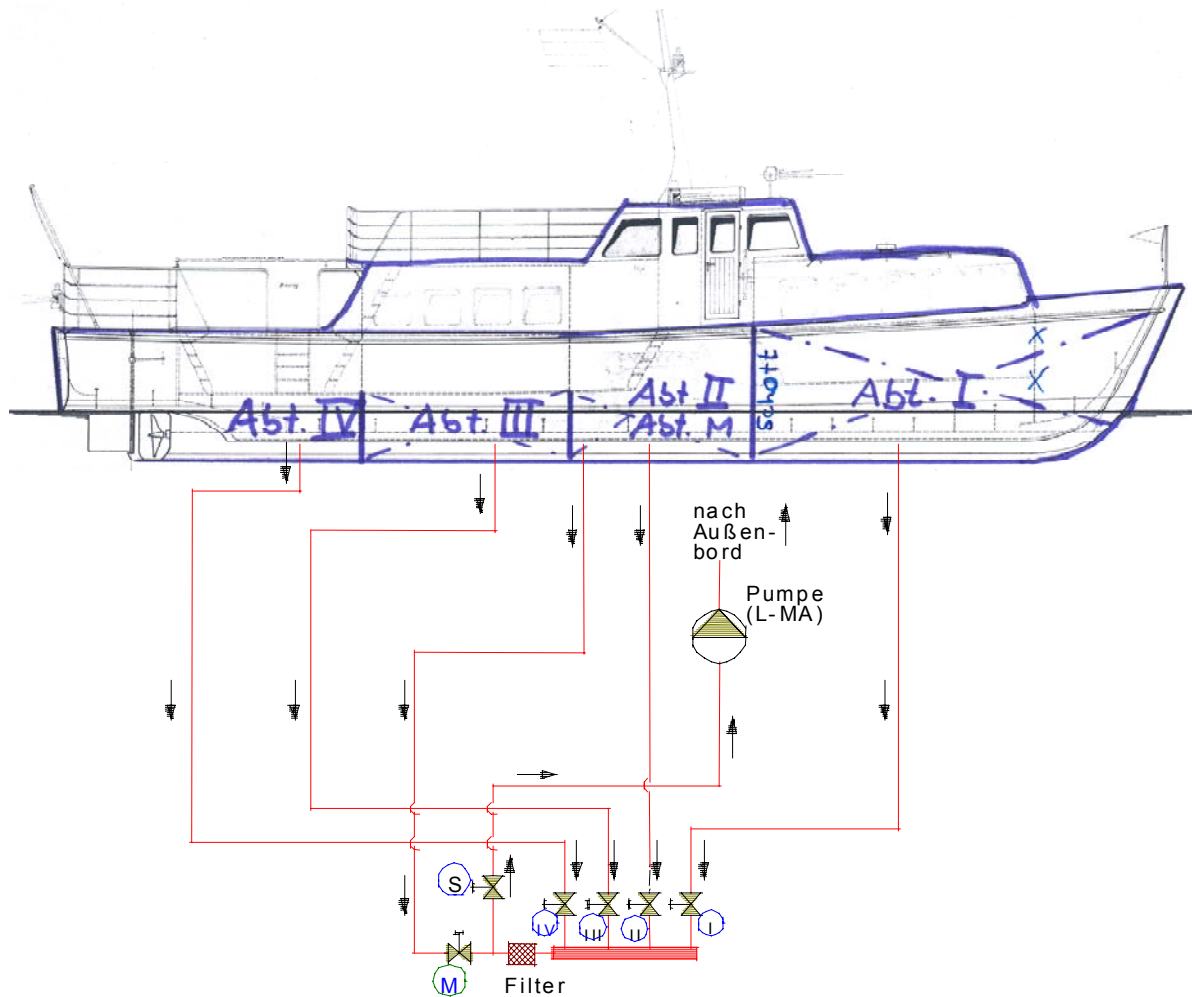


Figure 12: Main draining device

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Five different areas could be drained via a valve assembly arranged on the starboard side in the engine room under the floor plates next to the main engine. There were no drawings of the drainage system in the See-BG and GL documents or on board, so that the drawing of the main drainage facility was prepared on the basis of the facilities existing on board.

