# LEGAL ASPECTS OF DECOMPRESSION TABLE VALIDATION

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## An Overview of the Need for Diving Table Validation Vis-a-Vis Legal Liabilities

Commercial oilfield divers who work for one diving company on a permanent basis and are who assigned to a particular vessel regularly used to transport the divers to their locations may be considered seamen and have the protection and remedies provided by a federal statute called the Jones Act[1]. If injured, these divers can sue their employer and can recover damages if there is any negligence, even in the slightest degree, which was a cause of their injury[2]. They have a right to bring suit in federal or state courts[3] and can demand a trial by jury[4].

Divers who freelance for several companies, or those who have a principal employer but are associated with different vessels, may or may not be considered seamen depending on the facts and circumstances of their relationship to the company and to the vessel[5]. The trend of the courts seems to be away from finding non-traditional seamen, such as commercial oilfield divers, to be Jones Act seamen[6]. However, if they are not considered seamen but simply maritime workers, an injured diver is not without remedy against his employer. As a seaman, an injured diver is owed maintenance and cure, that is, medical treatment and reimbursement for the value of room and board which he would have had aboard ship, save for his injury[7]. This is without regard to his employer's negligence. As a non-seaman maritime worker, he is entitled to medical attention and weekly compensation.

The diver can also sue the owner of the vessel on which he was employed. This claim is asserted against the vessel owner whether or not the owner is the diver's employer[8].

If the diver is not working from a vessel but rather from a fixed structure, he will not be considered a seaman. If the fixed structure is a platform on the Outer Continental Shelf, he may be entitled to a remedy for compensation under the Longshore and Harbor Workers Compensation Act[9]. If the fixed platform is located within the territorial waters of a state, he may be limited to benefits under the compensation laws of that particular state[10]. If the diver is killed while working from a vessel more than three nautical miles from the boundary of a state, he is entitled to remedies under the Death on the High Seas Act, without regard to his status as a seaman[11].

With respect to decompression tables, there are practically no reported court decisions which deal with validation or where there has been a determination of the validity of the use of any particular table. Thus, my knowledge on this subject comes from practical experience in handling diving cases during my 20 years of practice, and discussions which I have had with other maritime law practitioners and expert witnesses, both on the plaintiff and defense side of the bar. Most of the cases involving injured divers where the validity or use of decompression tables comes into question are settled before or during trial. Often the reason for settling is the lack of sophistication of the trier of fact (whether judge or jury) and the general sentiment that the American tort system has moved away from being fault-based and is now based more on social considerations.[12]

Unfortunately, too often the practice in the commercial oilfield industry has been to use decompression tables that have not been validated by the user. In most cases, the tables were "borrowed" from the U.S. Navy or one of the older diving companies and then modified through the use of computer simulation techniques to utilize the table at depths greater than those for which originally designed. Thus, counsel for an injured diver can easily argue that the commercial oilfield diver has become a guinea pig for these "new" tables.

Even if the tables are successfully used over a period of time, the judge or jury may still conclude that the tables were inadequate to prevent the particular injury involved in the lawsuit at hand. Often, review of the dive logs proves that the tables were not followed to the letter. The plaintiff's attorney then has an easy job of showing negligence of the diving company and its supervisory personnel. To use a worn phrase, it is a "Catch 22" situation. If the tables were not followed, therein lies the employer's negligence. If the tables were followed to perfection, the fact that the diver was injured proves that the tables were flawed. Even in those

few situations where it can be proven that the diver intentionally disregarded safe practices, the employer will still bear a share of responsibility (and legal liability) as the seaman's duty to protect himself is slight.[13]

When the dangers inherent in commercial oilfield diving and the divers' compensation are explained to a jury, they often recognize that this is a high risk occupation and conclude that the diver bears considerable responsibility for his own health and safety. Although the diver cannot be blamed for selection of the decompression table, if he fails to follow directions during the decompression process or refuses to return for recompression when he has symptoms of the bends, juries may often assess the diver with a sizable percentage of contributory negligence. Under the general maritime law, comparative negligence applies and the percentage of negligence of the diver will reduce his judgment correspondingly.

Diving companies have had the greatest success in defending against claims when they have followed the U.S. Navy diving procedures and the Navy tables. However, following a government standard is no guarantee that an employer will be exonerated from responsibility. In some cases, plaintiff's counsel have effectively convinced the trier of fact that the Navy tables were designed primarily for inspection dives and not for the strenuous exercise required in commercial oilfield diving operations.

