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PRODUCTS LIABILTY

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Abstract

This Interactive Qualifying Project is an introduction to Product Liability and Safety. Evaluations were done for various cases involving accidents, both vehicular and product related. For each case product defects were determined and responsibility was assigned. The project culminated with a mock trial in which each group presented its case and an objective jury reached a verdict.

1 Products Liability

1.1 Definition and Scope

Products liability has several different meanings. In legal terms product liability describes an action, such as a lawsuit, in which an injured party (plaintiff) seeks to recover damages for personal injury or loss of property from a seller or manufacturer (defendant) when it is alleged that the injuries or economic loss resulted from a defective product. The term has also been used when a consumer or business enterprise has suffered commercial loss owing to the breakdown or inadequate performance of a product.

In most instances an action based on products liability requires the establishment of a defect in the product. Product defects arise from two sources. The first and most basic is the production or manufacturing defect. This is a defect arising from an error occurring during the manufacture of the product. This would presume that products that meet the manufacturer's standards are not defective, at least from the viewpoint of production errors. In contrast, when a product that meets the manufacturer's own standards does cause injury, it may be alleged by the plaintiff that the design or the manufacturer's standards were inferior and should be judged defective. This would be termed a design defect.

1.2 Unreasonable

The words reasonable and unreasonable abound in product liability literature. The word unreasonable is also used in connection with the doctrine of strict liability. One who sells any product in a defective condition "unreasonably dangerous" to the user

or consumer or to his or her property is subject to liability. Thus, strict liability is closely identified with the concept of "unreasonable dangerous."

The "reasonable person" whose behavior is made the standard is an imaginary person, vague and elusive. The standard is purposely a variable one, because it is not possible specifically to define in advance what a reasonable person would do in any individual case. The reasonable person is not to be identified as an ordinary individual, nor is he a juror or an average of what jurors would do. Yet, he is a prudent and careful person and the personification of reasonable behavior as determined by the jury's social judgment.

It is also not possible to set down a standard definition to determine in a concrete way what constitutes an "unreasonably dangerous" product. To engineers and manufacturers used to having clear definitions and rules for operation, this vagueness can prove frustrating. It has also proved to be difficult for the courts.

2 Negligence

Negligence has been defined as "conduct which involves an unreasonably great risk of causing damage." Alternatively, it has been described as conduct "which falls below the standard established by law for the protection of others against unreasonably great risk or harm." To make out a cause of action in negligence, it is not necessary for the plaintiff to establish that the defendant either intended harm or acted recklessly in bringing about the harm. The test requires that the conduct of the defendant be measured against a norm. The norm that has been established by the courts is the "reasonable person" test.

All human activity involves an element of risk. The defendant's conduct is deemed negligent only when it falls below what a "reasonable" person would have done under similar circumstances. It could be argued that such a standard would be too vague for courts to use in everyday litigation, but in fact it provides a flexible tool for judging behavior. The flexibility that is the benchmark of the negligence standard is achieved by allowing the interplay of three factors. In every negligence action the court must consider (a) the probability of the harm's occurring; (b) the gravity of the harm, if it should occur; and (c) the burden of precaution to protect against the harm, that is, what the manufacturer might have done to minimize or eliminate the hare. The more improbably that the defendant's conduct will result in harm, the less reason he has to protect against it. The two aforementioned factors must be weighed against the "burden of precaution," the cost of preventing harm. The negligence principle realizes the existence of real risk associated with product use. The real question that must be answered in each case is whether the risk is justified.

In assessing the manufacturer's conduct, the negligence test focuses on the technology and information available to him at the time of manufacture of the product. The plaintiff can allege a cause of action based on what a reasonable manufacturer should have known about products manufactured at the time the defective product was produced. The reasonable manufacturer is expected to maintain an awareness of industry-wide standards and improving technology. At the same time even an entire industry may be found negligent for the continuation of unacceptable standards. Negligence may be imposed for the failure of an industry to adopt or undertake technological improvements.

Since the determination of negligence arises on a case-by-case basis, initiated by a plaintiff who seeks recovery for harm done to him by a defective product, it is possible that the same conduct may be judged both negligent and non-negligent in two different legal proceedings. The issue is not left to the vagaries of the jury. If a judge reaches the conclusion that the core concept of "reasonableness" has been met, based on precedents set in similar decisions, he will direct a verdict for the defendant manufacturer. Thus, a manufacturer may take guidance from the general flow of product cases about whether his future conduct will be judged substandard. Based on the results of litigated cases, a sense can be developed about the considerations that determine an acceptable level of risk.

Evidence that a manufacturer has met self-imposed standards, voluntary consensus standards, or even statutory standards is significant in a negligence action. However, such evidence alone does not establish that a manufacturer is non-negligent. These standards are often used as a minimum, not as optimum, for establishing the "acceptable" conduct. Regardless of existing standards, either industrial or

governmental, the final responsibility for reasonable behavior lies in the hands of the manufacturer.

3 Strict Liability and Implied Warranty

3.1 Strict Liability

In 1964 the concept of strict liability emerged as an alternate avenue for establishing an action in products liability. The clearest expression of the strict liability concept is found in the Restatement (Second) of Torts, Section 402A. It reads:

> One who sells any product in a defective condition unreasonably dangerous to the user or consumer or to his property is subject to liability for physical harm thereby caused to the ultimate user or consumer, or to his property if the seller is engaged in the business of selling such a product, and it is expected to and does reach the user or consumer without substantial change in the condition in which it was sold.
>
> The rule stated in Subsection (1) applies although the seller has exercised all possible care in the preparation and sale of his product, and the user or consumer has not bought the product from or entered into any contractual relation with the seller.

The differences between the negligence and strict liability theories are significant and encompassing. In deciding whether a product is or is not unreasonably dangerous, the focus in strict liability is on the product and not on the conduct of the manufacturer. The shift from negligence to strict liability requires that the inquiry be focused on the product and its use and away from what the manufacturer should or should not have done or perceived.

Under the theory of strict liability it is no defense that the manufacturer acted reasonably. If the product is in fact unreasonably dangerous and it caused the plaintiff's injury, the manufacturer can be held liable. Liability will attach even though "the seller has exercised all possible care in the preparation and sale of his product," and it will be to

no avail for the defendant to argue that better quality control procedures are prohibitively expensive in a production defect case.

If the plaintiff claims that the defendant's product is defective because of a design feature, it is imperative, as in theory of negligence, to weigh the burden of precaution to protect against the harm with the probability and severity of the harm. In testing a design defect these basic considerations, balancing the probable risks inherent in the use of the product against its utility, remain common to both the negligence and strict liability causes of action.

The need for an external standard is obvious because the design of a product cannot be measured against the manufacturer's own internal standard. By definition in a design defect case the manufacturer has met his own internal standard. The difference between negligence and strict liability in a design defect case is a subtle one. The key to understanding the difference is again the distinction between defendant conduct and product performance. Negligence questions the reasonableness of the manufacturer's conduct at the time that the product left his hands. Strict liability focuses on the reasonableness of the product in the environment of its use.

Another major distinction between negligence and strict liability theory arises from the potential liability of defendants in the distributive chain. Under strict liability, any seller who has sold the product in a defective condition will be held liable to the plaintiff for his injury. The potential liability exists for the retailer, the wholesaler, and the distributor, as well as the manufacturer. In addition the manufacturer of a component part of the final product is also potentially liable. The only caution is that the product that caused injury must have left the hands of the particular defendant containing the

"defective" condition complained of. If the plaintiff is able to establish that a component part of a product left the hands of the component-part manufacturer in a defective condition and was later assembled into the final product, the component-part manufacturer can be held liable, as well as the assembler of the final product. The distributor, the wholesaler, and the retailer, will be held liable, even though there is no duty upon them to inspect the product and even when there is no way in which they could have learned of the defective condition. Under the negligence theory many of the members of the distributive chain would not be at fault, since there would be no practical way from them to inspect and discover the defect. They would have been acting "reasonably" in failing to inspect. Since strict liability focuses, not on the conduct of any party, but rather on the condition of the product in its use conditions, liability may attach to any member of the distributive chain regardless of the reasonableness of his conduct.

3.2 Implied Warranty of Merchantability

A parallel guarantee of product quality, similar to that of strict liability, is given to the user or consumer by the Uniform Commercial Code (UCC), Section 2-314. The code has been adopted in all states except Louisiana, and by the District of Columbia and the Virgin Islands. The Section reads as follows:

> Unless excluded or modified, a warranty that the goods shall be merchantable is implied in a contract for their sale if a seller is a merchant with respect to goods of that kind. Under this section the serving for value of food or drink to be consumed either on the premises or elsewhere is a sale.
>
> Goods to be merchantable must be at least such as pass without objection in the trade under the contract description; and in the case of fungible goods, are of fair average quality within the description; and are fit for the ordinary purposes for which such goods are used; and run, with the variations permitted by the

> agreement, of even kind, quality and quantity within each unit and among all units involved; and are adequately contained, packaged, and labeled as the agreement may require; and conform to the promises or affirmations of fact made on the container or label if any.
>
> Unless excluded or modified (Section 2-316) other implied warranties may arise from course of dealing or usage of trade.

Although the interpretation of this section of the UCC by the courts is somewhat unclear, there is general agreement that Section 2-314, which defines an implied warranty of merchantability, provides the same consumer protection as the Restatement requirement that a product be reasonably safe. In proceeding under the UCC (a statute designed primarily for commercial entrepreneurs and not directed specifically to consumers), special care must be taken to comply with all the requirements set forth by the complex provisions of the code. For example, the failure of an injured party to give notice of a defect in a product to a manufacturer with a reasonably time after his injury may prevent his ability to bring suit. In addition the common practice of manufacturers to disclaim the implied warranty of merchantability must be given special consideration. When the plaintiff proceeds under the UCC, he may be face with an argument that the disclaimer prevents his recovery. Courts have differed sharply on whether a disclaimer between parties has suffered personal injury. The validity of the disclaimer between parties of unequal bargaining power has been seriously questioned. There is a real ambiguity in the Code on this subject. There is, however, no question that strict liability admits of no disclaimers of any kind.

3.3 *Express Warranty, Misrepresentation and Implied Warranty of Fitness*

3.3.1 Express Warranty and Misrepresentation

The previous discussion has focused on legal theories requiring that the plaintiff establish some form of product defect. There is an alternate theory for recover that does not require the establishment of a defect. It is then not necessary to establish that the product is unreasonably dangerous. Where a seller expressly warrants or represents that a product has certain characteristics or will perform in a certain manner and the product fails to meet the seller's own warranty or representations, then, if the buyer can prove that his injury resulted from the failure of the product to meet the warranty, liability is established. The Uniform Commercial Code provides states as follows:

> Section 2-313. Express Warranties by Affirmation, Promise, Description, Sample Express warranties by the seller are created as follows:
>
> Any affirmation of fact or promise made by the seller to the buyer which related to the goods and becomes part of the basis of the bargain creates an express warranty that the goods shall conform to the affirmation or promise.
> Any description of the goods which is made part of the basis of the bargain creates and express warranty that the goods shall conform to the description.
>
> Any sample or model which is made part of the basis of the bargain creates an express warranty that the whole of the goods shall conform to the sample or model.
>
> It is not necessary to the creation of an express warranty that the seller use formal words such as "warrant" or "guarantee" or that he have a specific intention to make a warranty, but an affirmation merely of the value of the goods or a statement purporting to be merely the seller's opinion or commendation of the goods does not create a warranty.

There is often a discrepancy about whether a certain statement is a warranty or a representation, or whether it is merely exaggeration. The point at which representation of the qualities becomes a warranty rather than an embellishment depends on the nature and strength of the representations. No hard and fast rules exist about where the line is drawn. It is a question of good common sense.

The caution to manufacturers not to oversell the product is important. If a manufacturer markets beyond the capability of the product to perform, liability may result. This will be true even though the manufacturer honestly believes in the truth of the representations and is reasonable in his belief. An express warranty is a form of absolute liability.

3.3.2 Express Warranty

There is yet another representation theory. The UCC Section 2-315 expresses it as follows:

> Express warranties by the seller are created as follows:
>
> Any affirmation of fact or promise made by the seller to the buyer which relates to the goods and becomes part of the basis of the bargain creates an express warranty that the goods shall conform to the affirmation or promise.
>
> Any description of the goods which is made part of the basis of the bargain creates an express warranty that the goods shall conform to the description.
>
> Any sample or model which is made part of the basis of the bargain creates an express warranty that the whole of the goods shall conform to the sample or model.
>
> It is not necessary to the creation of an express warranty that the seller use formal words such as "warrant" or "guarantee" or that he have a specific intention merely of the value of the goods or a

> statement purporting to be merely the seller's opinion or commendation of the goods does not create a warranty.

3.4 Strict Liability in Tort

Until recently, any personal injury or liability claim was predicated upon the basic theories of negligence or breach of warranty. However, as changes in the methods of marketing and distribution have come about, the law too has changed and a legal concept has evolved designed to protect the remote consumer. It provides for recovery of damages by an injured user without the need for compliance with the strict requirements of the negligence and warranty law and without twisting other theories.

This legal concept is the theory of Strict Liability in Tort. The law on strict liability has been published in Section 402A of the Restatement of Torts, and the substance of the restatement is as follows:

> One who sells any product in a defective condition unreasonably dangerous to the user or consumer or to his property is subject to liability for physical harm thereby caused to the ultimate user or consumer, or to his property, if:
>
> The seller is engaged in the business of selling such a product, and it is expected to and does reach the user or consumer without substantial change in the condition in which it is sold.
>
> This applies even though the seller has exercised all possible care in the preparation and sale of his product, and the user or consumer has not bought the product form or entered into any contractual relation with the seller.

Breach of express warranty occurs when the product does not meet the representations made by the manufacturer with the result that damage or injury occurs.

Liability to the producer can accrue if the buyer can prove that his damages resulted form the failure of the product to meet the warranted representations.

It is not necessary that such representations be made in writing. Any language which accompanies the product becomes the potential basis for an express warranty. Photographs, display material, and manuals accompanying a product can also form the basis of an express warranty. It is important to display the product as it should actually be used rather than under circumstances which would extend its use to the point of being hazardous.

