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PRODUCTS LIABILITY

An Interactive Qualifying Project Report

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By

Eric Pieter Bregman

Steven Joseph O'Connell

Christopher Raymond Gates

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Approved By:

ABSTRACT

This Interactive Qualifying Project provided an introduction to the general principles of product liability law and the basic concepts of product safety. Investigations and engineering analyses were performed on various court cases in order to determine who was at fault. The project concluded with a mock trial where each individual IQP group presented the final two cases. An objective jury observed the presentation and rendered a decision as to the amount of monetary responsibility each party deserved.

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Eric Pieter Bregman	33 1/3 %	
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Christopher Raymond Gates	33 1/3 %	

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1.1 Introduction

This book has aided our group in learning the basics of what an engineer's role in litigation process is. Helpful tips included knowing what types of accidents may lead to litigation and understanding what these accidents are and how they are caused. Knowing what types of things to expect in the discovery, deposition, and trial, and how to best conduct one-self in those situations. In general the engineer must be aware of how they can best assist the attorney in the whole process.

1.2 Nature of Accidents

There are many different categories of accidents that the engineer will come in contact with in the courtroom. Some of those included are:

1. **Collision**- Two bodies trying to occupy the same space at the same time.
    a. Two moving machines or vehicles.
    b. A vehicle or machine hitting a fixed object
        b.1. A vehicle or machine hitting a parked or stopped machine
        b.2. Airplane crashes
    c. A vehicle hitting a person
        c.1. A person running into a moving machine
    d. A person running into another person
2. **Slip and Fall Accidents**
    a. A loss of traction between the foot and surface it was in contact with

b. Tripping

b.1. Scuffing

c. Physical malfunction of the person

c.1. Dizziness

d. An unexpected change in a level surface

e. A loss of step support

f. A loss of balance or support of the body

g. A fall from a ladder or step

3. **Loss of Control**

a. Inadvertent motion

4. **Hit By a Falling Object**

a. Being hit by a rolling object

5. **Suffocation**

a. Drowning

6. **Electrocution**

7. **Poisoning**

8. **Shock & Vibration**

9. **Entanglement**

10. **Cuts and Abrasions**

11. **Fire**

a. Chemical burns

b. Explosion

c. Radiation

d. Burns from contact with hot surfaces

12. Mechanical Failure

13. Struck by a moving projectile

a. Firearms or other such devices

b. War

14. Natural or Environmental Factors

a. Heat

b. Cold

c. Lack of water

d. Animal attacks

e. Wind

f. Lightening

15. Homicide

a. Suicide

b. Legal Intervention

16. Other Accidents

1.3 *Why Go To Court?*

There are many reasons why a person may feel the need that they have to settle their problems in a court. Every citizen has the right to seek redress that they feel they are entitled to for damages in a court of law. Basically the litigation system works like this: One person begins by filing a suit against someone else, because they believe that their relationship with the opposite party has been unbalanced, generally

in the area of products liability it is because of an accident. Next they proceed with naming the claims, or the specific complaints that they have with the other party or the other parties' product. Finally both parties either arrive on a settlement or the case will go to trial and be decided by a jury.

1.4 Avoiding Litigation

There are about six major ways that a company or group can avoid the whole litigation process altogether and this begins simply with designing products with safety in mind to avoid all possible accidents. First we have the technique of "avoiding the accident" by eliminating all possible hazards that might occur from the design. Next we have "protection from the accident" by the use of shields or guards so it is difficult or impractical for any hazard to be reached. Then there are ways to "make the accident safe" by designing the machine in such a way that even if the accident does happen, no injury results. Such a way would be the addition of rollover bars to protect the operator from any accidental tipping of the machine. Also it may be necessary to "warn operators of any impending accidents" by adding a safety light that goes on or beeps to let the operator know that it may be dangerous to proceed. An example of this might be a stall warning light in an airplane or the noise in your car to let you know that the door is open. It is also important to "warn the operator of the possibility of an accident". This is simply done by putting warning decals on the machine or specific instructions in the owner's manual so that the person is made aware of any conditions that may lead to accidents. An attempt is made to pre-condition the operator to take the right action should an accident

occur. Finally it is necessary to "protect the operator or other personnel from the accident if it should happen", a way to do this is by the addition of seat belts or hard hats.