The vessel was only subdivided between section I (passenger area forward) and section II/M (engine room) into two watertight compartments by a single transverse bulkhead. The collision bulkhead at the forward edge of the superstructure was provided with cut-outs and was no longer watertight. The other bulkheads were only watertight up to the lower edge of the floor/ bottom plates.

During the survey by the BSU, the valve to section I forward was open and the line to this section was through-going and not clogged. All the other valves including valve "S" in the suction line to the pump were firmly closed. Furthermore, the valve "S" did not have any hand-wheel or hand-lever to operate it.

No labelling could be found on the lines and valves.

The outboard water outlet was just under the sheering strake on the port side.



Figure 13: Valve assembly

Neither the Skipper nor the third person on the transfer crew could explain the structure of the main drainage system sufficiently on the basis of the photos. The filter in the suction line was not recognised as such. Instead it was allocated to the engine cooling. It could not be explained where and how the individual valves and lines belonged at the manifold pipe.

According to the statements made by the transfer crew the main drainage pump had been constantly on at a valve of any optional line for drainage. Only the valve for draining from the engine room had to be maintained permanently closed. It had been explained to the Skipper before starting the voyage in Tönning that there had deliberately been no hand-wheel fitted on this valve in order to avoid unintentional drainage and hence water pollution with oil from the engine room.





Figure 14: Suction line

During the investigation on board, the valve "M" of the suction line from the engine room area was found to be closed and with a hand-wheel fitted. The suction valve "S" of the line to the main drainage pump was closed and the hand-wheel of this valve had been dismantled. The engine room area could be drained through two lines. The first line through valve "II" drained water from the area outside the engine longitudinal beam that did not contain any oil via the valve assembly and filter to the drainage pump. With line "M" it was possible to drain the area under the main engine directly, bypassing the valve assembly and the filter.



Figure 15: Main draining pump

With the 22" pipe connections and 2000 revolutions per minute at the belt pulley, it would have been possible to drain approx. 370 l water per minute out of the vessel with the main drainage pump.

The drainage facility was completely operable, but as the valve "S" was closed at the time of the accident, it was not possible to drain water from the sections.

#### 5.4.2 Additional drainage pumps

After the vessel was no longer subject to licensing and supervision by the See-BG (Marine Insurance and Safety Association), two more 12 V "yacht drainage pumps" with automatic floater switches were evidently retrofitted in the aft sections III (passenger area aft) and IV (open, lowered deck aft) in addition to the main drainage facility in the engine room. The outlet of the drainage pump in section III was on the port side under the sheering strake and the outlet of the aft pump was connected to the dewatering from the upper deck. Its outlet was on the starboard side, also beneath the sheering strake. These two draining facilities like the main drainage pump could reportedly be switched from the switch panel in the wheelhouse.



Figure 16: Draining device aft

The entire electrical wiring of the drainage pumps had been executed inexpertly with domestic cables and household distribution panels, not up to ship's standard. It was not possible to determine whether with the electrical arrangement of the floater switches automatic draining without switching from the bridge was possible. The suction intakes of the pumps were not clogged. However, none of the hose connections were secured with pipe clamps. The hoses were only plugged into each other and wrapped with adhesive tape to secure them.



Figure 17: Loose hose connection

Each of the electrical pumps could have drained 78 l water per minute from the vessel.

It was not possible to prove the operability of these two pumps.

The batteries for the 24V-/12V ship's operation and for operating the two retrofitted drainage pumps were located under the bench in the forward passenger area. In response to enquiries by the BSU, the Skipper replied that an electrical drainage pump with floater switch had been installed forward in the passenger area and an electrical drainage pump with floater switch had also been installed in the aft passenger area. The batteries for operating these pumps were reportedly located in the engine room. He could not explain exactly with which switches on the switch panel on the bridge the three different pumps were to be switched.



## 6 Analysis

The analysis of the accident reveals that the foundering and total loss of the vessel was attributable to technical and human failure.

The vessel SEEHUND I had originally been built for conveying passengers. It was no longer validly licensed as a passenger vessel.

### 6.1 Safety certificate and boat certificate

The vessel SEEHUND I was regularly inspected by the See-BG in the water and on the slipway for licensing as a passenger vessel. During the period up to 1997 when the vessel was used as a licensed passenger vessel, no irregularities were ascertained in the vessel operation. The Safety Certificate of the See-BG was valid up to 9.11.1996. The licensed area as passenger vessel for national traffic was shown as voyages up to 10 hours duration in the area of mudflat traffic and voyages on the Eider up to the Eider barrage structure.