A tort is a wrongful act or a failure to exercise due care resulting in injury, from which civil legal action may result. A tort is often defined as a civil wrong independent of contract. Tort law establishes standards of human conduct and of duty, for whose breach the law provides a remedy.

The law or torts seeks to provide compensation to members of society who suffer losses because of dangerous or unreasonable conduct of others. The tort theory of negligence is one of the most important in the context of product liability. Negligence occurs when one person fails to fulfill a duty owed to another or acts with less care than would a reasonable and prudent person under the circumstances. Absence of an intent to cause harm is a distinguishing characteristic of negligence. For the tort of negligence to be recognized as a cause of action, two elements must be present, a duty or standard of care recognized by law and a breach of the duty of requisite care, and the breach of duty must be the proximate cause of harm or injury.

The standard for negligence is what a "reasonable" person would have done. The elusive, imaginary reasonable person and the parallel legal concept of unreasonable risk or danger are concepts that the courts have grappled with for centuries.

Although breach of express or implied warranty has played an important role in the development of product liability theory, today the manufacturer is more likely to be sued in tort. This means either negligence or strict tort, the basic difference being that in negligence the litigation focuses on the conduct of the manufacturer (duty and care), whereas in strict tort the litigation focuses on the properties of the product (defective and unreasonable dangerous).

Under either of these two tort theories, there are similar areas in which engineering and management are vulnerable. These are the following:

1. Design
2. Manufacturing and materials
3. Packaging, installation, and application
4. Warning and labels (Peters, 1971)

4 Deceit, Misrepresentation, False Advertising

In all three of the actions named above, as in actions based on breach of warranty, it is plaintiff's grievance that he has relied upon a statement that was made to him which turned out to be inaccurate, misleading or otherwise incorrect.

4.1 Deceit

In the common-law deceit action, it must be additionally shown that the defendant was aware, to some extent, of the falsity or inaccuracy of the statement he made. The action of deceit usually requires a false representation of fact which the defendant knows or should have known to be false and which is intended by the defendant to induce the plaintiff to act, or refrain from action, in reliance thereon. If the plaintiff does rely on this misrepresentation, his reliance is reasonably, and as a result he incurs damage, he may be able to recover. The action for deceit must be distinguished from the contract action in a warranty situation which does not necessarily require defendant's knowledge of the falsity of the statement or an intention to mislead. The usual type of misrepresentation involved in the tort of deceit is an affirmative statement which is false. However, some products cases have involved statements that may be characterized as "half-truths," representations that are not false in themselves but which have concealed essential facts. Often a duty to reveal concealed knowledge arises out of some sort of special relationship between the parties. The defendant must be aware of the false nature of the statement he is making, or at least be consciously aware that he was ignorant of the truth at the time he held himself out as knowledgeable enough to make a representation of true fact. Negligence in making a misstatement of fact may not amount to an intentional

misstatement so as to constitute the tort of deceit, but may in itself amount to another category of tort, that of negligent misrepresentation.

4.2 Negligent Misrepresentation

In negligent misrepresentation cases, the elements of intent to deceive the injure person and reliance by the injured party, which are essential in actions of deceit and similar intentional torts, are less important. It is because of this that it is very difficult to distinguish between those facts which will give rise to the action in negligent misrepresentation and those situations from which the traditional negligence action base upon theory of inadequate warnings will arise. The line between breach of warranty and the tort of misrepresentation is also a thin one and both counts should be considered by counsel when the facts appear to support them.

In general, even a representation made with an honest belief in its truth may be negligent if the party has not exercised reasonably care in ascertaining the facts, fails to disclose known facts, or does not have the skill or knowledge required by a particular business or profession and in spite of that makes a representation of fact which the injured party relies on. In any case, misrepresentation of fact must be distinguished from expressions of opinion, mere "puffing," or "sales talk," for which the seller may not be liable.

Contributory negligence, assumption of the risk, and product misuse should be available as a defense when the action is grounded in negligence, but contributory negligence is not generally recognized as a valid defense to the tort of deceit. In addition, lack of privity should not be regarded as a valid defense to either of these actions, even in those states which still require privity in warranty actions.

4.3 False Advertising

In those states which have enacted false advertising statutes, plaintiff may attempt to recover on the theory that defendant retailer, manufacturer, or packager has made false representations of safety, amounting in effect to negligent advertising. Under applicable statutory provisions, the manufacturer is prohibited from using false and deceptive advertising with intent to promote his product's sales. Oftentimes the statute may provide that the false and misleading advertising constitutes a criminal offense. Statutes such as these are often used, and indeed should be available to those aggrieved consumers who cannot otherwise prove negligence and cannot show privity. The problem is that not all courts are willing to permit such statutes, usually criminal in nature, to be used for such purposes.

5 Factors Associated with Product Liability

Factors leading to liabilities, whether they are imposed on the basis of negligence or strict tort, are usually based on the following premises:

1. A concealed danger has been created by the design.
2. Needed safety devices have not been included in the design.
3. The design involved materials of inadequate strength or failed to comply with accepted standards.
4. The designer failed to consider possible unsafe (hazardous or dangerous) conditions due to abuses or misuse of the product which were reasonably foreseeable.

5.1 Production and Design

An irregularity in the state, quality, or condition of a product is termed a "flaw." If that flaw is judged substandard within the context of litigation, then the flaw may be said to have emerged as a defect. Whether it is among the expected fraction of products that does not meet prescribed manufacturing standards or results from the inadvertent act of an employee, the production flaw is what arises when a given product of an entire line fails to meet the standards met by the majority of the these products. Despite the existence of sophisticated quality control procedures, products flawed during the manufacturing process will find their way to the market place.

Products can be flawed even if they are made precisely according to manufacturing standards. The design flaw is what exists in all products of that make or model. The absence of a guard on a machine or device is the typical design flaw. Among other possible design flaws are the intentional selection of a certain material, the location of a particular feature, the size of a given part, or the absence of a warning.

The distinction between production errors and design flaws is not always clear. While at the two extremes of the frequency at which flaws occur, the distinction between

design and production has meaning, it must be recognized that there exists a gray area in which the distinction becomes blurred.

5.2 Utility and Function

In addition to the design factors product utility and product function should be considered from the liability standpoint.

> Utility-"A product is useful if it functions as planned and is not injurious to morale, good health or good order."
>
> Function-"Sound functional design assures that a product will satisfactorily operate for a reasonable period of time in the manner intended." (Colangelo, 1981)

These factors not only complement the other phases of design but give the designer an opportunity to further analyze possible hazards in the design or product. If possible hazards are discovered and considered at the beginning stages of the manufacturing cycle, and the usefulness or need for the product appears to balance the risk of harm, the designer must examine ways to alleviate the risks or hazards. A thorough documentation of the procedures used to balance the risks and utility of a product can be very beneficial to a manufacturer, especially if product liability becomes an issue in the future.

5.2.1 Labels and Warnings

The growing trend in products liability law is to try cases on the basis of "failure to warn." The solution, when in doubt, use a warning. Safety warnings are relatively inexpensive and should be used to address risks that cannot, for reasons of cost or usefulness, be eliminated from a product.

The incorporation of labels and warnings is a consideration to be addressed in the design stage. Such warnings can be effective in reducing product liability. The addition of the warnings after problems have occurred in use leaves something to be desired and may be used as an argument for liability. Warnings and labels should not be considered if a hazard can be economically eliminated from component by a design change. Such arguments would certainly be deliberated by a jury in a product liability suit.

Warnings and labels are useful and effective in many instances. However, they are not a panacea. They should be used only when no other reasonable means exists for reducing the risks associated with a product or design.

Another aspect of this are of product liability is the use of contradictory warnings, warning statements that restricts or prohibits a product from being used in a typical or reasonable manner. Adherence to these warnings would eliminate the hazard but it would also eliminate the function of the device, thus rendering it valueless as a useful tool.

Certain warnings and safety information on consumer products is required by law under the following legislation: the Federal Hazardous Substances Act (including the Child Protection and Toy Safety Act), the Poison Prevention Packaging Act, the Flammable Fabrics Act, and the Refrigerator Safety Act.

Generally, labeling serves to warn consumers or users at the time they purchase a product that certain hazards are involved. The warnings and precautions on such labels may indicate to a consumer or user that alternative products may be available which are safer to use. If a consumer uses a product which presents a hazard, the label should provide explicit directions for the safe use of the product, particularly in the case of an

obviously risky product, labels should indicate remedial action in the event of accident or injury. Labeling should be responsive to the potential consumer or persons who may come in contact with a product and the message or warning must be easily understood.

5.2.2 Misuses and Abuses

The designer has to go one step further than designing a product to be functional and safe. He must also design against foreseeable misuse. Depending on the particular product or design involved, it may be possible to anticipate a number of improper uses and perhaps abuses. These conditions should be thoroughly explored and considered as potential product liability problems. Failure to do such may result in trouble.

The best warnings in the world will not prevent product liability. Defect-free parts are occasionally involved in product liability litigation. History has shown that rather than argue the merits of a case in court, the manufacturer often opts for settlement before the case reaches trial.

5.2.3 Safety Features and Devices

The willingness of courts to accept frailties in human behavior and understanding is the reason why manufacturers have been unsuccessful in persuading the courts that liability should be limited to intended use of their products. The focus has been place on the product no matter who buys it or eventually uses it. The result is that the courts are favoring the position that safety devices and guards should be built into the basic product, not available as optional equipment.

For safe and reliable operation, hazards should be eliminated or minimized in the design stage. However, if the hazards are not eliminated for some reason, safety devices

or guards are a must. The eventual users of such equipment must be educated or trained in proper use o such devices.

Certain equipment must be guarded according to OSHA regulations (Title 29, Code of Federal Regulations, Part 1910-Safety and Health Standards for General Industry), especially machinery and power tools. Guarding requirements differ in their particulars according to the machine, but all machines are covered under the general clauses [1919.212(2)(1)]:

> One or more methods of machine guarding shall be provided to protect the operator and other employees in the machine area from hazards such as those created by nip points, rotating parts, flying chips, and sparks. Examples of guarding methods are: barrier guards, two-hand tripping devices, electronic safety devices, etc. (Colangelo, 1981)

Although manufacturers are incorporating some safety features in their products, many devices are left as options. Extra equipment poses an economic question to a manufacturer, as well as a technological problem to the engineering and design personnel. The increased costs must be passed along, in part, to the consumer, who may or may not appreciate the safeguards. If a safety device is definitely warranted, it is up to the designers, engineers and manufacturers to produce an adequate mechanism at the least cost.

5.2.4 Unforeseen Service Conditions

There are occasional instances where a product is not abused or misused but simply fails because of unforeseen operating or environmental conditions. If such a situation is the act of a higher authority than man, then perhaps there is no possible

earthly liability. However, if the unforeseen service condition is not an act of God, it may have material or design implications.

6 The Appropriate Defendant

6.1 Overview

The thrust of strict tort liability was originally toward the manufacturer. It was at the point of design and manufacture where safety could best be enforced. However, the marriage of implied warranty and strict tort liability into one common theory has accomplished a result that includes every seller in the distributive chain as a possible products liability defendant. Unlike negligence, where the tort is the negligent conduct of the defendant (whether he is retailer, wholesaler, or manufacturer), the tort in strict products liability is the sale of a defective product. It the defendant was the seller of the defective product and the product was the cause of the injury, the cause of action has been made out. It must be established that the defect existed when the product left the hands of the defendant. This is the thrust of strict tort liability and implied warranty. The reasons for expanding the number of strict liability defendants to include every seller of a defective product up and down the distributive chain is set forth in Restatement of Torts, Section 402A (c).

> On whatever theory, the justification for the strict liability has been said to be that the seller, by marketing has product for use and consumption, has undertaken and assumed a special responsibility toward any member of the consuming public who may be injured by it; that the public has the right to and does expect, in the case of products which it needs and for which it is forced to rely upon the seller, that reputable sellers will stand behind their goods; that public policy demands that the burden of accidental injuries caused by products intended for consumption be placed upon those who market them, and be treated as a cost of production against which liability insurance can be obtained; and that the consumer of such products is entitled to the maximum of protection at the hands of

someone, and the proper persons to afford it are those who market the products.

6.1.1 Distributive Chain

The imposition of strict tort liability or warranty requires that the defendant be engaged in the business of selling. The occasional noncommercial sale is not covered under strict liability. In such an instance the plaintiff would be required to prove that the noncommercial seller failed to act reasonably (negligent). The clearest expression of this principle is set forth in Restatement of Torts, Section 402A (f).

> Business of selling. The rule state in this Section applies to any person engaged in the business of selling products for use or consumption. It therefore applies to any manufacturer of such a product, to any wholesale or retail dealer or distributor and to the operator of a restaurant. It is not necessary that the seller be engaged solely in the business of selling such products. Thus the rule applied to the owner of a motion picture theatre who sells popcorn or ice cream, either for consumption on the premises or in packages to be taken home.
>
> The rule does not, however, apply to the occasional seller of food or other such products who is not engaged in that activity as a part of his business. Thus it does not apply to the housewife who, on one occasion, sells to her neighbor a jar of jam or a pound of sugar. Nor does it apply to the owner of an automobile who, on one occasion, sells it to his neighbor, or even sells it to a dealer in used cars, and this even though he is fully aware that the dealer plans to resell it. The basis for the rule even though he is fully aware that the dealer plans to resell it. The basis for the rule is the ancient one of the special responsibility for the safety of the public undertaken by one who enters into the business of supplying human beings with products which may endanger the safety of their persons and property, and the forced reliance upon that undertaking on the part of those who purchase such goods. This basis is lacking in the case of the ordinary individual who makes the isolated sale, and he is not liable to a third person, or even to his buyer, in the absence of his negligence. An analogy may be found in the provision of the Uniform Sales Act, 15, which limits the implied warranty of merchantable quality to sellers who deal in such goods; and in the

> similar limitation of the Uniform Commercial Code, 2-314, to a seller who is a merchant. This Section is also not intended to apply to sales of the stock of merchants out of the usual course of business, such as execution sales, bankruptcy sales, bulk sales, and the like.