In the design process the engineer should include a consideration of all adverse affects of the product and design the product especially for safety. One should foresee all possible uses, misuses, and environments through which the machine will be operated and subjected to. The engineer must make reasonable choices during the design process. Perfection is not required or even possible, but good professional judgement on the part of the designer is required. They must document these choices and decisions and the reasons for them. One must provide good instructions for the possible use and maintenance of the product. Finally the engineer must warn the future operators of hazards that are hidden and cannot be eliminated, and provide a way for the user of the product to communicate feedback to them.

1.5 The Litigation Process

The actual litigation process can be broken down into three major categories. First there is the claims of the plaintiff, which consist of the summons of the defendant and the complaints that the plaintiff has against the defendant and their product. Next the defendant responds to the complaints and attempts to provide a defense for their product. The last part of litigation is the discovery process, which consists of interrogatories, requests for production, requests for admissions, inspections, depositions, and the finally the trial.

1.6 Engineers and Engineering Information

Engineering information consists of any blueprints and records that are available for the product in question. Then there is the fact witness, which may provide information, which they actually saw occur, like an eyewitness. Lastly there is the expert witness, which will provide their opinions on what happened and who was at fault based on the facts that have been documented about the accident.

1.7 How the Engineer Can Help the Attorney

Since an engineer knows more about the technical aspects of a product and the lawyer knows more about the legal aspects, there must be a special relationship formed between the two that allows them to work together. An engineer need to explain certain things to the attorney that he may have a difficult time understanding, such as: The relationship between a machine and it's operator, The uses and applications of a certain product, Tests and analyses performed on a certain product, Why a product is successful, How the product is developed, tested, and evaluated, Product systems parts and operation of the machine, and the design and development process. An engineer can help the attorney by providing engineering literature pertinent to a case. Listing all possibilities of the use of a product. Assisting with the actual examinations, interviews, and depositions. An engineer may help with translation of technical information into simpler terms for the jury and an explanation of the complex technical process. Evaluation of the risks involved with a certain design. Also the engineer must testify and listen and react to testimony as both a technical person and layman to assist the jury in making an educated verdict.

1.8 The Discovery Process

The discovery process is one of the most important parts of the trial because it is the attorney's first chance to interrogate the witness and see what they really know. A key tool in getting the witness to follow the path of questioning that the attorney has pre-determined is to ask questions that you already know the answer to, to confirm to the jury what you believe to be what happened. Also it is very important to request certain evidence to prove your point to the jury, however you must be very deliberate in showing the jury and making sure that they understand the significance of your evidence and have it marked. What the attorney is trying to do here is trick the witness into being caught with a "smoking gun", which means have them admit some facts that are irrefutable proof or absolute information needed to win a case. This whole process consists of general discovery where there are requests for the production of operator's manuals, parts books, service and technical manuals, warnings, etc. Then there is the admission section where the attorney is trying to get the witness to admit that a certain statement is true. Next come the depositions, which is the formal testimony taken before a trial to get the facts about the case.

1.9 The Deposition

The deposition is also a very important aspect of all litigation proceedings. It is used to establish the facts and determine the origin and basis for these facts. It is used to determine the opinions that an expert witness may offer at a trial and to explore the basis for those opinions. One of it's most important functions is to seek out information that

will discredit or impeach the witness and make it look like the witness is not giving valid testimony. Finally it is a means of learning the plans and strategies of the opposing side.

There are a few general rules that one should abide by when giving a deposition in order to give the best and most helpful deposition possible. They are as follows: Listen carefully to the question being asked, pause before you answer the question so you can gather your thoughts and say exactly what you mean, answer only the question asked, answer truthfully and completely to the best of your ability, do not volunteer information, and lastly don't argue or advocate.