When the first boat certificate was issued by the Waterways and Shipping Office (WSA) Tönning on 9 July 1997 in accordance with the "Regulation for the Commissioning and Commercial Renting of Leisure Craft" of 24 July 1996, the boundaries of the voyage area were extended. The sailing area as rented leisure craft was stated as North Sea and Baltic Sea (coastal area), including "Eider" and "Kiel Canal" within the territorial limits of the Federal Republic of Germany. Following an inspection in the water by the WSA Tönning, the boat certificate was issued on application by the vessel operator. No assessment of the structural members, the freeboard, and the stability for the extended range of trade was obtained by calling in a shipbuilding expert.

The commercial renting of a vessel in the meaning of the regulation comprised handing over a leisure craft to the party renting it without provision of a skipper or a crew. As of July 1997, several complaints were filed with the water police concerning passenger voyages without the necessary ship's licence and skipper's licence. According to this, the vessel was still inadmissibly operated as a passenger vessel with provision of skipper and a crew under the "Regulation on the Commissioning and Commercial Renting of Leisure Craft in the Coastal Area". The operation was still continued even after complaints had been lodged with the water police.

It is evident from the reports of a school class trip in summer 2000 with 26 school children on board that after expiry of the first boat certificate valid up to 30 June 1999, trips were evidently conducted with provision of a skipper. The second boat certificate was only issued on 18 December 2000 and was valid up to 30 June 2003. The term of 2 ½ years for which the boat certificate was issued cannot be explained, as § 2a of the regulation only allows permits to be issued for a limited term of one to two years. The third boat certificate with a validity up to 31.10.2004 was issued still during the validity of the second boat certificate on 27 June 2002.

The "Regulation on Adapting the Rules on Commissioning, Renting and Commercial Use of Leisure Craft and Water Motor Cycles" (Leisure Craft Regulations Sea - SeeSpbootV) valid since 29 August 2002 falls within the period of validity of the third boat certificate. In § 2 of SeeSpbootV the term "Leisure Craft" in the meaning of the regulation is explained. According to this, leisure craft are

*water craft with or without engine propulsion built for sport and leisure purposes and used for such purposes and that are not licensed for more than twelve persons.*

This new regulation states clearly that the boat certificate for leisure craft can only be issued for a maximum of 12 persons and that only water craft built for sports and leisure purposes fall under its purview. By contrast, the old regulation simply stated in § 1 that these water craft are used for sports and recreation purposes. According to the Leisure Craft Regulations Sea it has no longer been possible to issue a boat certificate for former commercial vessels since 29 August 2002.

The third boat certificate was not withdrawn when the Leisure Craft Regulations Sea entered into force, and evidently no extension was applied for again after validity expired on 31.10.2004.

During the period 1997 to 2005 the vessel lay in the port of Tönning. The Local Office for Waterways and Shipping (WSA) Tönning was familiar with the vessel and according to oral reports it was only inspected once again while high and dry. There are no records of and decisions on costs for this survey and the other inspections in the water.

It is not comprehensible why the term of the boat certificate was issued for a period of more than two years.

Nor can it be explained why the third boat certificate was issued in June 2002, while the second boat certificate was still valid up to 30 June 2003, and why according to the files of WSA Tönning the decision on costs for issuing the third boat certificate was only issued in July 2003.

## **6.2 Passenger vessel or leisure craft**

The transfer crew was of the opinion that it could transfer the former Passenger Vessel SEEHUND I as a leisure craft.

According to the current legal situation of the "Regulation on the Suitability and Capability of Commanding Leisure Craft in Maritime Waterways" (Sportbootführerscheinverordnung-See) of 19 March 2003, with the Leisure Craft Licence Sea (Sportbootführerschein-See) it is evidently admissible to command any kind of water craft without restrictions regarding size that is not used commercially for sports or recreation purposes.