The case law thus far supports the imposition of strict liability against the following members of the distributive chain:

1. Producer of the raw material.
2. Maker of a component part.
3. Assembler or subassembler.
4. Packager of the final product.
5. Wholesaler, distributor, or middleman
6. One who holds the product out to be his own.
7. Retailer. (Swartz, 1973)

In each instance the plaintiff must establish that the product was defective when it left the defendant's hands. With respect to a production defect this is easier said than done. For a product assembled from component parts supplied by a number of manufacturers, it may be fairly easy to establish that the assembled product was defective but to pinpoint the component part that contained the defect may be exceedingly difficult. The same problem exists with other members of the distributive chain. If the product could have been tampered with and the defect introduced after the defendant sold the product, he is not responsible for the after-acquired defect. Thus, adding defendants to the list of persons who may be sued for strict tort liability is not a guarantee of recovery even if the product was defective. It is not necessary that the defect manifest itself immediately. If the defect is a slumbering one that does not become evident until the

product has been put to some use but it is still possible to identify that the defect was present in the product at the time of manufacture or sale, liability can attach.

6.2 Other Defendants

6.2.1 Defendant Sellers of Used Products

The question of whether strict liability applies to the sale of used products is most difficult. To the extent that products liability law responds to the disappointed expectations of the consumer, it is clear that reasonable consumers would have adjusted their expectations concerning used products. Consumers shouldn't expect product performance of a used product to match that of a new one. On the other hand the concept of unreasonable danger responds to the question of the defectiveness of the product at the time of sale. It may very well be that a used product is defective and unreasonably dangerous at the time of sale. Although courts have refused to recognize the legal validity of disclaimers concerning the sale of new products, much has been said about permitting the disclaimer to have legal effect pertaining to the sale of used products.

6.2.2 Defendant Lessors, Bailors, and Licensors of Product

The concept of strict liability in tort or the implied warranty of merchantability had their origin in normal sales transactions. Modern marketing arrangements have led the courts to apply the strict liability rule to sales-like transactions. Lessors, bailors and licensors of product are all additions to the list of strict liability defendants. Precedence has dictated that all the policy reasons for applying strict liability to manufacturers and sellers applies equally to commercial lessors. Strict liability against lessors is supported by the following considerations:

1. In some instances the lessor, like the seller, may be the only member of the marketing chain available to the injured plaintiff for redress.

2. As in the case of the seller, imposition of strict liability upon the lessor serves as an incentive to safety.

3. The lessor will be in a better position than the consumer to prevent the circulation of defective products.

4. The lessor can distribute the cost of compensating for injuries resulting from defects by charging for it in his business. (Weinstein, 1978)

6.2.3 Defendant Real Estate Suppliers

Products liability law is generally thought of as concerning itself with defective and dangerous movable property. However, strict liability has been applied to the sale of new homes by a builder-vendor. In seeking to impose strict liability upon the builder-vendor the court was faced with a well established rule that the seller of real property implies no warranties at all. In the absence of fraud or misrepresentation, the vendor is liable only for express warranties that he makes about the property.

6.3 Contribution and Indemnity

The potential liability of all members of the distributive chain in a products liability action based on implied warranty or strict liability action based on implied warranty or strict liability has already been discussed. The umbrella of liability can cover component-parts manufacturers, assemblers, wholesalers, distributors, retailers, and in some cases suppliers of basic materials from which the product is made. In each instance to prove that the product left the hands of the given defendant in a defective condition, unreasonably dangerous to the ultimate user or consumer. It should be clear that in most instances the defect was created by one of these parties only. Ultimately, the blame is

traced back to the defendant who was actually responsible for creating the defect in the product.

In some instances the plaintiff may suffer injury as a result of the combination of the action of a defective product and a negligent defendant. Where the liability of both parties is due to negligence, most jurisdictions will permit contribution between joint tortfeasors. This means that, if one party has been compelled to pay the entire amount, the other negligent party is required to contribute a share of the damages. The exact formula for sharing differs among the states, but the rule of contribution generally governs. Where one party is liable for strict liability and the other for negligence, it is not yet clear that the normal rules for contribution will apply. Case law is as yet unclear about how this problem will be resolved.

7 Expert Witness and The Engineer

7.1 Expert Witness

An expert witness is a person with knowledge and technical ability in a given field, gained through education or experience, and the ability to articulate this knowledge, which makes this person more of an authority on the subject than the layman. Almost every serious product liability suit involves engineering expert witnesses. These engineering experts are needed to assess the evidence necessary to establish or refute the defect and causation issues.

The obvious source of expert witnesses for the defense of a product is the engineering staff of the manufacturer. Nobody knows more about a product then the engineers who designed and manufactured it. The project engineer who led the design team should be well qualified to defend it. The chief engineer of the company or someone of comparable stature also may act as an expert witness for the defense, but he will certainly rely heavily upon information provided by the project engineer.

The defense attorneys will often employ an independent outside expert in addition to the company experts. An outside engineering consultant can often bring a broadened perspective and experience into product liability investigation and litigation. The witness stand is no place for a company engineer who is inarticulate, temperamental, or unprepared for rugged cross-examination.

The identification of a plaintiff's expert witness having experience with a specific product is usually a more difficult task. There is no open market for such experts, and plaintiffs are thus forced to seek generalists such as consulting engineers, academicians, and technicians. In ver few instances will there be a precise matching of an expert's

knowledge and the plaintiff's particular need for expertise. Consequently, the expert will have to be capable of undertaking self-education in the particular aspects of the product in question.

The ideal expert witness is one who has not only a broad background in scientific and engineering subjects but also considerable practical experience in the specific physical phenomena involved in the accident.

7.2 The Engineer

The engineer may be use for accident reconstruction in which he applies scientific principles to the available facts to determine why the physical evidence appears as it does. This usually includes the development of a logical, time-sequenced chain-of-events that explains the facts as given. The engineer is often used for defect analysis, in which he may be able to identify the physical signs of misuses. The engineer may be use to furnish general background information that will help the attorney to understand the technical features of the case. Thus, the engineer can furnish and interpret trade standards, design practice manuals, material indicating the state-of-the-art and design alternatives available at the time of manufacture of the product, information on procedures for failure mode or design hazard analysis, and the availability and cost of special safety features. The engineer may be used to frame, answer, and interpret interrogatory items. He is of value in interpreting the engineering language used during the exchange of interrogatories. The engineer may be used to assist the attorney during the deposition process. The engineer may be used for factual clarification by talking with eyewitnesses. The engineer should be used to identify special test that need to be performed. He may perform certain test himself in order to answer specific questions, or

he may select an independent test laboratory with specialized equipment to perform certain narrowly defined tests. The engineer may also assist in the communications problems implicit in the attempt to convey an understanding or engineering knowledge to a jury. This is done by enlargements of photographs, specially prepared illustrations or diagrams, use of schematics and illustrated parts breakdown figures, motion pictures of test results, small size models, working mock-ups, or demonstrations with similar equipment.

8 Statutes of Limitation

Statutes of limitation are legislative enactments that limit the period within which a plaintiff is permitted to bring a lawsuit. Products liability has been fertile field for statute of limitations problems because these statutes are directed to various causes of actions. The law provides certain time periods for contract actions and other time periods for tort actions. The statutes of limitation begin to run upon the occurrence of different events. The contract statute usually begins to run upon sale or tender of delivery of the product, whereas the tort statute usually runs from the date of injury. Since products liability actions have their origin in both contract (warranty) and tort law, there has been much confusion about which statue of limitation should govern.

The present law on statute of limitations is of little comfort to manufacturers. Their major concern is that 10 or 15 years after a product has been marketed they may be the subject of a products liability action. The traditional tort statute of limitations gives no assurance of final repose to the defendant until several years after the injury. This results in what the legal profession has come to call the "long tail," which means that the manufacturer must wait an inordinate number of years before he can have any confidence that he will not be sued. Even the possibility of a suit remains, since it is always conceivable that even a very old product can be proved to have been defective at the time of sale. Several states have sough to resolve this problem by passing "final repose" statutes that bar any action for products liability after a certain number of years have passed from the time of sale. The trade-offs between relief to the manufacturing community and fairness to consumers raise sensitive issues and have not yet been articulated clearly. Final repose statutes tend to favor manufacturers of long-use items in

which the possibility of injury after many years is still very real. They provide little solace to defendants whose products tend not to be usable after their short life has passed. These defendants may still have to face the prospect of lawsuits resulting from injuries caused after the normal life of the product has run out but that are still within the final repose statue of limitations. To be sure, there may be legitimate substantive defenses to such actions, but the defendant will not have the luxury of the statue of limitations as a unquestioned bar to the action. This point out the problem with an across-the-board statute of limitations. It is an inexact and indiscriminate tool that may accomplish either too much or too little. Ultimately the answer to the question of statutes of limitations lies not in the legal response but with the manufacturer's response to the question of product life. Product life must become an important element of both design and marketing.

The majority of products liability cases today could be avoided if both the manufacturers and consumers did their part. It is the manufacturer's obligation to design and produce a safe product and the consumers responsibility to use the product as it was intended to be used in a safe and effective manner.

9 Case 1: John Frazier vs. S-B Power Tool Company

9.1 Deposition of John Frazier

John Frazier (75) of Braintree is a retired wire inspector of 12 years for the town of Braintree. John Frazier owned and operated Frazier Electric for 45 years before handing the company to one of his sons. Since his retirement in 1985, he has continued to work one day a week for Braintree Co-Op Bank inspecting property.

Prior to the accident in question, Mr. Frazier had claimed to have approximately 60 years of experience using power tools such as table saws, Skil saws and other such machinery.

In early February 1994, Mr. Frazier made one of many trips to California to visit one of his daughters who had purchased a new home there. Mr. Frazier's daughter asked Mr. Frazier if he could make some home improvements on their new home. On February 14th 1994, Mr. Frazier, accompanied by his daughter, purchased a 10" Skil table saw model # 3400 from the local Home Depot. Mr. Frazier assembled the table saw himself in a small workshop that he had built at his daughter's house just after his daughter moved in. Through examination, Mr. Frazier claimed that he had assembled the table saw without difficulty and had read the owner's operating guide prior to assembly of the table saw.

Mr. Frazier's daughter had asked Mr. Frazier to build such items as stools for their children, a birdhouse, weathervanes and a fence. Mr. Frazier was working on building a box to cover pipelines for outdoor pool and sprinkler systems. The box was to prevent the children from tampering with the water valves. Prior to Mr. Frazier's visit

where he was injured, Mr. Frazier had used the saw once to cut a piece of molding for his daughter's kitchen cabinet. It was not until approximately 4 months later that Mr. Frazier returned to California to build the wooden box. Before the accident Mr. Frazier had claimed that he had used the saw for approximately 7 to 8 hours, and that he was the only one to operate the table saw. During Mr. Frazier's deposition he stated that at no time did he ever make any repairs or adjustments to the saw in any form, including adjustments to the rip fence in question.

On the day Mr. Frazier had been injured, he stated that the weather was nice, and he had moved the table saw out onto a concrete patio outside the workshop. He claimed that the concrete patio was level and safe for the table saw to be operated on. According to Mr. Frazier, he was ripping a piece of 1"x 6" pine stock for the corner of the wooden box. After one initial cut, the piece apparently fit "snug", so Mr. Frazier returned to the table saw to trim the piece of pine. According to Mr. Frazier, he was proceeding in ripping the piece of pine when suddenly the piece of wood began to lift and then "All hell broke loose." Mr. Frazier claimed that the piece of wood had begun to jump off the table. The next he knew he saw that his hand had been severed by the blade. He then proceeded to pick up the detached fingers, wrap his hand in a shop rag, and went to the street to get a ride to the hospital. He was then taken to West Lake Medical Center, where he was then transferred to another Hospital for surgery. When Mr. Frazier returned to his daughter's house approximately 5 days after the accident, the table saw had been wrapped in it's cover and placed against the house on the outside.

When Mr. Frazier returned to examine the table saw approximately 6 days after the accident, he claimed to have noticed that the rip fence was not properly aligned on the

table saw. This was the first he noticed that the rip fence was out of adjustment. He stated that the fence was not lined up with the groves on the table saw. When questioned about the aligning of the rip fence, Mr. Frazier again clearly stated that at no time did he ever make any adjustments to the rip fence since he purchased the table saw, claiming that the rip fence didn't need any adjustments.

Mr. Frazier suffered serious lacerations to 4 of his fingers. After several operations to try to restore use of his left hand, he still only has limited use of his hand, with only his thumb and pinky finger. Mr. Frazier still experiences pain in his left thumb and is now unable to enjoy many of the hobbies and everyday chores he performed prior to his accident. Mr. Frazier can no longer play the guitar or tie his shoes, along with other every day chores that are taken for granted.

This concludes the deposition of John Frazier.

From Mr. Frazier's deposition, Mr. Frazier clearly established to our group that he had significant experience in using power tools such as the table saw in question, along with other tools of the trade. Although Mr. Frazier had little experience with this table saw prior to his accident, he had 60 years of experience using similar devices and claimed to have a good understanding of the dangers present in using a table saw.

There were a few portions of Mr. Frazier's deposition that our group found quite interesting to this case. For example, Mr. Frazier claimed that he had read and fully understood the owner's operating guide prior to using the table saw. Mr. Frazier also stated in his deposition that he never at any time adjusted or aligned the rip fence that came with the table saw prior to his accident. One very important question arose among our group at this point in the deposition. *If Mr. Frazier had read the owner's operating*

guide prior to operating the table saw, why did he not properly align the rip fence as so instructed in the operator's manual? Also, The owner's operating guide stated that the operator must periodically check the kickback pawls to ensure that they are not too worn to perform properly. Mr. Frazier stated that he never checked the pawls for wear prior to his accident. Again, *If Mr. Frazier had read the owner's manual, why did he not check the pawls for wear to ensure they would work properly?*

In Mr. Frazier's deposition he claimed that all safety devices were in place and working properly at the time of his accident. This includes the kickback pawls and the guard that prevents hands from getting in contact with the blade. Now Mr. Frazier claims that he was ripping the piece of wood and suddenly "all hell broke lose" and he claims to not have any recollection of exactly what took place next. The next question that arose among out group was: *If Mr. Frazier did indeed have his hands located where he specified, and the proper guards were in place, how did his hand come in contact with the saw blade in the manner it did?*

After Mr. Frazier's accident, when he returned to California where the saw was still located, Mr. Frazier claimed that the saw was still set up exactly how it was when the accident occurred. When further questioned about the matter, he then claimed that his daughter or son-in-law had moved the table saw, removed the rip fence and cleaned up the blood, and now the rip fence was just lying on the table saw. Although this may not be a significant point in the case, it questions the validity of Mr. Frazier's testimony slightly. One final question we asked ourselves after completing Mr. Frazier's deposition. *If upon returning to California after his accident he immediately noticed that the rip fence was not aligning properly, why did he not notice it when he was operating*

the table saw? Our interpretation to these questions will follow the discussion of Mr. Domeny's deposition.