1.10 The Trial

The whole trial process goes as follows:

1. Picking a jury
2. Opening statements
3. Plaintiff presents their case
4. Defendant presents their case
5. Final arguments
6. Charge is read to the jury
7. Jury Deliberation
8. Verdict is read

Appearance and conduct in the courtroom is a very important part of the trial as well. One must dress business-like and address the judge as "your honor". Those present in the courtroom will include the judge, the court clerk, the court reporter, the marshal, the jury, and both parties involved.

1.11 Questions

As an attorney the types of questions that you ask take an integral role in your persuasion of the jury. You can ask specific or general questions, open and closed questions, leading and non-leading questions, formal and casual questions, simple and complex questions, and also probing and outlining questions. Not only is it what questions you ask, but how you ask them. Inflection and voice pitch changes can allow you to lend certain meaning to questions. The careful wording of a question or an answer may carry far more meaning than the mere words used, and most important of all answer truthfully.

1.12 Accident Reconstruction

Accident reconstruction has helped many attorneys throughout the course of history either prove their point or disprove the opposition's. There are six main rules that one must abide by in order to provide a valid and believable accident reconstruction. They are as follows:

1. They must agree with the laws of physics
2. They must agree with the majority of information and evidence available
3. You must be able to explain it to lay-people
4. Don't be biased from pre-conceived notions or ideas
5. No big surprises
6. It must be able to withstand attacks and scrutiny against it

If you follow these simple rules than your accident reconstruction should prove to be a very important tool to help you win a case.

1.13 Definitions and Techniques Employed by Attorneys

Here are some definitions and techniques that are used in court:

Adverse Witness- A witness called to testify by the opposing attorney

Balance of Evidence- The comparative weights of the evidence used by both sides

BAR- a.) A location of legal activity

b.) "BAR Association", a grouping of attorneys

c.) Prevent or keep out

Charge- Instruct or a complaint brought up against you

Hearsay- Something other than what a witness experienced, saw, or heard first hand

Proximate cause- An action or event without which the accident would not have happened

Puffery- The Exaggeration or overstatement of a product in order to sell it

Tort- A legal wrong was committed

Some very important techniques that should be used in the court room are: Never ask too many similar questions, don't fight or argue with the witness, keep your cross-examination short, know the answers before you ask the question, tell a story and paint a vivid picture for the court and jury to easily understand, stop when you have made your point, don't assume anything, listen carefully to the answers to the questions that you ask, and plan ahead and don't try to fool the judge and jury. If you follow these simple guidelines it will make your court experience flow more smoothly and you will have a better chance of accomplishing your goal.

1.14 War Stories

Now that we have told you what types of questions to ask and things you should do in the courtroom, here are some examples and tips to aid in the litigation process. There is an example in the reading of one witness who gave a seventeen-hour deposition. The lesson to be learned from this is don't let yourself be placed in an unreasonable or uncomfortable position at the deposition. Another example is the deposition at the airport gate. This says that one who takes a deposition or one who provides a witness or consultant for deposition has an obligation to provide a reasonable place for deposition. Some people are afraid to use the phrase "I don't know" in a deposition, but you must remember that "I don't know" is a good answer if it is the truth. One should never use the line of reasoning "I can prove it didn't happen that way, but I can prove how it did happen" because proving an accident didn't happen a certain way isn't a valid defense for the accident. Then there is the situation of the "Judge down south", assuming that a judge may be biased because of where they are from can prove to be a fatal mistake in certain instances in the courtroom because judges are normal people too. At the deposition one should know who's calling the shots. One shouldn't be hassled by disagreements or differences between attorneys outwardly on the same side of a matter, especially when they are on your side. Can you predict what the jury is going to do? Don't try to read a jury. It is unlikely that a specific jury can be read in any specific case. When encountered with an unforeseen surprise, don't show that it may have taken you off guard, because surprises happen and when they do a surprised response is often effective in aiding the opposing side. The trial is a game of presentations, don't be surprised if you're a witness, and if things are going well, you may keep going on the