From a practical standpoint, until there has been validation of decompression tables for diving at depths greater than those allowed by the U. S. Navy tables, diving companies will continue to find it difficult to win lawsuits brought by injured divers.

## Legal Aspects of Validation Testing

The attempt to establish, through simulation and then by actual field testing, a series of tables approved by an official agency of the United States government for use in commercial oilfield diving operations is, itself, not without legal pitfalls.

Testing, in order to be effective, must ultimately involve human test subjects. Several years ago, the F. G. Hall Laboratory at Duke University conducted a series of simulated deep dive experiments called the Atlantis Series, under the direction of Dr. Peter Bennett, the director of the Laboratory. The purpose of these dives was to research high pressure nervous syndrome. Only experienced divers were employed as experimental subjects. Despite extensive predive testing and work-up, and despite the fact that he had participated in the first series of dives with no ill effects, one of the testing subjects suffered permanent organic brain damage which was attributed by him to the effects of his participation in the Atlantis III dive which went to a simulated depth of 2,250 feet as planned, setting a new world record. It should come as a shock to no one familiar with our litigious society that this subject filed suit. I am pleased to say that the court in that case dismissed the suit and, in so doing, not only vindicated the actions of Duke and its representatives, but saved the day for testing with use of human experimental subjects by setting forth, in effect, a set of guidelines for this participation.[14]

The lawsuit primarily centered around claims that the researchers failed to disclose certain dangers inherent within the testing and, alternatively, that the testing was an ultrahazardous activity subject to laws of strict liability.[15] To deal with the latter first, the court felt that the type of research being conducted under the conditions present was not such an ultrahazardous activity as to justify the application of the doctrine of strict liability. Concerning the claim of failure to disclose certain dangers, the court explored at length the factors involved in valid, informed consent.

Non-therapeutic experimentation is defined as that experimentation not directed toward providing a benefit to the subject, but instead concerned with the discovery of data through the research on that subject. The issue of informed consent will often be controlled by case law or statutory law of the state wherein the testing is taking place. In order to properly present a case based upon failure to disclose, a test subject must show that the persons conducting the experiments made a representation relating to a material fact either past or existing; that the representation was false; that the experimenters knew the representation was false when it was made or made it recklessly without any knowledge of its truth and as a positive assertion; that the experimenters made the false representation with the intention that it should be relied upon by the test subject; that the test subject reasonably relied upon the representation and acted upon it; and, finally,

that the subject suffered injuries as a result thereof. The Atlantis Series case turned upon the fact that the subject admitted that he knew the possibility of organic brain damage existed whenever compression and decompression were involved if not properly treated, as well as the fact that the scientists conducting the experiment were unaware of this condition being a normal condition for experimental deep diving. In fact, the scientist indicated that if, in fact, the subject had sustained the type of damage alleged, it would be the first case ever. Further, all risks pertaining to deep diving that had occurred in the past were included on the informed consent form.

As stated, the Atlantis Series case provides a comprehensive guideline for conducting simulated testing. As simulated testing does not take place actually in the water, no maritime law aspects are involved and the legal aspects will be controlled by land-based law, usually that of the state wherein the testing is involved, as supplemented by overriding federal legal considerations. The legal aspects of simulated testing for table validation would be exactly the same as any testing involving human subjects.

To the extent that field testing in actual water depths would be required for validation of tables, there are other sets of laws with which one must be concerned. The first is the knowledge that if an agency of the United States Government, such as NOAA is conducting these tests by employing either testing subjects itself or contracting with others to do so, it has legal exposure by virtue of the Federal Tort Claims Act which subjects the United States to liability for the torts of its employees in the same manner and to the same extent as private individuals would be liable under similar circumstances.[16]

In theory, such field testing could be conducted by scientific personnel diving from vessels regulated by the terms of the Oceanographic Research Vessels Act (ORVA).[17] I say theoretically because an exhaustive search has not turned up one case involving a claim brought by a diver conducting any sort of diving test. However, the act exempts vessels which the Secretary of the Department of Transportation has certified[18] to be a vessel employed, among other things, "exclusively in oceanographic research, including, but not limited to, such studies pertaining to the sea as seismic, gravity, meter and magnetic exploration and other marine geophysical or geological surveys, atmospheric research and biological research."[19] The Act further defines "scientific personnel" as persons aboard a vessel solely for the purpose of engaging in scientific research, etc.[20] and specifically excludes from the category persons aboard who are involved in the navigation of the vessel.[21] The importance of the Act is that the scientific personnel aboard an oceanographic research vessel are not considered seaman for the purposes of the Jones Act. By case law, they have been extended the benefits of the warranty of seaworthiness,[22] i.e. the vessel owner owes them a duty of making sure that the vessel is fit for its intended purpose, but they have no right to sue their employer under the Jones Act. Any claim they would have against their employer other than as the vessel owner, would be addressed under the Longshore and Harbor Workers Compensation Act and they would be relegated to compensation and medical expenses.