9.2 Deposition of Peter Domeny

Peter Domeny was called on behalf of the plaintiff to give his deposition involving the case of John Frazier. Peter Domeny worked for Skil Power Tool Co. from 1969 to 1992. In 1992 the Skil Co. became the S-B Power Tool Co, where Mr. Domeny continued to work as the director of the product safety department for 5 years. The table saws sold by S-B Power Tool Co. were actually built by P&F Corporation in Taiwan. Mr. Domeny stated that some changes were made to the design set forth from P&F Corporation relating to the rip fence and kickback pawls used on the table saw in question. Mr. Domeny stated that the changes to the rip fence focused mainly on the clamping mechanism. The original unit made by P&F Corporation did not have the guardrail up front that are attached to the table. Skil Company made the changes in the clamping mechanism prior to the selling of the product.

Mr. Domeny claimed that the only reason for the change of the kickback pawl geometry was to match SPD Emerson's design, for simplicity. The change occurred so S-B could use the pawls from SPD Emerson. This allowed S-B to market the same product as SPD Emerson, and it was simpler to make one unit and have common parts among the two sister companies. Mr. Domeny claimed that the change in no way induced by a flaw in the present design and was not brought about by a defect in the kickback mechanism as it existed.

This particular model table saw the model 3400, was advertised as having a self-aligning rip fence. By a self-aligning rip fence, Mr. Domeny stated as read from the

owner's manual that once the user aligns the rip fence, it would repeat alignment there after to the accuracy at which first set by the user. In Mr. Domeny's deposition, he states how the owner's manual explains the process of properly aligning the rip fence to assure self-alignment, as well as explaining how to prevent injury from kickback. Mr. Domeny claims the he has given approximately 130-160 depositions in cases involving personal injury, however none of them have pertained to the model in question in this case, the model 3400.

According to Mr. Domeny, S-B Power Tool Co. had run tests on their rip fence and kickback pawl mechanisms and found no flaws with the designs being used in the model 3400 table saw. When questioned about the allowable movement of the kickback pawls, Mr. Domeny stated that it was necessary for the kickback pawls to be allotted some lateral movement to allow for irregular shaped wood to pass beneath the pawls. Mr. Domeny stated that the pawls were tested and proved to be still affective at their furthest position off center and therefore saw no defect in the product.

When Mr. Domeny was asked to examine the table saw in question, he claimed that the kickback pawls were adequate and were not in need of replacing, nor defective. Mr. Domeny also stated that S-B Power Tools Co. are and were aware of the potential for injury if the rip fence was not properly aligned. S-B Power Tools Co. were aware that the possibility of the fence not properly aligning to the blade was possible. This is why the instructions clearly state how to correct problem of miss-aligning rip fence, along with how to properly utilize a push stick, and how the user should position his body to avoid injury in case of a kickback. This concludes the deposition of Peter Domeny.

In Mr. Domeny's deposition, he clearly stated that his familiarity with the table saw in question, as well as his experience in product safety for the product in question. When questioned about the manufacturing of the model 3400 table saw, Mr. Domeny stated that the saw was actually manufactured by a company in Taiwan called P&F Corporation. In Mr. Domeny's deposition, several questions arose about changes made to the table saw over the years of production, mainly to the rip fence and kickback pawls. Mr. Domeny stated that a Patrick Vdechofen, an employee of S-B CO, changed the rip fence design from the original design of P&F Corporation. Mr. Domeny stated that the change in the rip fence design was not due to a safety problem with the original design, however was unable to state why exactly the design was changed. Our First question was *Why was the design changed if not due to a safety issue pertaining to the rip fence?*

Changes also occurred to the kickback pawls in the mid 90's. Mr. Domeny claimed that the changes made to the pawls was only a change in the profile, simply to match and existing pawl made by SPD Emerson Company. Mr. Domeny claimed that to the best of his knowledge, the pawls made by SPD Emerson had been safety tested and that there were no safety problems with their pawls, so P&F Corporation began using SPD Emerson's pawls so the two products would be identical. Mr. Domeny stated in his deposition that S-B did no testing on the pawls to see if either of the pawls had an advantage over the other. Mr. Domeny just said that SPD Emerson had a history with their pawls, and S-B saw the history of their pawls so they chose to use SPD's pawl design since they were a bigger company with a longer history. The next question that arose was: *Why was there no testing performed with the two pawls to see if one had a safety advantage over the other?*

The final part of Mr. Domeny's deposition discusses the knowledge S&P Corporation had of the dangers of the table saw. Mr. Domeny clearly stated that he as well as the company was aware that the rip fence was fully capable of not properly aligning itself parallel with the saw blade. Mr. Domeny restated that if the instructions in the owner's operating guide were followed properly then the chance for miss aligning of the rip fence was minimal. The final question we had pertaining to Mr. Domeny's deposition was: W*ere the instructions in the owner's operating guide clear enough for the operator to follow?* And; *Was the rip fence in fact defective in that it would not properly align itself with the saw blade?* These are the questions our group must come to a census on.

9.3 Conclusions

After reading the depositions of Mr. Frazier and Mr. Domeny, along with the photos and various other information presented to us in this case, we were able to reach a reasonable conclusion of what we believe happened in this case. From the witnesses and information we have received, we believe that the fault lies with Mr. Frazier, and not S&P Corporation. We feel that it was through Mr. Frazier's own personal negligence, and not the negligence of S&P Corporation that Mr. Frazier was injured on May 14th, 1996. The following is our interpretation of what occurred.

Our interpretation of this incident is that MR. Frazier, while ripping the piece of 1x6 inch pine stock, realized that the piece of wood was getting bound up between the blade and the rip fence. At this point, Mr. Frazier reached behind the blade to attempt to grab the wood. Mr. Frazier attempted to pull the piece of wood away from the rip fence. By doing so he caused the teeth of the saw blade to dig into the wood, causing a kickback

to occur. When the blade grabbed the piece of wood and threw it back towards him, this is when Mr. Frazier's left hand was pulled into the saw blade from the rear of the table saw and his hand was injured. At this point we believe that he shut off the machine and proceeded to get help. This theory better explains how Mr. Frazier obtained the injuries that he did. The major question our group asked was: *How was it that if Mr. Frazier's hand was in front of the blade, how is it that his thumb and forefingers were cut first, and his pinky finger was unharmed?* If he was operating the table saw in the correct fashion, if his left hand were to slip the first finger to come into contact would be the pinky finger. The fact that this was not the case led us to believe that Mr. Frazier's left hand was behind the saw blade where it should not have been, and if he had not placed his hand there he would have avoided his injury.

One of the reasons we feel that Mr. Frazier's negligence caused his injury is that we feel that it is a strong possibility that Mr. Frazier did not have the blade guard and splitter assembly on the table saw at the time of the accident. If this safety apparatus had been installed, it would have been impossible for Mr. Frazier to gain access to the rear of the table saw and would have prevented his injury.

Also in his own deposition he states that he never at any time adjusted the rip fence. However he also stated that he read the entire owner's operating guide prior to using the table saw. If he had indeed read the owner's operating guide and the warnings posted with it, why is it that he never initially adjusted the rip fence as so clearly stated on page 13 of the owner's operating guide? It clearly states in the owner's operating guide that the self aligning rip fence will align to the accuracy it is first set at by the operator (See Appendix **??**). Our group feels that Mr. Frazier displayed negligence in

the areas of safety, which led to his injury. If Mr. Frazier had read and followed the explicit instructions (See Appendix **??**) to set the blade parallel to the miter gauge slots, aligned the rip fence, and properly assembled the blade guard as specified in the owner's operating guide, and read the warnings printed in the guide and on the table saw itself, we feel that this injury would not have occurred. Therefore we side with the defendant in the case of Frazier vs. S-B Power Tool Company.

10 Case 2

10.1 Introduction

Laura Hernandez was killed in a head on collision with Michael D. MacKenzie. Her family, represented by Laura's brother, Hector Hernandez, filed suit against Michael D. MacKenzie and Zachary S. Taylor. Taylor was the owner of the tractor-trailer truck that MacKenzie was driving on the day of the accident. The plaintiff claimed that Michael D. MacKenzie and Zachary S. Taylor were liable for the accident and for Laura Hernandez's death. If the charges were found to be true, then Zachary S. Taylor's insurance would cover the liability to the limit of the policy, on the condition that Michael D. MacKenzie was more than 50% at fault in the accident.

The accident took place on July 21, 1992. At about 9:08 in the morning, Laura Hernandez was travelling in the northbound lane on Route 12 in Ashburnham, Massachusetts. Hernandez was driving alone in a brown 1986 Dodge Aries K after working the overnight shift at her job. She was on her way home to her four children. Michael D. MacKenzie was travelling in the southbound lane on Route 12 in a tractor-trailer. The trailer was actually a tank used for carrying water. MacKenzie was employed by Zachary S. Taylor, also the owner of the truck. Both vehicles entered a turn in the road (for the truck the turn was right, for the car it was left) and collided near the middle. The point of impact on each vehicle was mainly to the left front. After impact the car was spun around and came to rest against the guardrail facing the opposite direction, but still in the northbound lane. The truck also hit the guardrail and came to rest blocking both lanes of travel. The car was totaled while the truck sustained only

minor damages. Laura Hernandez was killed in the collision. All pictures relevant regarding this case can be seen in Appendix A.

10.2 Deposition of Ronald P. LaPlante

The deposition of Ronald P. LaPlante took place on May 26, 1995. At the time of the accident he was the Chief of Police of the Town of Ashburnham. LaPlante had his first formal training at the police academy in 1971. While there he studied motor vehicle law as part of an eight-week training program. He had no relevant experience performing accident reconstructions, however.

Many points were made about the accident during LaPlante's deposition. Most importantly, there were no eyewitnesses. Mr. Michael MacKenzie was the operator of the truck at the time of the collision. LaPlante thought that a Captain Ruschioni might have been the one to take pictures at the scene, but he was not sure.

In analyzing the accident LaPlante believed that the gouge mark was the location of the impact. He once called the mark a "fresh" gouge, meaning the mark was recent. The dirt, sand, and debris surrounding the gouge were some of the evidence that led LaPlante to believe that this mark was in fact the point of impact. He also made reference to what he called the "X" point. The location of the debris, the skid marks, and the gouge in the road all added together to give the "X" point or, impact point.

Chief LaPlante had questioned Robert Kohlstrom on the day of the accident. Kohlstrom had driven by the truck-heading north on Route 12 a few minutes before the collision. He did not believe that the truck was speeding as he passed it heading in the opposite direction. Kohlstrom did not remember ever noticing any vehicles behind him, also heading north.

Although diligently attempting to figure out what had actually happened, Chief LaPlante failed to look closely at some critical criteria in determining which driver was at fault. He never attempted to calculate the speed of the truck in his analysis. Even though LaPlante thought that all of the brake marks from the truck were made after impact, he could not tell if any of its tires left the road at any time. He also was not sure what part of which vehicle was responsible for making the gouge in the road. After studying the gouge mark, he determined that the gouge was mostly in the southbound lane, which was the truck's lane. However, he did not examine the truck's bumper to check the point of impact.

The following are some facts of interest from the police report taken on July 21, 1992, the day of the accident:

> Laura Hernandez
>
> The license plate on her Dodge Aries was registered to a 1981 Honda Civic at the time of the accident.
>
> The insurance was paid on the Civic, but not the Aries.
>
> Hernandez had two accidents and two speeding tickets previously on her record.

Chief LaPlante, after investigating the accident, concluded that Laura Hernandez was at least 50% at fault for the accident. He believed that the point of impact, on the double yellow line, was on Hernandez's side of the yellow line, but that the truck was in its own lane. He believed that the overhang of the truck's bumper was on the centerline but that Hernandez had to be also on the centerline to cause the accident. Although LaPlante was not an expert in accident reconstruction, he did have some experience in the field.

10.3 Deposition of Michael D. MacKenzie

Michael D. MacKenzie was deposed on May 26, 1995. MacKenzie was an employee at Taylor at the time of the accident in July of 1992. He had driven trucks with the company for about two months prior to July 21. His knowledge of trucks and driving them was fairly limited, as he was only about twenty-five years old at the time. MacKenzie had driven tractors from age fifteen, sixteen, and seventeen with his father. He gained some knowledge about trucks in his attendance of Diesel Technical School and Monty Tech. However, while there he never trained about the angles that trucks drove at or how a cab worked on the roadway. He claimed that he had studied the brake systems of the cab he drove in on July 21. The system on his cab was an air brake system. In his driving experience MacKenzie remembered receiving some speeding tickets.

On July 21, 1992 MacKenzie had the job of filling swimming pools with his cab and trailer. The cab was an international day cab, which MacKenzie claimed he had driven formerly. He recalled performing a "circle check" on his truck before leaving on his assignment. A circle check to him consisted of a brief inspection of the brakes, oil, headlights, etc. Once finished he left for Whalom Lake, about two miles from his starting point. MacKenzie maintained that the tank in his trailer was empty upon leaving in the morning. At Whalom Lake he filled the approximately 9,000-gallon tank using a type of pump mechanism. He then made one stop for a water delivery. MacKenzie stated that the tank was empty after the drop off.