stand, or inversely your time is cut short. If you know something that your attorney doesn't know let them know as soon as possible, because it isn't wise to go against you r attorneys or hold important information from them. Be careful what you take into court in your briefcase. When the cross-examiner checks your books and your private papers be ready to defend yourself, answer the questions, keep good records, give more expanded and complete answers when you know it is truthful and your actions are proper and reasonable, and try to return to the facts of the case rather than on your own charges and costs. When the lawyer that you had for a previous case is against you in the next case extra caution must be used when dealing with the same attorney for two different cases. In the event that your attorney-client gets fired you must be prepared for anything because your writing will be read back to you. These are some valuable techniques that can most easily be learned by experience in the courtroom itself.

1.15 Tips for the Engineer Involved in Litigation

Here are some final tips for the engineer in the courtroom:

- Don't try to run the game
- Always be truthful
- Don't become frightened or overcome
- Be prepared to listen and follow directions
- Follow instructions precisely and accurately
- Tell the truth

2. PRODUCTS LIABILITY: In a Nutshell

2.1 Definition and Scope

2.1.1 Product

A product is defined as a tangible personal property, goods or chattel. However product liability law has extended beyond personal tangible goods. Several rules govern the process of deciding whether product liability law applies to a situation. The first rule states that product liability law is not restricted to case involving a product. Product liability law applies in very specific situations. The situation is when the defendant is in the best position to spread the loss and prevent the injury. It also applies to other policy concerns such as freedom of speech and the difficulties of proof.

2.1.2 Defect

A defect is defined as the reason for imposing liability, against a product supplier, due to the supply of a defective product.

Product Defects: There are three types of product defects, which are termed as actionable wrongs. The first is a manufacturing or production flaw. This is a random flaw, which is not typical of the product. The second is a design defect, which is an Inadequacy in the design of the product. The last type is a defective warning or instruction. Misrepresentation is not technically a defect, however it fits under this category none the less. An important consideration when examining the topic of defects, is the difference between a production and a design defect. The reason for this consideration is that strict liability applies only to production defects. A second

consideration is necessary when dealing with the topic of misrepresentation. Misrepresentation is not easily distinguishable, from other defects, for three reasons. The first is that the product may carry express representations. The second is that the products' appearance may imply safety. The last reason is the topics of inadequate warnings and misrepresentations are unable to be separated.

Conceptual Standards for determining defectiveness: The term "defect" is used to describe any actionably wrong with the product when it leaves the sellers' hand. A distinction exists between a dangerously defective product and an unmerchantable product, especially when the only loss is an economic one.

a. Consumer Expectations: There is a strict definition for the term "unreasonable danger." "The article sold must be dangerous to an extent beyond that which would be contemplated by the ordinary consumer who purchases it, with the ordinary knowledge common to the community as to its characteristics." In design cases, expert evidence is necessary if defectiveness is to be established. "The foundation of a consumer expectation case is usually shaped by expert testimony, regardless of whether the case is brought in strict liability or in negligence.

b. Presumed Seller Knowledge: Strict liability, when based on innocent misrepresentation, does not require a risk-benefit analysis.

c. Risk-Benefit Balancing: Risk-Benefit analysis is used by the courts in the determination of design defects. There is a seven step standard use in risk-benefit analysis:

    1. The usefulness and desirability of a product.

2. The likelihood and probable seriousness of injury from the product.
3. The availability of a substitute product that would meet the same need and not be as unsafe.
4. The manufactures ability to eliminate the danger without impairing the usefulness or making the product too expensive.
5. The users' ability to avoid the danger.
6. The users' anticipated awareness of the danger.
7. The feasibility on the part of the manufacturer, of spreading the risk of loss by pricing or insurance.

d. State of the Art: The burden of eliminating a danger may be greater than the risk that the danger itself creates. It is possible for a product to be deemed unavoidably unsafe. This situation requires the absence of the knowledge or ability to eliminate a danger.

e. Unavoidably Unsafe Products: Strict liability does not apply in the case of an unavoidably unsafe product.

f. Defect and Unreasonable Danger: The Burden of proof of negligence, in a case of an unreasonably dangerous product, lies with the plaintiff.