**FOOTNOTES**

1. 46 U.S.C. 688, et. seq.; Barrett v. Chevron, Inc., 781 F.2d 767 (5th Cir. 1986); Pickle v. International Oilfield Divers, Inc., 791 F.2d 1237 (5th Cir. 1986); and Wallace v. Oceaneering Inter- national, 727 F.2d 427 (5th Cir. 1984).
2. Rogers v. Missouri Pacific Railroad Company, 352 U.S. 500, 77 S.Ct. 443, 1 L.Ed.2d 493 (1957); Spinks v. Chevron Oil Company, 507 F.2d 216 (5th Cir. 1975); Ferguson v. Moore-McCormack Lines, Inc., 352 U.S. 521, 77 S.Ct. 457, 1 L.Ed.2d 511 (1957).
3. United States Constitution, Article 3, Section 2; Southern Pacific Company v. Jenson, 244 U.S. 205, 37 S.Ct. 524, 61 L.Ed. 1086 (1917); Engel v. Davenport, 271 U.S. 33, 46 S.Ct. 410, 1926 AMC 679 (1926); Panama R. Company v. Vasquez, 271 U.S. 557, 46 S.Ct. 596, 1926 AMC 984 (1926).
4. Under the Jones Act, the plaintiff's claim may be brought either on the "law side" or on the "admiralty side" of the court. If brought on the admiralty side, the claim is tried by a judge and the claimant is usually granted interest from the date of injury. If brought on the law side, the claimant is entitled to have the case heard by a jury but interest accrues only from the date of judgment.
5. Barrett, supra; Pickle, supra; and Wallace, supra.
6. Johnson v. John F. Beasly Construction Company, 742 F.2d 1054, (7th Cir. 1984).

7. Farrell v. United States, 336 U.S. 511, 69 S.Ct. 7097, 93 L.Ed 850 (1949); Mahramas v. American Export Isbrandtsen Lines, Inc., 475 F.2d 165 (2nd Cir. 1975).
8. A seaman has a claim under the general maritime law against the vessel owner for the unseaworthiness of the vessel. Complaint of Merry Shipping, Inc., 650 F.2d 622 (5th Cir. 1981); Landry v. Oceanic Contractors, Inc., 731 F.2d 299 (5th Cir. 1984). A "maritime employee" (i.e. non-seaman) has a claim against the vessel owner under 33 U.S.C. 905(b).
9. Longshore and Harbor Workers Compensation Act; 33 U.S.C. Sec. 901, et. seq.
10. Outer Continental Shelf Lands Act, 43 U.S.C. Sec. 1333 (B); Herb's Welding v. Gray, 703 F.2d 176 (5th Cir. 1983); 105 S.Ct. 1421 (1985), on remand 776 F.2d 898 (5th Cir. 1986).
11. 46 U.S.C. Sec. 761, et. seq. Under the Death on the High Seas Act (DOHSA), the representatives of a deceased seaman are only entitled to recover pecuniary losses. Under the Jones Act, which applies in death situations within the three nautical miles, damages may also be awarded for non-pecuniary losses such as love and affection.
12. Tort reform, in response to the much publicized "insurance crisis" is a hotly-debated issue on the state and national level, and is beyond the scope of this paper.
13. Wyatt v. Penrod Drilling Co., 735 F.2d 951 (5th Cir. 1984); Leja v. Mike Hooks, Inc., 690 F.2d 10 (5th Cir. 1982).
14. Whitelock v. Duke University, 637 F.Supp. 1463 (M.D.N.C. 1986).
15. Certain activities, such as mining and pile driving, are considered by the courts to be ultrahazardous. The defendant company can be found to be "strictly liable" to the injured party upon a showing of a causal connection between the activity and injury. The plaintiff is not required to prove negligence on behalf of the defendant.
16. 28 U.S.C. 1346(b).
17. 46 U.S.C. 441-445.
18. In a case handled by the author's law firm, Smith v. Odom Offshore Surveys, Inc., 791 F.2d 441 (5th Cir. 1986), the Court of Appeals for the Fifth Circuit held that in order for a vessel to be deemed to be an "oceanographic research vessel," it must be designated as such by the Secretary of the department in which the Coast Guard is operatng. Id at 413-414.
19. 46 U.S.C. 441-445.
20. 46 U.S.C. 441.
21. Craig v. M/V PEACOCK, 760 F.2d 953 (9th Cir. 1983)
22. Id.