Michael MacKenzie, the defendant, had woken up around five o'clock that morning. He said he was familiar with Route 12 South, the road he traveled on after the

water delivery. The first time MacKenzie had seen Laura Hernandez's vehicle was over the hood of his cab. He remembered seeing the trunk of the car first and recalled that the car was brown. At the time of impact he thought he was traveling between 30 and 35 miles per hour. After he felt the impact, the hood of the cab popped open. He could not see what part of the car he had hit. His tractor ended up on the north bound side in the guardrail, while the trailer started in the north bound lane and extended across the south bound lane, partially blocking traffic.

Immediately following the accident MacKenzie attempted to call 911 for help from his cab but was unable to do so. He did not walk to Hernandez's car and soon after the police arrived on scene. MacKenzie left the scene with his boss, Zachary Taylor. MacKenzie noted that the damage to the cab was on the left front side. He sustained no injuries from the collision. He thought that his truck speed was between 30 and 35 miles per hour at the time of impact. Also, he mentioned that he had slowed down to properly maneuver the upcoming corner. He assumed that Laura Hernandez was a foot and a half in his lane at the time of the accident.

Considering that there was a death involved in the accident, it would seem that Michael MacKenzie would have remembered much more vividly the events that occurred on July 21, 1992. He did not appear to have a very good recollection of anything he did that day. He claimed that the accident was not his fault and that Laura Hernandez must have been on the wrong side of the road. In fact, as proven by the skid marks left by his vehicle, Mr. Mackenzie was in his lane by several inches.

10.4 Deposition of Robert Kohlstrom

Robert Kohlstrom was deposed on October 6, 1997. Mr. Kohlstrom was the assistant supervisor for Tamor Plastics in Leominster, Massachusetts. He could not remember exactly what day the accident took place. He was driving to Fletcher Funeral Home in Wichendon that day because his brother had died. Kohlstrom took Route 12 north that morning on his trip.

Although he did not see the accident, he heard a bang a little ways behind him after he had passed the truck traveling in the opposite direction. He remembered that there was light to moderate traffic on the road. When Mr. Kohlstrom first saw the truck, his vehicle was a few car lengths from the cab. He was traveling north while the truck was driving south. He recalled the truck being close to the centerline, but not crossing over it. He thought the front tires of the truck were about a foot away form the yellow centerline. Kohlstrom also remembered that the truck was coming up a hill and approaching a bend in the road. When asked as to what he thought the speed of the truck might have been, Kohlstrom was not sure. About six seconds after he passed by the truck, he heard the crash. Once he heard the collision, he turned around and went back.

Kohlstrom made one key remark about the circumstances preceding the accident. The truck scared him as it neared the curve. Kohlstrom yanked his steering wheel to the right and then continued. He was startled because the truck was too close to the centerline, although not crossing it.

10.5 Deposition of James H. Burson

Mr. James Burson, from Townsend, MA was deposed on October 14, 1997. He graduated from high school in 1966 and then graduated with an Associate's degree Mt.

Wachusett College in 1969. He remembered passing Calculus and Trigonometry, but does not recall any specifics on what math and science courses he had taken. He spent from 1969 to 1973 in the U.S. Army until his honorable discharge. In 1974 he joined the Massachusetts State Police. In 1978 he received a B. S., B. A. in accounting from Suffolk University. While at the academy he took a course in accident investigation, but does not recall anything he learned. Later he took a course in accident reconstruction that looked at skid mark calculations, speeds, scale drawings, and other accident related information. Burson did not remember having a textbook or where his notes would be for the class, but he knows that he completed it. All together Burson had about 160 hours of training on accident reconstruction and investigation. From 1983 to 1985 he worked on an accident reconstruction team performing reconstructions on heavy motor vehicle accidents and fatalities. He recalled doing a total of about one hundred investigations during that time period. Those investigations included identifying points of impact, calculating speeds at the point of impact, and measuring skid marks. To do these calculations Burson used a minimum speed formula and the law of conservation of linear momentum. About twenty of the cases he worked on involved tractor-trailers. Burson has been called as an expert witness for both the plaintiff and the defendant in his previous experience, appearing in court more than one hundred times.

Throughout his investigation Burson never contacted Hector Hernandez about the case nor did he ever go to see the Dodge Aries in person. All he knew about the car Laura was driving came from the police photographs. He had heard that Laura had only driven the car about a week before the accident. She had not even had the car registered yet. Burson also failed to view the actual truck involved in the accident except for in the

photographs. The first time he went to the scene of the accident was in May of 1993. He did not take any measurements or pictures at that time. Burson observed that the traffic northbound tended to crowd the centerline and traffic southbound tended to drive in the middle of the lane. During this investigation he did not see any evidence of the accident in question, such as gouge marks.

In a second analysis of the scene, Burson calculated the speed of the truck to be between 40 and 45 miles per hour at the time of impact. Burson went back to the scene again in April of 1995. Then he took the police photographs with him to locate the gouge marks. He found four of them in the both lanes of travel. He believes that one of the gouge marks that cut across the left yellow line was created by Miss Hernandez's left front tire. The basis for his reasoning comes from the position of the tire and that this mark is the approximate width of a tire being spun sideways. He also indicated that the large spot (made up of three smaller lines), that partially covered the right yellow line, was caused by the front left tire of the truck. He stated that these marks were made because the cab actually bounced off the road, thereby making the left front tire lose contact with the ground momentarily. He thought that the truck bounced for the first time where the left front wheel of the Hernandez vehicle was. Burson believed that the truck left contact with the road, drove over the left front wheel of the Hernandez vehicle, and the bounced over to the right until it became stable again on the road. Burson drew this conclusion because of the height and mass differences in the vehicles. The car's hood was about two and a half feet high, allowing the truck to drive up onto the hood.

Burson stated that the point of impact, from the perspective of the Aries K, was its front left bumper right at the headlight assembly. He also said that the left front tire of

the truck was in the car's lane of travel because the tire would have to be over the centerline to hit the headlights. Both vehicles left the gouge marks. The gouge mark left by the truck might have been a result of its left tie rod breaking or from the shocks. The cause of the accident was that the truck had a tight turn to make and must have extended over the centerline to do so. The centripetal force worked against the truck making a right hand turn and forced it to extend to the southbound lane.

Expert witness Burson performed some analysis of the skid marks left by the truck. He determined that the marks were 65 feet in length and were left by the tractor. He also determined that Mr. MacKenzie had applied the brakes only after the collision. At one point during his investigation, Burson contacted Robert Kohlstrom about the accident. Kohlstrom told Burson the same story as in his deposition (2.1.3).

Burson continued to say that one gouge mark specifically proved that Mr. MacKenzie was in the wrong lane of travel. He stated that the gouge mark could not have been left by Miss Hernandez's vehicle as it was too far back behind her car for it to have been caused by her vehicle. The scrape marks in the northbound lane were left by Hernandez's car as it spun and dragged across the pavement.

The skid marks left by Laura Hernandez's car's left front tire were within one inch of the centerline. These marks show the point about which he car was spun around. The rear inboard portion of the left front tire made these marks. The shape of these marks indicates that Hernandez may have been attempting to sharply turn out of MacKenzie's lane. The speed limit in his lane was forty miles per hour, while in her lane it was thirty-five miles per hour. The collision damage is consistent with an impact speed of 85 miles per hour or less, which would prove that neither of the drivers were

exceeding the speed limits in their respective lanes by more than five or ten miles per hour.

10.6 Deposition of Charles Dietrich

The deposition of Charles Dietrich took place on October 15, 1997. He was asked to reconstruct the accident in the case. He had testified in the Superior Court of Massachusetts's dozens of times since 1968. In fact he said the total number of cases might be over one hundred. Most of his cases have been accident reconstructions. Dietrich received his Bachelor's degree and Master's Degree, both in electrical engineering (similar to applied physics), from MIT. He was hired by the defense as an expert witness.

10.7 Conclusions

For the case of the estate of Laura Hernandez vs. Michael MacKenzie, our group found that both parties were equally at fault. We feel that both Laura Hernandez and Michael Mackenzie were on the centerlines at the point of impact. We concluded that MacKenzie, the driver of the tanker truck, may have reached a speed that caused the truck to become unstable and gave him the sensation that he was about to tip over, so he attempted to widen the corner by drifting onto the centerline of the road. At the same time Laura Hernandez was coming around the corner at approximately the same speed, and was also on the centerline, which cased the two vehicles to impact on the centerline. With the information we have received along with the calculations we performed regarding speeds and stability, we concluded that both operators were equally at fault and that this was just an unfortunate sequence of events.

10.8 Trial Results

After conclusion of the mock trial on May 2, 1999, we found out that the two parties resolved in an out of court settlement that rewarded the family of Laura Hernandez a compensation of $650,000 for Laura Hernandez's death.

11 Case 3: Lopez vs. MGS Manufacturing, Encore Wire, EWC Leasing

11.1 Introduction

On or about December 10, 1997 Hector Lopez was working under the direct supervision of his employer Encore Wire when he was violently entangled in a take-up machine that was designed, manufactured and sold by MGS Manufacturing. EWC Leasing purchased the take-up machine from MGS Manufacturing. The machine was then leased and/or sold to Encore Wire. At the time of the entanglement Hector Lopez was operating the take-up to scrap defective wire onto the floor so that the scrap wire could be sold. Mr. Lopez was repeatedly thrown against the floor and/or the take-up machine. This caused Hector Lopez to suffer from severe battering of his head, neck, back, legs, arms and skull which eventually led to his death. Encore Wire employees witnessing the accident were unable to respond to the screams of Mr. Lopez in a manner timely enough to shut down the machine to prevent his death. At the time of his death Hector Lopez was 25 years of age. He was in good health and was the primary provider for his family. At the time off Mr.Lopez's death he was a full-time employee of Encore Wire. He was married to the plaintiff Norma Lopez. At the time of the accident Hector had one three-month-old son Victor Lopez. All pictures relevant regarding this case can be seen in Appendix B.

11.2 Deposition of William Gurecki – 9/29/98

This deposition is that of William Gurecki, he is the vice president of engineering at MGS Manufacturing. He was also a mechanical and electrical engineer for MGS. Dick Urquhart is the first lawyer to depose Mr. Gurecki. Mr. Urquhart represents the Estate of Hector Lopez and his family. This deposition starts out fairly basic with questions about the documents requested through the request for production. The question of what type of department handles

the safety issues that arise, The response is the engineering department is responsible for reviewing the safety of the machines being produced. What this means is that his department is responsible. The next important series of questions that arise are what engineers worked on this particular project. Dean Williams did the mechanical worked and Bill Gurecki did the electrical work. The scope of the project that is in question was to provide two new traverse assemblies for each of the two take-ups and provide electronics for the second machine. The electronics consisted of a new operator panel.

Another interesting fact is the training that was involved with the sale of the machinery. The only training that encore received was the verbal training of one employee. MGS did not provide any operating instructions to customers during the period of 1993 and 94'. The safety awareness of MGS seems to be in question through this deposition. Another company that bought machinery from MGS (Omega Wire) has experienced an injury related to the operation of the equipment. The only action taken was to put warning label on the particular machine at Omega Wire. Prior to selling the machines in question, according to Mr. Gurecki no safety analysis of any kind was conducted on the this or similar machines. In fact no formal hazard analysis was conducted on any of the machines that MGS produces until 1997. Even when these analysis were conducted the results were not shared with their customers. MGS did discover through those 1997 analysis that better warning labels were needed on the machines that MGS manufactured. None of the customers of existing machinery were ever contacted or notified about the new labels that should be put on the machines. These labels were to warn against various possible pinch points and other dangerous portions of the machine.

As a result of the safety analysis MGS now puts additional safety devices on their machines. MGS now places a cable pull switch to their machines. This purpose of this switch is

when the operator is on the backside or the opposite reel loading side of the machine. This is a large area that usually does not have an appropriate E-stop button placed there. The cable pull switch provides an easy way to shut down the machine at any position along the back of the machine. This feature was never offered to Encore wire, nor was it told of the option once put into production on newer machines. The only way that safety options are known to the customers is through verbal communication between the sales staff and the customer.

The improper use of the machines is another item that comes into discussion. Gurecki states that using the machine to scrap wire is an improper use of the machine. MGS never notified that their machines should not be used for scrapping wire. They also do not provide machines for scrapping wire. Gurecki further states that he believes that wire manufactures will produce defective wire and that wire will have to be scrapped. Even though he knows that this will occur MGS never communicated any suggestions warnings regarding the scrapping of defective wire. Not only is Mr. Gurecki aware of this scrapping procedure happening but he is also familiar with procedures that other wire manufacturers use to scrap defective wire. He specifically mentions a collapsible reel core as a method for scrapping wire. According to Mr. Gurecki MGS has never communicated to any of its customers the proper procedure to use for scrapping wire, he further states that the reasoning is because they know of the inherent risk. This statement is very important because it shows that MGS knows that scrapping wire will happened at its customers plants but they don't even warn not to do it with their machines or even mention how dangerous the procedure is.

The item that comes up is the installation of a deadman switch in the machinery that MGS supplies. MGS has recently installed deadman switches on some of their takeups and payoffs. A deadman switch is only installed at the customers request and MGS does not directly

notify that a deadman switch is an available option. For the machine in this case the installation of a deadman switch was never even contemplated.

The machines that were installed are shown in exhibit #4. This picture shows the single operators station, which consists of the buttons to operate both machines, and the footage counter. It also shows the payoff reel, take-up reel, footage counter and the spools. Mr. Gurecki states that the machines should operate in the following manner: The wire would run off the payoff reel through the counter onto one side of the take-up. Once the entire footage was taken up the traverse would move and a new reel would come over and begin running a new spool. In the meantime the operator could remove the full spool and put an empty spool on the right ready to move into place for spooling. Exhibit #5 shows the modification to the equipment that MGS did in 1994. They have modified the equipment by providing both take-up machines with individual traverses. They also provided separate electronics for the operation of the new traverses. This is the last time that MGS saw the equipment in operation as MGS had installed it. MGS did not go back to the site since exhibit #5 was taken in 1994.