2.1.3 Sale

A sale is the passing of title from the seller to the buyer for a price.

2.2 The Cause of Actions and Damages

2.2.1 Negligence

Negligence arises in various ways. These ways all have to do with the inadequacies in: inspection, processing, packaging, warning, design, marketing, or in any manner in which the defendant fails to uphold a reasonable standard of care. The Plaintiff is responsible for demonstrating that the accident is not possible in the absence of negligence. Also, the plaintiff must show that it was the defendants duty to eliminate the danger. Lastly, the plaintiff must, through evidence, remove responsibility for the accident from all parties except the defendant.

2.2.2 Statutory Violations

This form of cause of action relies directly on the terms of the statute or the intent of a legislative or regulatory body.

2.2.3 Reckless Misconduct, Concealment, and Deceit

Reckless misconduct justifies the recovery of damages for emotional distress. This form of distress is not otherwise unrecoverable.

2.2.4 Strict Liability

Implied Obligations: a. The warranty of merchantability

1. Unless excluded or modified, a warranty that the goods shall be merchantable is implied in a contract for their sale if the seller is a merchant with respect to goods of that kind.

2. Merchantability is contingent upon the following:
    a. Must pass without objection in the trade under the contract description.
    b. In the case of fungible goods, must be of average quality within the description.
    c. Must be fit for the ordinary purposes for which such goods are used.
    d. Must run, within the variations permitted by the agreement, of even kind, quality and quantity within each unit and among all units involved.
    e. Must be adequately contained, packaged, and labeled as the agreement may require.
    f. Must conform to the promises or affirmations of fact made on the container or label if any exists.

3.Implied warranties are permitted to arise during the course of dealing or usage of trade, unless otherwise permitted

    a. The warranty of fitness for a particular purpose: Strict liability applies in the case of particular purpose warranty. This is unusual and worth mention because strict liability does not normally apply in merchantability or strict tort.
    b. Strict Tort Products Liability

    Tort Law states:

        1.) One who sells a defective or unreasonably dangerous product to a consumer is liable for physical harm caused to the consumer or his property if:
            a.) The seller is engaged in the business of selling such a product, and
            b.) It is expected to and does reach the consumer without substantial change in the condition in which it was sold

The above law applies regardless of whether the seller has exercised all possible care in preparation. This law also applies if there is no contractual agreement between the buyer and the seller.

c. Abnormal danger

There is a list of standards, which determine whether a product is abnormally dangerous.

1.) The existence of a high degree of risk

2.) The likelihood that the harm will be great

3.) The inability to eliminate the risk through the exercise of reasonable care.

4.) The extent to which the activity is not a common usage

5.) The inappropriateness of the activity to the place where it is carried on.

6.) The extent to which its value to the community is outweighed by its dangerous attributes.

d. Misrepresentation: a. Express warranty

1.) Express warranty by the seller

a.) Any statement or promise by the seller, which relates the goods, establishes an express warranty, which must be conformed to by the seller.

b.) Any description, which is used, in the making of a bargain, must be accurate at the time of sale.

c.) Any model used in the creation of a bargain must be accurate at the time of sale.

2.) The seller creates an express warranty, even without using the word "warranty", if an affirmation of the value of the goods is given.

e. Strict tort

Strict tort states that a seller is still liable for harm done by a product sold even if:

1.) It is not made negligently or fraudulently, and

2.) The consumer has not bought the product under any form of contract.

2.2.5 Damages

General: The plaintiff is entitled to recover for any foreseeable damages, in tort or warranty.

Emotional Distress: There are differing opinions on whether recovery is an option for sufferers of emotional distress, assuming there are no accompanying physical damage. If physical damage exists, recovery can be made on the basis of emotional distress.