Regulation on Sportbootführerschein-See:

§ 1 Licence

*Anyone wishing to command a leisure craft on navigation channels needs a licence (Fahrerlaubnis). A leisure craft in the meaning of this regulation is a water craft or water motor cycle not used commercially for sports or recreation purposes by its operator.*

This still contains a fundamental problem complex that is not sufficiently regulated by law. According to the present legal situation it is possible to use a water craft that was formerly used for professional shipping and was built for this as a leisure craft. During recent years marine accidents have been reported to the BSU in which there has been collision and total loss of a former motor coaster and a war fishing cutter, only crewed by holders of the Sportbootführerschein-See. In earlier years the marine boards (German authorities examining non-naval maritime accidents) also recognised the potential danger situation here. For example the Seeamt Flensburg took the collision of the "Leisure Craft ELBE III", ex lightship, with the freighter MV BALTISKIY in the Kiel Förde on 26.06.1985 as an occasion

*"to remind the legislator of the need for legal regulations under which certain leisure craft can be subjected to a technical and nautical check. As this accident again shows, today vessels that were traditionally only found in professional shipping are now used as leisure craft. The safe conduct of these vessels requires more equipment, knowledge and experience than is customarily available in leisure craft shipping, however..."*

In the objection proceedings before the Bundesoberseeamt (Federal Supreme Authority examining non-naval maritime accidents) in 1987 it was additionally stated :

*" ...A sea-going vessel of the size, heavy construction type and other nature of a vessel built as a lightship and used as such for many decades is not a leisure craft in the meaning of the Leisure Craft Licence Regulations Sea if it is not used commercially for sports and recreation purposes...."*

This decision by the Seeamt applies for the use of SEEHUND I as both a rented leisure craft with boat certificate and for the transfer voyage as a leisure craft.

As far as is known the vessel was never used according to the regulation for renting leisure craft, but was always only with the provision of a skipper who held a Leisure Craft Licence Sea (Sportbootführerschein-See).

The character of the vessel remained unchanged and it was evidently still used as a passenger vessel without a permit by the See-BG (Marine Insurance and Safety Association).

### 6.3 Qualification of the crew and crewing regulation

The Skipper had held a Leisure Craft Licence Sea (Sportbootführerschein-See) for over 20 years and stated that he was experienced in skippering leisure craft. The voyage planning and implementation had been sufficient. A current chart and manual GPS for the unknown estuary area had been brought on board and they had deliberately only proceeded by daylight.

However, they did not familiarise themselves sufficiently with the features and facilities of SEEHUND I that had originally been used as a commercial vessel. No relatively long trial trip in protected waters was carried out and the transfer voyage was conducted under pressure of time.

The Skipper did not ascertain sufficiently whether the vessel satisfied the requirements for voyages close to the coast and in particular on the high seas. The crew of this vessel with one Sportbootführerschein holder does not appear sufficient in any case, especially as under the Ship Crewing Regulation for use as a commercial vessel the qualifications Capitain AKü, in addition with training as Chief Mate C –Mot, and a skilled deckhand with appropriate training in fire protection and as rescue boatswain were specified. The need for this crew with technically better trained staff, even if the vessel were to be used for some other purpose, is reinforced by the decisions of the Seeämter cited above.

The Seeamt Hamburg had also stated earlier in a Seeamt decision on substantial endangerment of the safety of the Container Vessel SEVEN SEAS BRIDGE on the lower Elbe on 3.7.1988 by a "leisure craft", the three-masted gaff-rigged Schooner VIDAR:

*"Such vessels, like so-called Veteran or Museum Vessels, cannot be considered as leisure craft even under the prevailing opinion, partly because the requirements made for gaining a Leisure Craft Licence (Sportbootführerschein) are tailored to the measure of endangerment that the legislator takes into account for leisure craft, namely only the skippering of such water craft that can be commanded safely and without danger for third persons or their property..."*

In the objection proceedings before the Administrative Court Hamburg on 14.7.1989 the Seeamt initially stated that

*"... only vessels that in accordance with design and facilities from their first use onwards are intended exclusively for the purpose of use as leisure craft, but not those vessels that are subsequently rededicated as sport, leisure or recreation vessels after first serving as trading or public authority vessels, may be used with the motor boat driving licence."*

The new owner intended to transfer the vessel to Portugal after overhauling in Bremerhaven and to use it as a passenger vessel again there. According to the last Minimum Safe Manning Document of the See-BG (Marine Insurance and Safety Association), SEEHUND I was licensed for mudflat voyages of up to 10 hours

duration. The planned transfer voyage to Portugal would have exceeded this sailing area by far.

A ship survey by the See-BG and a licence for transfer would definitely have been necessary for a transfer voyage. A sufficiently qualified crew consisting of professional nautical experts and technical staff would finally have been absolutely necessary.