The take-up and traverses as MGS installed them will not operate without wire running through the wire counter, due to a limit switch. This switch was installed to stop the machine if the wire is broken. As designed the operator of the take-up machine has to stand on the reel side of the take-up machine to operate the equipment. Mr. Gurecki is then questioned about barrier marks or a "danger zone" that OSHA recommends around dangerous machinery. The operators control box would be inside that danger zone. Also MGS never recommended that Encore wire establish a danger zone for any of its equipment. Although MGS does now recommend to its customers to make a danger zone around its machinery, they have not gone back to any of its

previous customers to inform them that they should mark a danger zone. Even though the cost of doing this would only be a few dollars per a customer they still have not done it.

After the accident it is shown that not only the equipment was moved but also the control station was moved. According to Mr. Gurecki MGS had no knowledge of the control station being moved towards the back of the machine. He goes on further to say that the location of the control box towards the rear of the machine is very dangerous because of its close proximity to the path of the wire.

The purchasing of new payoff machines in November of 1996 now comes into question. Specifically whether MGS had any knowledge of what they payoffs would be used for and whether they had any knowledge that they might be used for the machine line in this case. Mr. Gurecki states that he had no knowledge of the use of payoff machines for each of the take-up sections of this line.

It should be noted that there is no braking mechanism on the take-up machine to prevent rotation of the spool when the emergency stop is actuated.

More questioning into the warning labels and the warning in the operator manual comes up. For the machines that MGS sold to Encore there are no warnings in the manual for the machine operators. At this time there were no warning labels applied to this machinery, there is no indication that a danger area or safety barrier should be constructed, nor is there any mention that the machine should not be used to unspool wire. Mr. Gurecki states that they do now provide all of those things to their customers.

Next we get into the jog selector switch. What comes out of this questioning is that if the jog switch is in the jog position and if the operator were to momentarily hit the drive start button, the machine would operate as long as the button were depressed. When talking about the safety

analysis of the machines that was conducted in 1997 Mr. Gurecki was asked if there was any information or reason why the MGS could not have done the exact safety analysis in 1993 his answer was No. In the more recent manuals that outline a safety zone, based on the knowledge of the safety zone and the death of Mr. Lopez, Mr. Gurecki concludes that Mr. Lopez was within that safety zone. MGS had never outlined a safety zone for Encore wires machinery even though Mr. Gurecki says himself that he thinks it's very important to have a safety zone established, to create an awareness of potential danger. Since the death of at Encore Wire, MGS has still not informed any of its customers that they should set a safety zone encompassing their machines even though the cost to do such would be just a few dollars.

Mr. Gurecki states that the operators of machines sold in 1993 are the same as the dangers operating machines sold in 1997. He also agrees that the operators of machines sold in 1993 should have the benefit of reading all the information contained in the 1997 operating manuals. But MGS never written or verbally recommended that Encore wire establish a safety zone to encompass their machines.

After the incident at Encore wire MGS was aware that their machines were being used to unspool wire, but they have not inquired other customers of whether they were also using he machines in this manner. Nor have they sent any notices to customers that the machine should not be used in this manner. On page 15 of exhibit 23 when Mr. Gurecki reviewed this page he did have prior knowledge of an incident at another facility where an operator was caught up in an exposed reel. MGS rated this risk as being the highest relative risk that they reviewed. At this time he mentions several manners for which the operator could be injured or even killed. Mr. Gurecki specifically says that someone on the Product Safety Committee indicated that a potential injury from the hazard of an exposed reel is death. The safety committee never met

again to either approve or sign off on the document nor have they set up another meeting since the 1997 meeting. Mr. Gurecki is responsible for setting up meetings of the Safety Committee.

The deposition finishes with several question on how the equipment should be used, how they equipment may have been modified and if it's in Mr. Gurecki's opinion that it is an unsafe operation to unspool wire.

11.3 Deposition of Dean Williams – 12/12/98

Mr. Williams is a Professional Engineer for MGS working within their engineering department. Mr. Williams started his career within the cable/wire industry working for Rome Cable in New York. During his time at Rome he was involved with take-up and payoff equipment. In 1963 Mr. Williams left Rome Cable and went to work for Edmonds Company. After a short stint with them he went to work for Bartell in 1964. He was the Chief engineer at Bartell. Mr. Williams is question about some of the machinery that he worked on while at Bartell and in particular he is asked about the safety electronics that are involved in their designs. He mentions that any safety electronics that are included in a design would be at the direct request of the customer. Mr. Williams goes on to talk about one particular job were the customer (Anaconda) wanted a shaftless "walk through" machine. He thought that this was a bad idea because the operator would be exposed to the input side of the machine, specifically he did not think it was safe for the operator to be able to walk right up to the reel while it was winding. He states that the operator could get caught in the reel, especially in the case of malystic insulated wire. The operator could get caught in between the wire and reel. Mr. Williams continues by explaining the communication of the available safety devices is only done verbally with the sales rep. He talks about several safety features that could be part of their machine designs, like a

deadman switch, multiple E-stops, and barriers. According to Williams there is normally no guarding around take-ups and payoffs, mostly due them getting in the way of the operator.

Mr. Williams has been involved with a very similar case at Camden Wire, where a man was caught in the wire. The spool was put on backwards and as the wire unspooled onto the floor the operator got caught up in it and was very badly injured. Mr. Williams was directly involved with the design and had been deposed for the case that followed the incident. After this incident no changes were made to the design of the machinery to safeguard against a similar accident. As Mr. Williams states "I knew it happened, I knew it was a terrible accident, but we didn't know what to do about it." The questioning goes further on this point to find that Mr. Williams never even thought about using a machine to unspool wire onto the floor.

Upon asking Mr. Williams about many safety devices that could have been designed into the machine that may have prevented this incident he explained that he never thought about any of the ideas that the Mr. Urquhart outlines in the deposition questioning. Mr. Urquhart mentions many safety devices such as a pressure pad and light curtain to shut down the machine if the operator enters a danger zone area. The point that seems to elude Mr. Urquhart is that Mr. Williams doesn't share the experience at Camden Wire with anyone at MGS, why the unspooling accident ended with Mr. Williams. Even though he was aware that MGS had a safety committee he never brought any information from his past experience to the safety committee.

The questioning now leads to the use and misuse of the machinery in question. That is turning a reel around and unspooling it on the ground is a misuse of the machine. Mr. William say's himself that a person could get hurt even killed if the machine is used in that manner. At this point Mr. Williams corrects his previous statement that the incident at Camden was not discussed, by saying that the incident was in fact discussed in passing and everyone was well

aware of the incident. Mr. Williams does not remember having any specific conversations with anyone at MGS about the accident at Camden.

Mr. Williams is then shown exhibit 57 which shows the operator's station as it would be while the machine is used to unspool wire onto the floor. He states that the risk to the operator in this operation would be risky, specifically he states that wire could pile up onto the floor and the operator could become entangled, resulting in serious injury and even death. Mr. Williams believes that this operation is inappropriate, but no one at MGS ever conveyed that to Encore Wire.

The manual comes into question next. There is no instructions or warnings in the manual to warn against the use of the MGS take-up to unspool wire onto the floor. Nor is there any document or warning label that would instruct an operator not to use the take-up machine to unspool wire. There is no statement anywhere that says that a take-up should only be used as a take-up.

During Mr. Williams career as an engineer he states that he has never been involved in a risk analysis or hazard analysis of the equipment whose design he was involved in. According to Mr. William there are no documents in the company (MGS) that address safety concerns for the operators using the machinery in this case. He states that he knows the machinery could be hazardous if an operator did not understand the equipment, but he did nothing to circumvent the hazard of an operator not knowing or understanding the equipment. Mr. Williams knows that an operator not understanding the equipment could put him in a great deal of danger. Mr. Urquhart inquires if the purchasers of the machinery do not understand the machinery, he states that he has never known that to happen. Then Mr. Williams is asked again, if the machine to unspool wire onto the floor, does Encore understand the machine.

A very important question is now asked of Mr. Williams. He is asked if he agrees that the addition of a deadman switch, or a foot pedal, in the control panel of a rewind train, makes a safer design. His answer is yes. The questions now turn to why the individual devises were not part of the train designed by MGS.

The next person to depose Mr. Williams is Barry Hasten representing Encore Wire. He obtains from Mr. Williams that the machine could in fact operate regardless of whether there is wire going through the measuring device or not. Also that every payoff and take-up (142 total) that MGS has sold could have been used to scrap wire onto the floor. The broken wire switch is used solely for the purpose of stopping the motor if the wire breaks; it isn't really designed as a safety feature.

11.4 Deposition of Gary Bliss – 11/24/98

Mr. Gary Bliss is an employee of Encore wire he initially held the position of Plant Manager, but was promoted to Vice President of Product Development and Environmental Matter in July of 1997. He main responsibilities are to oversee and schedule all operations of the wire plant. When Gary reached the accident scene he states that Hector Lopez was on the reel, specifically one leg was caught up in the reel up to his waist. An employee Carlos Juan Diego was the person who first got to Mr. Lopez and turned the machine off at the scene of the accident. An important piece of information comes up at this point about the instruction that is given to employees regarding the operation of the MGS line. Mr. Bliss claims that verbal instruction of not going around to the front of the machine unless it is shut down is given to all employees. He further states that Mr. Lopez had been verbally instructed not to cut wire while the machine was running on several occasions. No documentation regarding these instructions is available though. According to Mr. Bliss, Mr. Lopez was scrapping wire onto the floor do to

defective wire. It comes about that Encore has no written procedure about scrapping wire. Since the accident To scrap wire Encore now either pulls the wire of by hand or uses a collapsible reel. Using the take-up portion of the MGS rewinding to scrap wire had been done for three and a half years prior to the accident. Mr. Bliss had seen take-ups being used to scrap wire at both of his previous employers.

Jeff Long comes up in the questioning about who is in charge of the rewind section of the plant. Jeff Long was responsible for instructing the employees on the use of the machines as well as the procedure and speed settings for scrapping wire. If the machine is running at too high of a speed while being used to scrap wire the wire will have a tendency to tangle. When questioned about the speed that Mr. Lopez was running the take-up at the time of the accident, Mr. Bliss does not know exactly what speed the take-up was running. On the day after the accident the dial on the potentiometer was set a value less than one which would correspond to a slow speed. The setting on the machine according to Mr. Bliss was most likely not tampered with because the machine was completely roped off immediately after the incident. Mr. Bliss is questioned on the safety devices that the machine has and what safety devices were offered to Encore Wire when they were first quoted for the take-up. He is then questioned in more detail about the deadman switch installation following the dead of Mr. Lopez. It is show that prior to the accident MGS never suggested the use of any warning labels be added to the MGS rewind line.

Mr. Bliss is then asked about any modifications that may have been made by Encore Wire to the electrical system in take-up machine. To his knowledge no modifications were made. Next Mr. Bliss is asked about the training that Encore did to Hector Lopez. He states that Encore did a good job of training Mr. Lopez in the operation of the machines and to avoid the risks that were posed by a spinning real on the take-up machine.

The next line of questions is regarding the Workers' Compensation Commission study. To the best of Mr. Bliss's recollection no mention to the possible lack of safety was every given regarding the MGS take-up machine.

11.5 Deposition of Billy Alley – 01/07/98

Billy Alley is the Plant Manager for the building that contains the MGS rewinding line at Encore wire. He is responsible for preventative maintenance on the machines and to supervise the employees that work on the machines. Gary Bliss is Mr. Alley's supervisor.

Mr. Alley is asked about the amount of training that employees receive as to the machines that they are operating. He claims that employees are trained for one month or so. The question now turns to the events immediately surrounding the accident. Mr. Alley states that Carlos Juan Diego had told him that he saw Hector Lopez with the cutters walking around to the front of the machine to the spool, but he did not see him actually cut any wire. According to Mr. Alley when he arrived at the scene Hector Lopez and his cutters where tangled in the wire. Mr. Alley's investigation concludes that Hector most likely was trying to cut the wire when either his foot or cutters or both became entangled as the wire was being scrapped.

Now Mr. Alley explains when the machine is in scrap mode the centerline of the spool is about three feet off the ground. The only reason that the reel would have to be stopped is if the speed is too high and the wire becomes tangled. He states if you run it slow, it won't tangle. Mr. Alley states that he knows there are manuals regarding the operation of the machine, but he has never looked at them.

Mr. Alley say's that when he go to the scene there was no wire on the ground. All of the wire was wrapped back around the spool and Mr. Lopez. Questions about the E-stop come up, specifically that the E-stop is the fastest way to stop the machine. Using the E-stop to stop the

machine takes a couple of seconds to do, because it has to slow down through friction in the system. Also the E-stop kills electrical power to the machine. Before these MGS machines Encore Wire had not been scrapping wire. They only started scrapping once wire started accumulating on reels. Mr. Alley goes on to explain that the machine is used for scrapping about 5% of the time. He also says that as part of the employees training they are told never to walk near the spool while the machine is operating whether it's in scrap mode or rewind mode.

11.6 Deposition of Olegario Silva – 01/07/98

Olegario Silva is an employee of Encore Wire. She runs the forklift and works the MGS rewind machine. She was an eyewitness to the accident, she witnessed Hector Lopez turning in the reel. She also saw Juan Carlos Diego (Shorty) run over to the machine and shut it down at the time of the accident. It is her opinion that Hector Lopez became entangled in the wire at his feet and was then reeled onto the reel, which led to his injuries and death.

11.7 Conclusions

After reviewing all the material presented to us in the case of Estate of Hector Lopez vs. Encore Wire Manufacturing, MGS Manufacturing Inc, and EWC Leasing Corporation, we determined that the fault lies with all three companies, including Hector Lopez. We determined from the information present that Encore Wire Manufacturing was 40% at fault, MGS Manufacturing., Inc was 40% at fault, EWC Leasing Corporation was 15% at fault, and Hector Lopez was 5% at fault.