## ADDITIONAL COMMENTS BY MR. SUTTERFIELD

If anyone does not know, the Jones Act is a statute of the United States enacted in about 1920 for the benefit of seamen. It requires a more or less permanent attachment to a vessel. The employee has to be--had to be--an employee of the vessel and he had to contribute to the mission of the vessel. When the exploration of the Gulf of Mexico occurred, suddenly, there were some people who used to be known as welders and oil field roustabouts who suddenly said, "Hey, I'm a seaman because I'm out here working, suffering the problems of the sea." And some of the courts agreed with them.

One other thing about the Jones Act. The only real requirement is that a suit under the Jones Act be brought in the district wherein there is a navigable stream. So, you can have a lot of cases filed in Beaumont, Texas, for example, because there are some judges in that district that seem to have a different view of what the law should be than a lot of us. Plaintiff's tend to find these judges.

But it works both ways. The 7th Circuit has taken what I believe to be a much more realistic attitude of what the Congress meant when they passed the Jones Act. In the 7th Circuit, a person aboard a vessel has to be there to aid in the navigation of the vessel in order to be considered a seaman.

It is also very important to know one reason why all the plaintiff lawyers try to make the people seaman. That is that they really do not make much of a fee if he is considered a longshoreman, because then he gets a set schedule and there is usually not even a reason to file a lawsuit. If he is able to make his client a Jones Act seaman, he gets somewhere from 25 to 40% of the award.

And there is another thing in the law, it is called, "You take your victim as you find him." Certain people are more susceptible to any sort of injury than others. That has to be taken into consideration as well.

Given those few situations where it can be proven that the diver intentionally disregard safe practices, the employer will still bear a share of the responsibility and legal liability as a seaman's duty to protect himself is slight. Slight, it is almost nonexistent. It is existent, but it is extremely slight.

So make sure if you are planning to take advantage of ORVA that you have your legal department go down to the Coast Guard and get your vessel certified.

## DISCUSSION FOLLOWING MR. SUTTERFIELD

DR. YOUNGBLOOD: I just want to make sure that everybody heard you on that principal about, "you take them as found." That is something I find, in reviewing diving cases, that diving companies often do not comprehend.

MR. SUTTERFIELD: I do not think that we could overly stress the importance of a good pre-employment physical for any divers, or pre-dive physicals to make sure that the guy that you are sending out is physically capable of doing the work. If you do send anyone out that is not, you are going to pay for it.

DR. YOUNGBLOOD: A particular area where it is expensive to look is the organic brain disease situation, because that is the one that is really expensive if the claim is brought against you.

MR. GALERNE: Do you think we could scare the divers if we look at their brain?

DR. YOUNGBLOOD: Well, you jest, Andre, but that is usually what the unsophisticated diving contractor says. If you look and there is damage, you can either not employ him or you know it is there and if anything happens, "it comes out in the wash."

MR. GALERNE: It was a joke.

DR. YOUNGBLOOD: Oh, I know it is with you. It is not with some of your friends, though.

MR. SUTTERFIELD: Let me make one comment about something that was brought up earlier about waivers. It is against public policy to allow someone to waive a negligence claim against another party before it has occurred. In effect,

you can not give anyone a free shot. These waivers do not work.

You can inform them of all the bad things that could possibly happen to them, and if one of those things happens by virtue of something other than negligence, that is fine. They have understood that; but you cannot absolve yourself from negligence simply by getting someone to sign a waiver. It is against public policy.

CHAIRMAN SCHREINER: Let me ask you a question about the jury trials that a seaman can request under the Jones Act. That is a civil jury, I take it.

MR. SUTTERFIELD: In Federal court, it is a jury of six. Some states allow a jury of twelve.

CHAIRMAN SCHREINER: But the decisions are made by majority vote.

MR. SUTTERFIELD: Yes.

CHAIRMAN SCHREINER: You do not need unanimity as in a criminal jury, do you?

MR. SUTTERFIELD: Well, it depends. Within the Federal system, you do not. But it depends upon the jurisdiction. That is a local matter. Some states require the unanimous verdict. They generally all agree to the verdict.