#### **6.4 Seaworthiness**

The 61-year-old vessel could certainly have been in a seaworthy condition on the basis of its age. Wooden vessels that are well over 100 years old are still running if they have been properly maintained. The problem with SEEHUND I consisted of the joints of the steel frames and the wooden planks. These joints that could not be seen in fact no longer existed in several areas. As several intermediate frames were also broken, planks would probably have become detached during relatively heavy seas, and the vessel would have foundered even faster.

The superstructure was badly corroded in several places and the window glass surrounds did not meet sea-shipping standards. Nor were there any sea panels on board that might possibly have stopped water ingress if the windows had been broken.

The main cause of the water ingress that ultimately led to foundering consisted of the dried out and not sufficiently caulked outer plating and deck planks. Due to lack of care and the long period out of water, the planks in the above-water area had dried out and as a result of the voyage and water on deck it was not possible for these planks to swell up quickly enough and thus make the hull watertight.

After the vessel had been lying under water completely for 14 days and was thus sufficiently watered, water was still running out of several seams when it was recovered. As a result of the type of caulking applied, it can be concluded that the wide longitudinal seams could no longer be sealed sufficiently simply by swelling of the planks.

It is not comprehensible why no objection was made about the inadequate condition and the faults eliminated when the boat certificates were issued and extended. Nor can it be explained why no survey was conducted high and dry when the vessel was purchased, and why no expert was called in. In the case of thorough and proper inspection of the vessel it would have necessarily been concluded that the vessel was not suitable for the transfer voyage and for sea shipping. On the grounds of these defects the vessel could only be used to a very limited extent in protected waters with little sea swell.

The retrofitted drainage pumps had been installed inexpertly. The electrical wiring and hose connections were not executed properly. As a result of this installation and the fact that the crew evidently did not know the arrangement of the pumps or the operation of the switches, it is to be assumed that very little was drained with these drainage pumps, if anything at all.

The main drainage system was in an operable condition and if it had been operated correctly the vessel could have been kept afloat longer. The crew was not familiar

with this standard drainage system of commercial vessels that is not installed in this way in leisure craft. Draining was not possible due to wrong operation of the valves.

Introduction to and familiarisation with the special features of a former passenger vessel and its technical facilities lasting only approx. two times one hour does not in any way appear sufficient.

## 7 Safety recommendations

### 7.1 Leisure Craft Regulations Sea

The Federal Bureau of Maritime Casualty Investigation (BSU) recommends that the licensing authorities for issuing boat certificates under the Leisure Craft Regulations Sea should review the licences issued to ensure that only leisure craft that are built for sports and leisure purposes and are not licensed for more than twelve persons can obtain a boat certificate.

The attention of operators for renting and commercial use of leisure craft should urgently be drawn to the fact that a boat certificate is only issued in accordance with § 2 No. 5 SeeSpbootV (Leisure Craft Regulations Sea). According to this, renting is defined as

*"handing over a leisure craft or water motor cycle for use to constantly changing clients without provision of a skipper or a crew and without the client using the leisure craft commercially, for money".*

### 7.2 Leisure Craft Licence Regulations Sea

The Federal Bureau of Maritime Casualty Investigation (BSU) recommends that § 1 of the Leisure Craft Licence Regulations Sea be modified by analogy with § 2 No. 1 SeeSpbootV in conjunction with § 3 SeeSpbootV.

In particular it should be pointed out that leisure craft are defined as water craft built for sports and leisure purposes and that are not licensed for more than 12 persons. Thus in accordance with the CE-label, Directive 94/25/EC a quality for boat-building and a size limitation for the skippering of leisure craft with a Sportbootführerschein-See necessarily result.

### 7.3 Reallocation of professional vessels

The Federal Bureau of Maritime Casualty Investigation (BSU) recommends that for former professional vessels that are used as "leisure craft" but are not operated under the operating form "traditional vessel", in accordance with § 6 of the maritime safety regulations Schiffssicherheitsverordnung (SchSV), the requirements to be made of the capability of the skipper and the technical crew be defined, translating the court decisions of the Seeämter into practice and in particular taking former ship's crew certificates into account.

## 7.4 Seaworthiness

The BSU recommends, as already in earlier safety recommendations evolving from fatal leisure craft accidents, that persons conducting water sports should observe the ten safety rules for water sports.