We determined that the majority of the fault lied with the manufacturer of the machine (MGS Manufacturing) and Encore Wire Manufacturing, who were using the machine. We stated that MGS Manufacturing was 40 % at fault because they did not provide adequate warnings of

the dangers present if the rewinding machine was to be used improperly. MGS also had previous knowledge of possible dangers from a previous case that was similar in nature and made no attempts to make any safety changes to the machine. MGS did not provide adequate training or instructions to Encore Wire prior to Encore Wire putting the machine into operation. MGS only trained one person on how to properly use the rewinding machine, and did not provide an instruction manual or safety precautions with the machine. Simple warning labels on the machine that warned operators of potential dangers of the machine could have saved a life in this situation.

We also felt that 40% of the responsibility of Mr. Lopez's death was that of Encore Wire. The reason for this is that Encore Wire had first, and possible most importantly altered the rewinding machine from MGS Manufacturing and were using it in a manner that the rewinding machine was not designed for by the manufacturer. Encore Wire had rigged the machine so it could be used to remove wire from a spool instead of its intended use of winding wire onto a spool. The unspooling procedure put Mr. Lopez at a greater danger of being harmed. We also feel that Encore Wire did not provide adequate training to Hector Lopez in a language he could understand. If Encore Wire had given Mr. Lopez more clear instruction on how to safely operate the rewinding machine in its unspooling condition, Mr. Lopez's death could have been avoided. Encore Wire also should have equipped a safety zone around the machine to warn operators of the danger of getting too close to the machine while it is operating. We feel that the negligence of Encore Wire contributed to the death of Hector Lopez.

Our group also felt that EWC Leasing was partially responsible for the death of Hector Lopez as well. EWC Leasing was essentially guilty by strict liability. Although EWC Leasing was not involved in the designing of the machine nor the altercations made to the machine to

allow it to be used as a despooling machine, EWC Leasing did sell the machine to Encore Wire and they have a responsibility as a retailer to ensure the safety of the product that they are selling, regardless if they are the actual manufacturer or not. EWC Leasing should have taken a more active role in ensuring that the rewinding machine they sold to Encore Wire was being used in a safe manner and the manner for which it was intended. By not doing so, EWC displayed negligence, which also contributed to Mr. Lopez's death. The reason we felt that the weight of EWC Leasing was not as heavy as Encore Wire and MGS Manufacturing is because EWC strictly bought the machine and leased it to Encore Wire. EWC was in no way involved in the original design or modifications to the machine.

Finally we felt that the negligence of Hector Lopez contributed to a small part of his own death. Although Lopez was not given adequate instruction on how to safely operate the machine, and made aware of the dangers of being too close to the spool in operation, Mr. Lopez should have had the common sense not to try to cut the wire while the spool was still unwinding. As a matter of fact Mr., Lopez had been witnessed doing that previous to his accident and had been told not to cut the wire while it is still unspooling. IF he had listened to his supervisor and shut off the machine as it became entangled and then cut the wire, his death could have been prevented. However the negligence of Hector Lopez compared to that of Encore Wire and MGS Manufacturing is not enough to remove the fault from Encore Wire, MGS Manufacturing, and EWC Leasing.

11.8 Trial results

After the mock trial on May 2, 1999 we learned that in the case of the Estate of Hector Lopez vs. Encore Wire, MGS Manufacturing, and EWC Leasing, an out of court settlement was

reached between the two parties. The estate of Hector Lopez received compensation for the death of Hector Lopez in the amount of 2 million dollars.

12 Mock Trial Results

For the mock trial we presented on May 2, 1999 in Higgins room 112, we prepared to present our interpretations of the two cases: Estate of Laura Hernandez vs. Michael MacKenzie and Zachary S. Taylor, and Estate of Hector Lopez vs. EWC Leasing, Encore Wire, and MGS Manufacturing. To prepare for "trial," our group collaborated on the facts of the case and we as a group came to a consensus as to who was at fault. From here we began to create slides and develop our presentation to convince the mock jury of who was at fault in each of the cases. We, with the help of the other groups present, presented a strong case to the "jury" that in the case of: Estate of Laura Hernandez vs. Michael MacKenzie, both parties were at fault, and in the case of: Estate of Hector Lopez vs. Encore Wire, EWC Leasing, and MGS Manufacturing, the majority of the negligence fell on Encore Wire and MGS Manufacturing.

After much "deliberation" from the jury, they came to a conclusion that in the case of the Estate of Laura Hernandez vs. Michael MacKenzie, the "jury" felt that the driver of the truck, Mr. MacKenzie, was 80% at fault in the accident. The "jury" awarded the Estate of Laura Hernandez compensation in the amount of $750,000 for the death of Laura Hernandez.

For the case of the Estate of Hector Lopez vs. Encore Wire, MGS Manufacturing, and EWC Leasing, the "jury" felt that Hector Lopez contributed 5%, EWC Leasing contributed 5%, MGS Manufacturing contributed 40% and finally Encore Wire contributed 50%. With these results, the "jury" awarded an out of court settlement to the Estate of Hector Lopez in the amount of 5 million dollars for the death of Hector Lopez.

13 Bibliography

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Appendix A Pictures involved with case two

The damage to the truck included the following:

- Left front tire moved back
- Fender damage
- Left front tire turn (tire apparently turned left before impact with car)
- Left front tire pushed back; rim damage; lug nut covers broken away; cuts in tire rubber
- Cut in tire rim damage
- Bumper impact with guard rail pushed bumper in and down
- Wheel turned before impact – bumper guard rail impact

The following photographs represent key points of evidence in the case:

Photograph "G-6" shows the bumper of the truck pushed in and pulled down

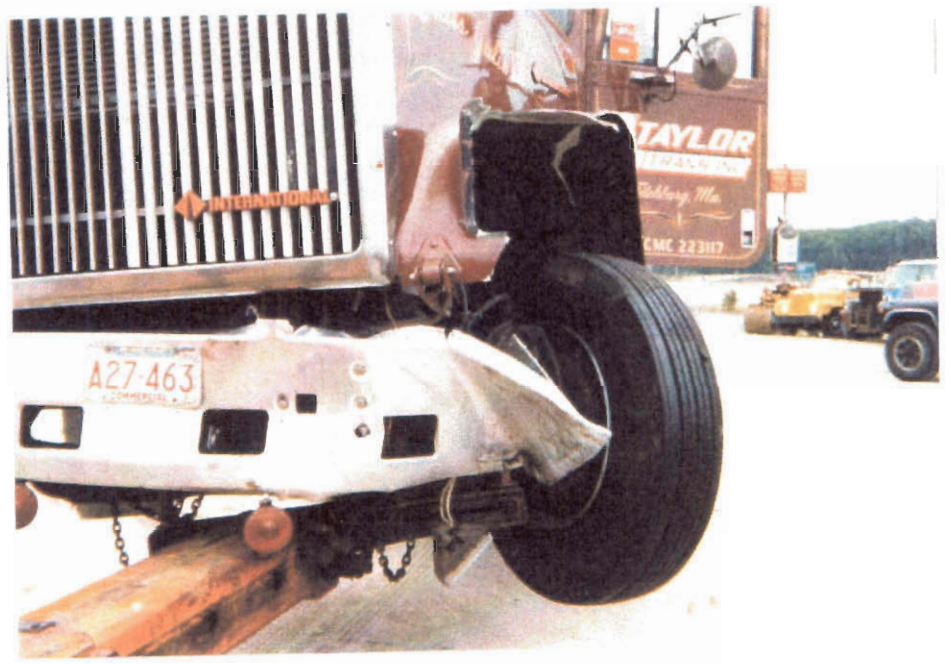

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Exhibit "2-I" shows the path the car traveled before the accident heading into the turn (northbound on Route 12)

Exhibit "2-A" shows the path the truck took coming out of a turn going southbound on Route 12

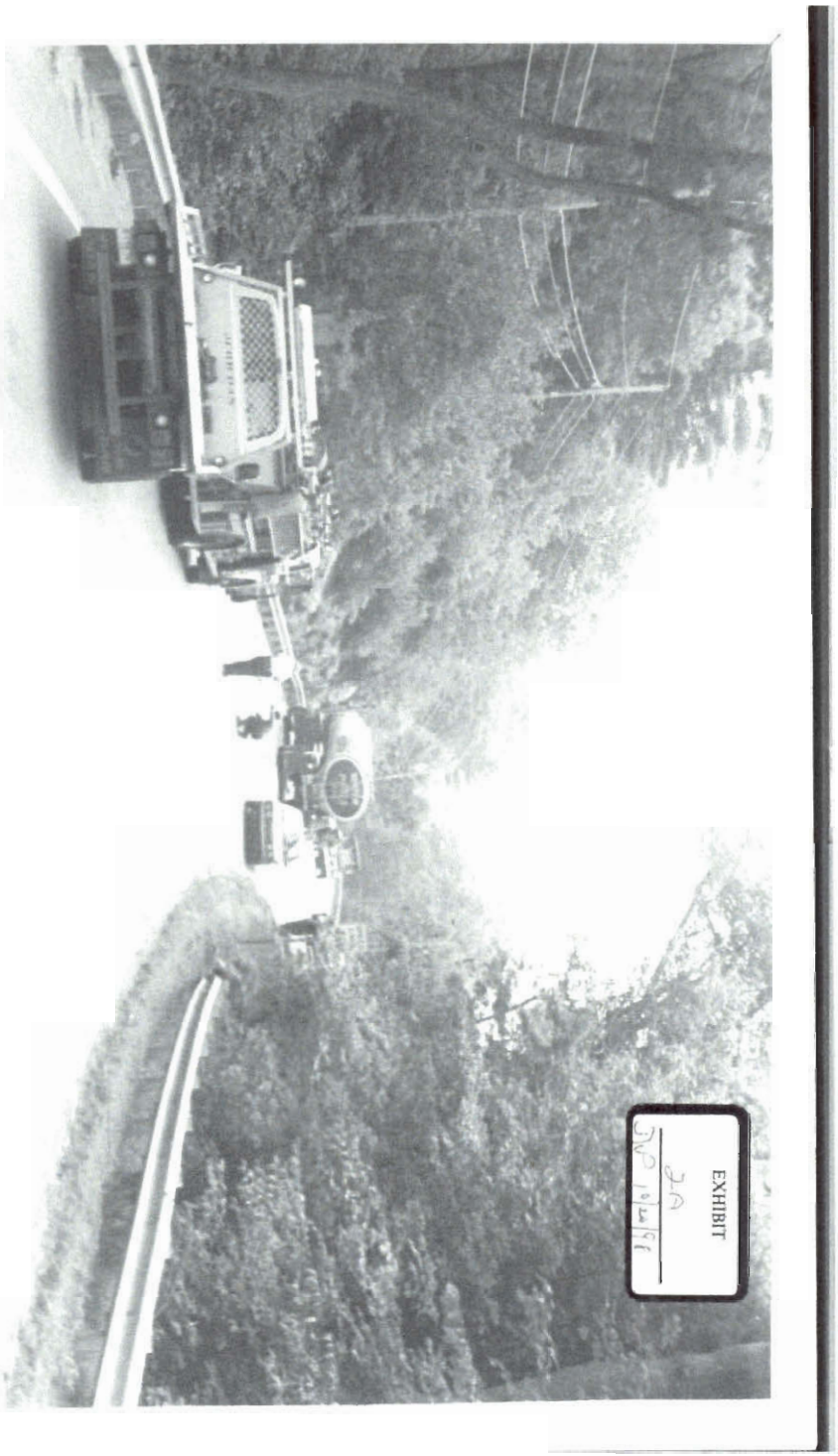


Exhibit "2-D" shows the point of impact and the gouge marks

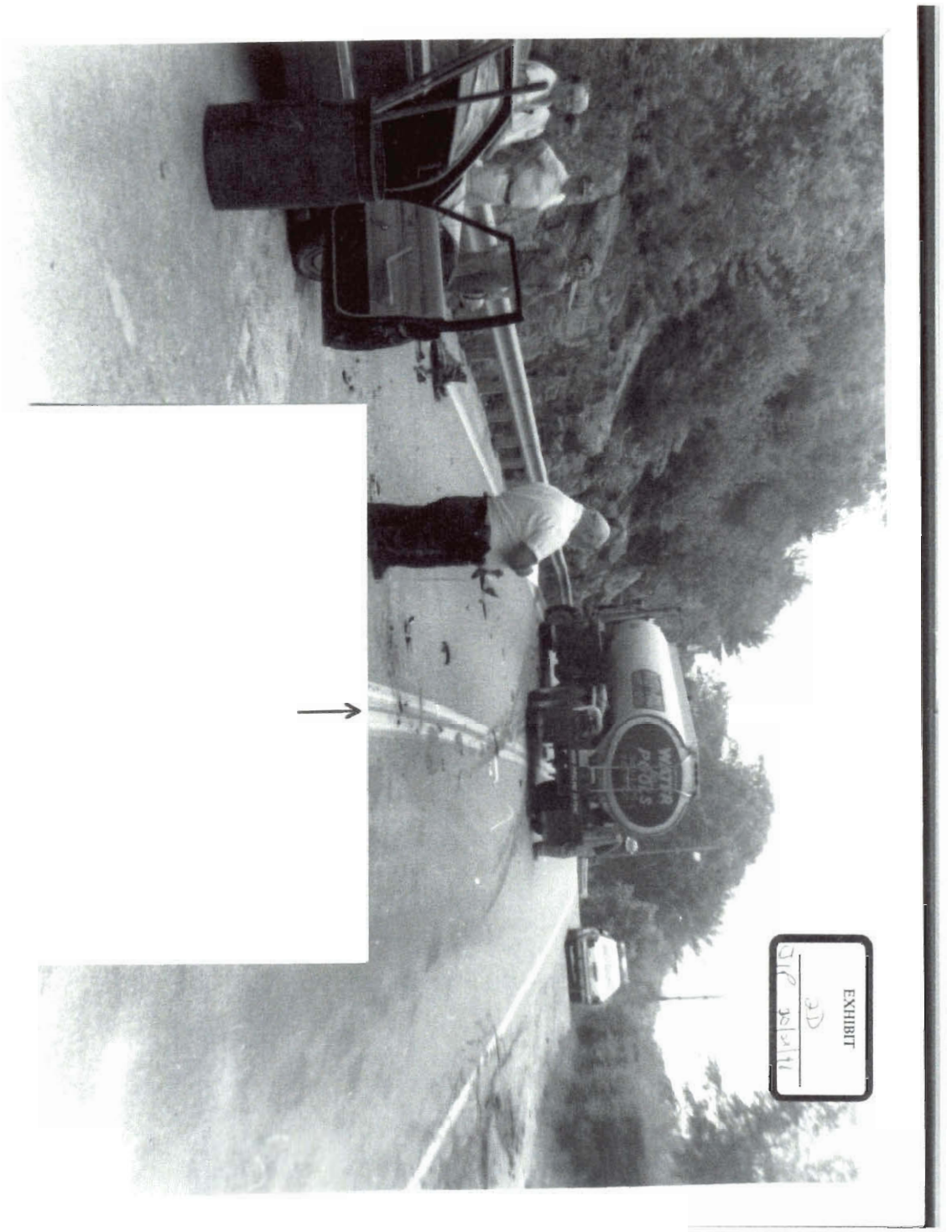


Exhibit "2-N" portrays the damage to the left front of the car and also the place where the Dodge Aries came to rest (in the northbound lane against the guardrail)