Punitive Damages: Very few plaintiffs are awarded punitive damages in cases of personal injury.

Joint and Several Liabilities: Joint liability is imposed when the damages are practically indivisible.

2.3 The Parties

2.3.1 Plaintiffs

A person who sues any products defendant for the purpose of recovering personal injuries. This person could be a buyer, user, consumer, or any bystander who could be in harms' way.

2.3.2 Defendant Seller of New Products

Manufacturers: In the case of a manufacturer, there are a variety of parties who may be sued. The final assembler may be sued as well as any manufacturer of any component part. These parties may be sued if the part is defective. However, even if the component meets the specifications, the manufacturer is still at fault if there is a foreseeable risk involved with installing the component into the final product. The manufacturer is responsible for its product before and after it is assembled. It is responsible for the components, which go into the product and the assembly of the product, even if they don't actually produce the components or assemble the product themselves. If a manufacture's name is on the product, they are responsible for any problems, which occur.

Middlemen and Retailers: The retailers are not liable for any latent defects in a product, unless the defect could have been found under routine inspection. "The Sealed Container Doctrine is a term of art used to relieve non-manufacturing sellers of implied strict liability for latent defects not discoverable by reasonable inspection, whether or not the product is sold in a sealed container. This document, however does not apply to cases of misrepresentation. This also doesn't apply if there is any attempt at a repair or a re-build. In this case the retailer is considered the new manufacturer. A middleman may also be found guilty, on some level, if it receives a commission from the sale of a defective product. If the middleman doesn't receive any commission, then it most likely won't be held liable.

2.3.3 Defendant Used-Product Sellers

A seller cannot be held responsible for a product after it has left the chain of distribution, assuming it is not a case of misrepresentation or a design defect. Also the seller cannot be found liable if it is "not equipped to pass on the quality of the goods and had no direct impact on the continuing relationship with the manufacturer." The only time that this does not hold true is in the case of a regular used product seller. They are still considered part of the chain of distribution, and thus are liable.

2.3.4 Defendant Successor Corporations of Product Sellers

This section deals with the buying and selling of entire businesses, and how the responsibility for previously manufactured parts is distributed. There are two major rules in this area of product liability. First is the Turner Rule, which spells out how the buyer of business can be liable for the defective products of the previous owner. The Turner Rule states: "1.)continuity of management, personnel, physical location, assets, and general business of the predecessor; 2.) Dissolution of the predecessor as soon as legally and practically possible; assumption by the successor of all liabilities of the predecessor necessary for the continuation of normal business operations; and 4.) A holding out of itself to the public by the successor of the effective continuation of the predecessor." The second product liability is the Ray Theory, which comes into play when the successor gains control of all or substantially all of the manufacturing assets of the predecessor. "It is based on policies based on virtual destruction of remedies against the predecessor through the acquisition, the ability of the successor to spread the risk, and the fairness

requiring it to do so as burden reasonably attached to the benefit of acquiring the good will of the predecessor."

2.3.5 Defendant Lessors, Bailors, and Licensors of Products

Lessors are liable for any injury, which occurs to the customer when using the lessor's defective product. This is true provided the defect occurs during the rental period. A long time lease is considered the same as the purchase of a product. In general, the lessor is held responsible if he either "marketed or placed the product in the stream of commerce."

2.3.6 Defendant Employer-Suppliers of Products

Employers are held liable for certain injuries, which occur to employees in the workplace. These instances include the cases where the employer knew about a potential problem area on a machine and did nothing about it.

2.3.7 Defendant Providers of Services

Representational Conduct: In this category there are three types of people who can be held strictly liable. They are: product certifiers, trade associations, trademark licensors and franchisers, and advertisers. This would be due to misrepresentation of a defective product.

Professional Services: The providers of professional services are not held responsible under strict liability, whereas the providers of non-professional services are. Also, product related services are covered by strict liability.

Pure Service Transactions: Strict product liability does not apply when a pure service is provided and where no product is involved.