After this very serious marine casualty reference is made in particular to observance of Rule 2:

*"Familiarise yourselves with the properties and facilities of your vessel. Your vessel must be suitable for the area you intend to sail. Ascertain whether your vessel is sufficient to meet the requirements for voyages in coastal areas or on high seas. The vessel and facilities must be in an operable condition suitable for water transport."*



## 8 Sources

- Investigations by the Water Police (WSP)
- Statements by witnesses
- Charts and vessel particulars: Bundesamt für Seeschifffahrt und Hydrographie (Federal Maritime and Hydrographic Agency (BSH))
- Official weather expertise: Deutscher Wetterdienst (Germany's National Meteorological Service (DWD))
- Documents of the classification society
- Documents of the Waterways and Shipping Office (WSA) Tönning
- Documents of the See-Berufsgenossenschaft (See-BG Marine Insurance and Safety Association)
  - Accident Prevention Regulations (UVV-See)
  - Guidelines and leaflets
  - Vessel files

## 9 Annex comments

In accordance with § 15 Para. 1 Maritime Safety Investigation Law (SUG) in conjunction with § 17 Para. 2 Law Relating to the Investigation into Accidents and Incidents Associated with the Operation of Civil Aircraft (FIUUG), justified essential statements are taken into account in the investigation report. Accordingly individual statements are reproduced below. In as far as statements deviating from the draft of the investigation report were confirmed by additional investigations by the BSU respectively documents, these have been integrated into the investigation report in the appropriate places without being specially emphasised.

### 9.1 Comments by the owner of the former Reederei Ziegert

regarding pages 20, 21, 22 and 23:

*"S" was the former suction line of the engine room bilge, but was no longer working. At the time it was replaced by the direct suction line "M". That is why the valve within the "S" line had to remain closed.*

*The complete drainage system was fully operable. This was also demonstrated before the crew (in the way of the bow drainage line).*

*The automatic drainage devices could function without being switched from the bridge, as each pump had an operable floater switch. The electrical installation was carried out by an expert (electrician).*

*There are no further documents on this as the conversions of the electrical installation were completed shortly after 1982.*

*There were floater switches only in the way of the aft saloon (Section III) and aft ship (Section IV). In addition these could be bridged on the bridge by 2 pull-switches so that immediate drainage (e.g. with low bilge water level or if a floater switch failed) was possible at any time. This too was explained to the new crew.*

*The charges filed by the water police were suspended by the court since these did not conform with the truth (there were no court proceedings).*

*The leisure craft Seehund I was never manned with provision of staff (skipper and crew). The vessel was never used again as a passenger vessel after 07/1997, but only as a "large leisure craft". This could be chartered as a bare-boat charter vessel by groups of up to 35 persons (later up to 12 persons). Each group determined its own skipper.*

*The charter contracts were only drawn up sporadically, as most of the charterers paid cash in advance. Naturally I convinced myself of the capabilities of each leisure craft skipper on the spot before renting the vessel. I myself had an interest in the safety of the guests and the vessel.*

To substantiate that the charges of offences by the water police in the period between July and September 1997 regarding non-authorised, commercial renting of the leisure craft SEEHUND I did not correspond to the truth, copies of letters were presented to the BSU and excerpts are reproduced below:

### **9.1.1 Waterways and Shipping Directorate North (WSD)**

In a letter from the WSD, dated 14 January 1999, to the Local Court Kiel, the WSD proposes that the fine proceedings be discontinued in the way of informal proceedings.

*With the new Ships Safety Regulation valid since 01.10.1998 the infringement charged in these proceedings is no longer relevant as an offence.*

### **9.1.2 Local Court Kiel**

The Local Court Kiel followed this suggestion by the WSD and in its decision of 20 January 1999 discontinued the penalty proceedings, as according to the new Ships Safety Regulation valid as of 01.10.1998 there was no longer any clear penalty regulation for charging the party concerned with the deeds reproached with, and so sentencing would be extremely doubtful.

Final sentence from this decision:

*Thus a further decision in the matter does not enter into consideration. It is no longer necessary to decide whether the party concerned was subject to an error as to the prohibitory nature of the act under the application of the former rules of the vessel safety regulation. It can be disregarded whether a staff member of the Waterways and Shipping Office (WSA) Tönning actually explained to the party concerned that the behaviour of the party concerned did not represent any conduct contrary to regulations.*