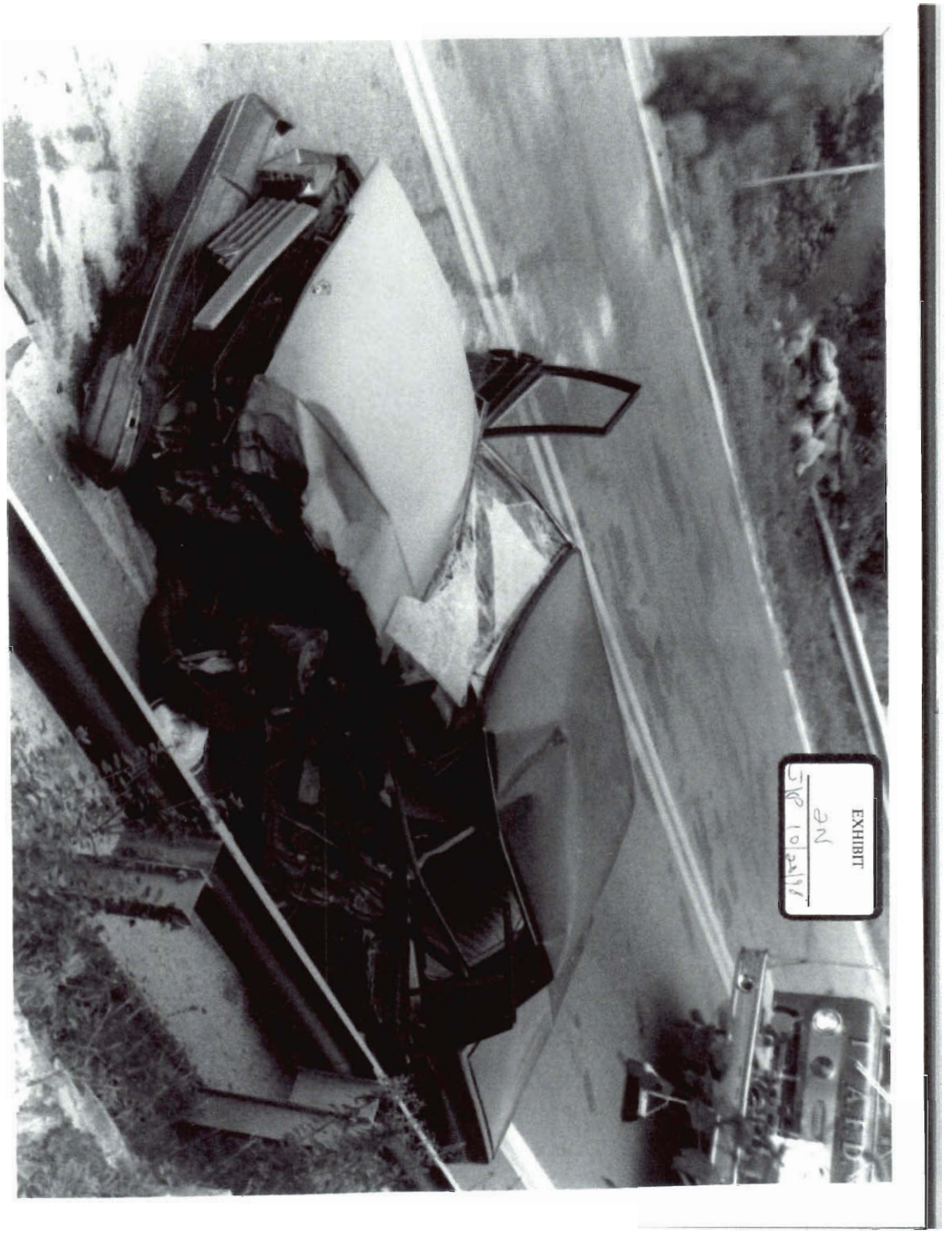
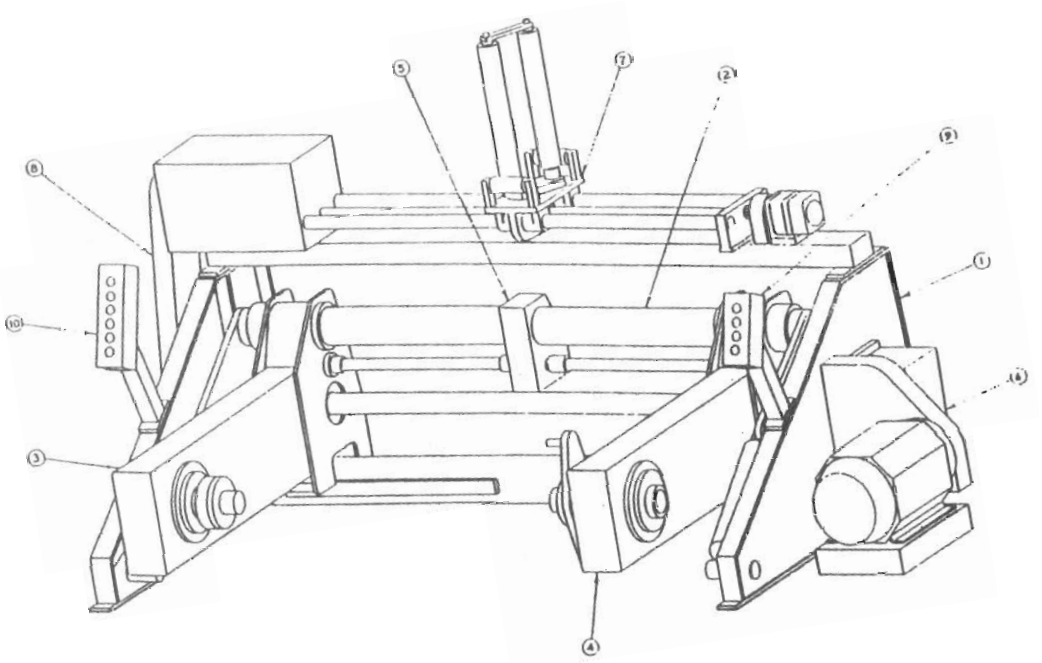


Exhibit "2-R" is a photograph taken of the damage to the front left of the truck and that it came to rest against the guardrail in the northbound lane (and extending across the southbound lane)

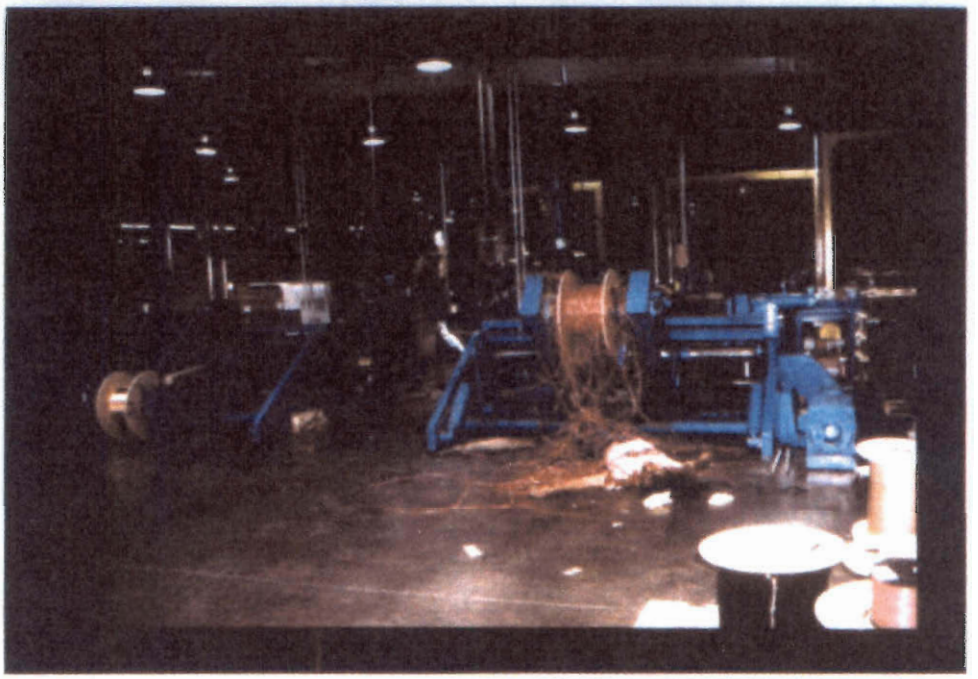
Appendix B Pictures involved with case three

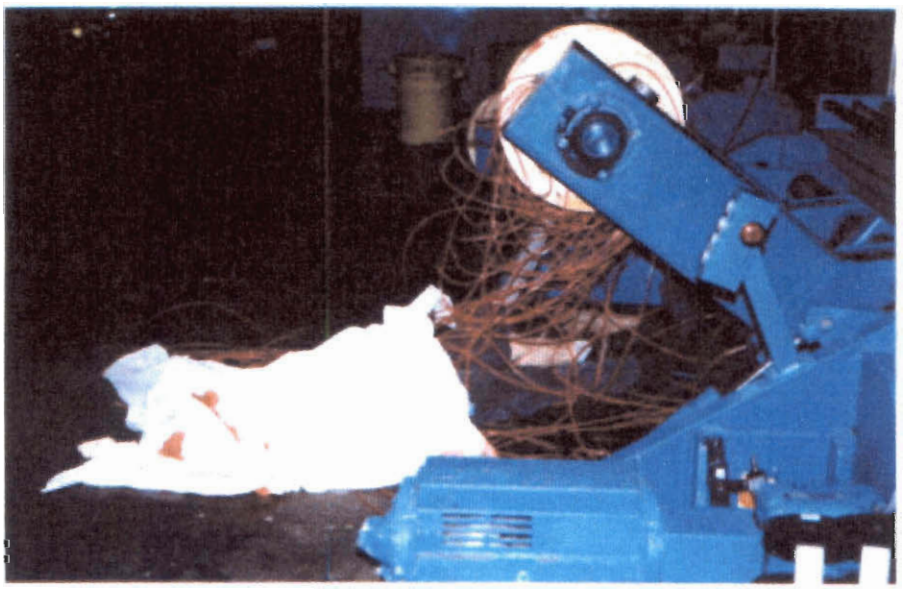
The pictures below are from the fatality scene and are specific pictures of the take-up machine.

Shaftless Takeup

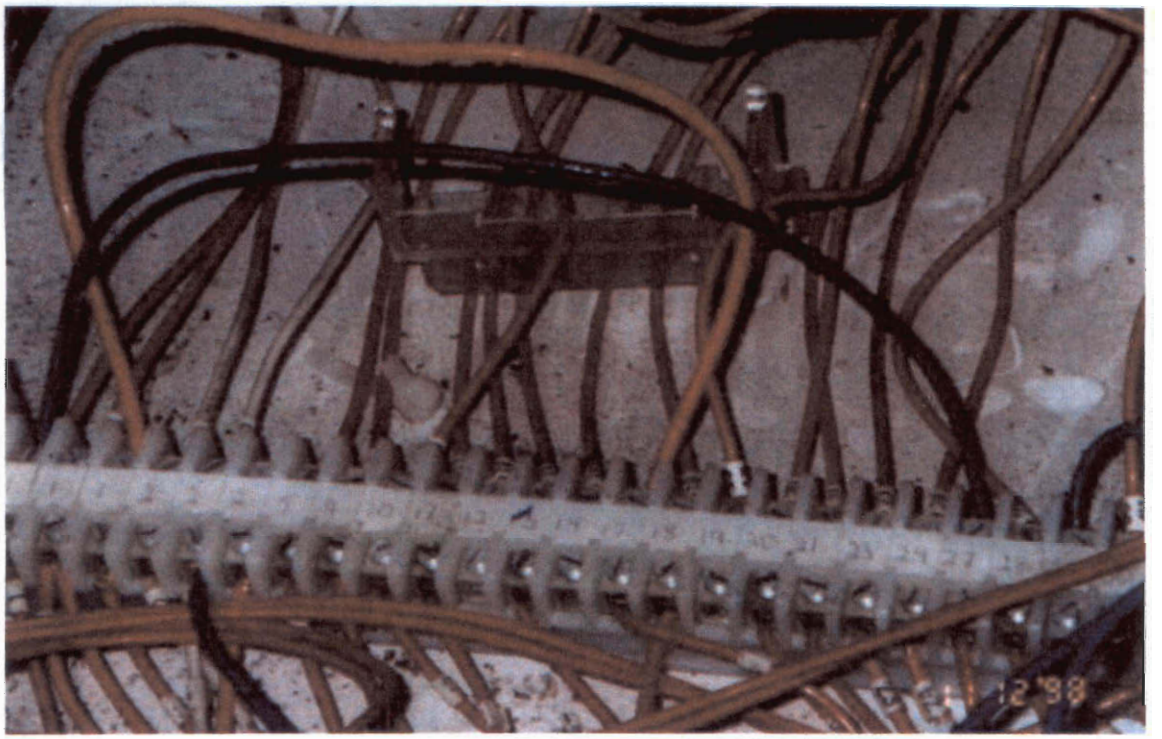


Fatality Scene





Jumped out electronics



Safety device – Deadman switch