2.3.8 Defendant Real Estate Suppliers

Builder-Vendors: Builders of dwellings or buildings are strictly liable for injury cause by defective construction. This applies whether the building is large or small. Liability is based on the assumption that the contractor should have superior knowledge and skill regarding the construction of the building.

Lessors: Lessors are required to upkeep the building which they are leasing out. The person leasing the property has the right to expect the dwelling to be well maintained, up to the level at the time that the lease was signed.

Occupiers of Premises: The landlord is strictly liable for injuries caused by a latent defect, if present at the time of the let. A landlord is considered part of the production and marketing enterprise. This rule holds true unless an occupiers actions can be considered abnormally dangerous. In that case, the occupier is liable.

2.3.9 Contribution and Indemnity

One who is found intentionally liable is not entitled to contribution. The Indemnity Doctrine says that "one passively or secondarily at fault was permitted to recover in full against one who is actively or primarily at fault. Some courts say that there is recovery relative to the amount of fault laid upon a person. This is called comparative fault.

2.4 Factors affecting Choice of Remedies, Jurisdiction, and Procedure

2.4.1 Reliance

"Proof of reliance is expressively as a condition to recovery for conscious, negligent, and innocent misrepresentation resulting in personal injury." However the express warranty provision says that "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." In order to recover for a breach of express warranty, one has to show that the consumer relied on the assurance of the advertisements when buying a product. If there happens to be an inadequate warning, and that is the basis for a case, there must be proof that the warning was relied on. Otherwise, misrepresentation cannot be claimed.

2.4.2 Disclaimers and limitations of Remedies

In general: "A disclaimer arises when no remedy is given, while a limitation of remedies exists when the plaintiff is given some remedy which may be different from or less than that otherwise provided by law." Contractual restrictions can not be used to avoid strict liability in the situations of negligence or warranty. The only time when contractual restrictions are valid against liability is when product liability is not applicable.

General Requirements:

(a.) Conspicuousness and Clarity: Lack of inconspicuousness and clarity will invalidate disclaimers. Writing a disclaimer in small print or hiding it on the back of a form is grounds for invalidation. The disclaimer must be written

in "clear and unequivocal terms and contain language which is close enough to express negligence that doubt is removed as to the parties intent."

(b.) Timeliness: A disclaimer must be delivered before a sale takes place or a contract is signed.

(c.) Fulfillment of Essential Purpose: "Where circumstances cause an exclusive or limited remedy to fail of its essential purpose, remedy may be had." In most cases this statement comes into play when a seller fails to fix a defect in a reasonable amount of time.

(d.) Conscionability: If a contract or a contract clause is found to be unconscionable, or leave a buyer with no options, it can be denied or accepted without the unconscionable clause.

As Affected by the Claims Asserted: Disclaimers of fraud, deceit or negligence are not valid. A complete disclaimer of liability is, in most cases, found invalid assuming personal injury is involved. This is a result of the idea that in a case of personal injury, at least a minimal remedy is written into any sales contract. Also, disclaimers tend to be invalidated if their purpose or result is the relief of obligation imposed by a statute.

Scope and Effect of Disclaimers: Only a party who is directly or indirectly part of an agreement is bound by a disclaimer.

2.4.3 Recovery of Solely Economic Loss

The Rule and its Rationale: A plaintiff cannot recover if he or she has suffered a solely economic loss, as a result of a defective product. This applies in the case of negligence or strict liability. The rationale behind this rule has multiple parts. The first is

that "product recovery, whether in tort or warranty, is limited to foreseeable damages." The second rationale is that negligence and personal injury are not disclaimable. The rule is valid regardless of privity between the plaintiff and the defendant. Solely economic loss is not insurable under product liability because a proof of an "occurrence" is necessary for indemnity to be received.

Definitions of Solely Economic Loss: "Economic loss is typically defined as loss in value, loss of use, cost of replacement, lost profits, and damage to a business' reputation, where no physical accident is involved."