MR. HOLLAND: There may be something happening in the UK which could give all of us guys with organic brain disease some hope. The University of Lancaster is attempting at the moment to prove that all divers after a time, as they get older, suffer from, I do not know the technical word, organic brain disease, I guess.

DR. SCHANE: I have two things that relate to that. The first is that Peter Norris is the guy at Lancaster who is doing that work. Also, a former student of Dr. Lambertsen by the name of Joe Idicula reported in 1982 at the Naval Symposium in Bombay that CT scans of veteran divers showed similar effects of those of punch drunk boxers.

DR. ELLIOTT: We are talking about an endpoint which is related to decompression validation, but, obviously, since rather like other things such as benzene and leukemia, with a 10-15 year lead time, you can not pin the particular dive down. So, it is really not in our consideration today. But, at the same time, one is very concerned about this. What is happening in the UK that I think is relevant is the Medical Research Council's Decompression Sickness Panel has now got a working group on long-term health effects in order to assess the evidence for the alleged long-term effects on every organ system, including the central nervous system, with the intention of producing a review within the next year or two.

Now, I do not think we are unique in this, but I think the track record of the MRC Panel is such that it should be reasonably authoritative, and as some of you know, we are actually having a workshop in the spring of 1987 on diagnostic procedures in decompression neurology.

MR. SUTTERFIELD: Two quick things I made a note of in chatting with people earlier. Someone talked about what we have called the state-of-the-art defense, and that is at the time such-and-such occurred. You did everything that was known in scientific circles about this situation, but then later the knowledge has increased. We now know that, for example, that asbestosis matters; others are diethylstilbestrol, silicosis, etc. At the time those things were not thought to be harmful, and then later we find out that they are.

State-of-the-art defenses do exist. You say, "Well, at the time we did everything totally proper." However, state-of-the-art defenses generally do not succeed, in my experience, when you are talking about people. If you are talking about property damage, yes. You win on those all the time. When you are talking about people, they generally find a way to get around the state-of-the-art defense simply because they just feel because of social values that the people should be taken care of. And that is what we have had in asbestosis and diethylstilbestrol. It is something that could happen in the diving industry with organic brain damage, etc. You say, "Well, we did not know that then but now we know it." Unfortunately, you may have to pay for it.

The other thing is that if, in fact, the Federal Government were to establish certain tables and guidelines and if you followed those, you should

be okay. The Federal Government could get into that business and could promulgate diving tables, and then the Congress could pass some sort of National Tort Act that said that, "If, in fact, you follow these tables, then you will not be considered liable," etc. It is possible. They have done that in certain cases, like with hospitals on a state level. They have said, "You are not going to be responsible for selling blood, as long as you follow certain guidelines." When that has happened it has been necessary in order to get people to be in that business. If diving ever becomes such a necessity that they feel it is worth it and that is the only way they can do it, something like that may happen. But until then, I would not hold out a lot of hope for it.

DR. YOUNGBLOOD: There is a real problem there, which I think Jan Merta or somebody alluded to earlier which we saw happen in the tunneling industry in the matter of long term effects. Unless we consider the implications that are possible with long term effects, if we should go the short term route of validating on the basis of acute criteria only, we could get into the situation of the tunnel industry. In certain states, certain schedules were mandatory. You could not do anything else. Then we discovered that the long-term effects were there, but the contractors were almost legally bound.

MR. SUTTERFIELD: My knowledge of OSHA is somewhat limited. It is my recollection that it provides that nothing in the Act itself should affect the civil liabilities of the employer. What they try to do is make sure that no one could either sue on behalf of OSHA, per se, or defend on that basis. If what you have said is correct, it is something that has to be addressed by trying to get the regulation changed or trying to get the tables changed.

DR. YOUNGBLOOD: What it leads to is aseptic bone necrosis. I was not considering it from the litigation standpoint. The point is that it cements things at that point and closes the mind against either the possibility of long-term damage or the possibility of further improvement in the procedures.

MR. SUTTERFIELD: If it is something that you are required absolutely to do just one way, then I do not really know. But if it is a regulation that it is a minimal standard--I think most OSHA regulations are minimum standards--and just because you meet that minimum standard, if you, as an expert in that field, know that you should do more than that, then you have to do that. You are not going to be shielded from civil liability simply by following the OSHA minimum standard.

MR. HADDON: Several years back under the Eula Bingham administration, there was a program directive written that said you could use a consensus standard that is better than OSHA standard if you were aware that it was better; that was permissible. At first it said it would be a d-minus charge, and then they eliminated that. And, so, OSHA does recognize that things change. There can be improved conditions.