2.4.4 Notice of Breach

"Where a tender has been accepted…""…the buyer must, within a reasonable amount of time after he discovers or should have discovered any breach, notify the seller of the breach or be barred from any remedy." This is a protection for the seller. It allows them to prepare for a possible claim against them.

2.4.5 Wrongful Death

A breach of warranty or negligence may be considered a wrongful act, thus may be subject to a wrongful death action. This is due to the fact that culpability exists "in the consciousness and understanding of all right thinking persons."

2.4.6 Procedural Considerations

Jurisdiction: a. Statutory Causes of Action: In the case were an express warranty is breached by a defendant, state consumer protection statutes gives the plaintiff the right

to treble damages and also to collect for attorney's fees. There is a private right of action, established by Congress, for damages where someone is injured due to a violation of a consumer product safety rule. These are both examples of causes of action brought on by statutes.

(a.) Minimum Contacts of the Defendant: A defendant cannot be found liable for a defect, which occurs outside of his forem state. If a retailer does not avail himself " of the privilege of conducting business in the forem state" or "to serve directly or indirectly" in the market, then they cannot be held liable. However if the manufacturer intends to make a profit from a national market, then the specific state does not exclude the manufacturer from liability.

(b.) Class-Actions and Multi-District Litigations: There are four types of class actions: "1. Where there is a risk of inconsistent or varying adjucation; 2. Where adjucation of some claims will, as a practical matter, be dispositive of the claims of others not a party to the litigation; 3. Where the defendant has acted or refused to act on grounds generally applicable to a class, making final injunctive or declatory relief appropriate; 4. Where questions of fact or law common to the members of the class predominate over the questions affecting only individual members." The first three types are mandatory for all members of the class to follow. The fourth type gives an option. The multi-district litigation statute states that similar pending litigation from one district can be used in pre-trial matters in other districts.

(c.) Inconsistent Verdicts and Erroneous Instructions: Every court treats these issues differently. Some say that a defective product does not necessarily breach warranty and

vice-versa. Some however disagree and say "If any counts in a declaration are good, a verdict for entire damages shall be applied to such good counts."

(d.) Res. Judicata: Collateral estoppel is a term which "precludes relitigation of an issue that has been finally determined in a prior litigation between the same parties or their privies or relitigation of an issue by one party where that issue has been finally determined against that same party in a previous litigation." Non-mutual defense collateral-estoppel is used when a plaintiff tries to sue a defendant on an issue dealt with in a prior suit. Non-mutual offensive collateral estoppel is used when a defendant tries to relitigate a prior issue.

(e.) Choice of Law: If a federal law decides that its own rule is procedural, federal law is applied over the forem states' law. In the case of change of venue, the transferor court sets the conflict rules for the transferee court. A state must have a significant number of contacts involved in the case in order to apply its own law.

2.4.7 Statutory Compliance

Compliance with applicable statutes means that the product is inherently not defective.

2.4.8 Defense Contract Specifications

Non Government Specifications: If the specifications are conformed to, the manufacturer is not liable. Unless the products "are so defective and dangerous that a reasonably competent contractor 'would realize that there was a grave chance that his product would be dangerously unsafe'."

Government Specifications: A manufacturer is not liable for a defective product it is in accordance with government contract specifications. There are four elements to this statement: 1. "The approval of the design by the United States must involve a discretionary function"; 2. The United States must have "approved reasonably safe specifications"; 3. "The product must have conformed to those specifications" and ; the supplier must have "warned the United States about the dangers in the use of the equipment that were known to the supplier but not to the United States."

2.4.9 Statutes of Limitation

The Applicable Statute: Two or more statute could apply to a case. Either a warranty statute or a personal injury statute or both could be applied. A statute of repose is a limitation whose period runs between two fixed dates, regardless of the situation.

Date of Accural: An accural date is the date at which the statue of limitations take effect. Three common types of these dates are: "1.)date of the injury, 2.) Date when the plaintiff had reason to know about the claim, 3.)Date when the plaintiff, in the exercise of reasonable care, should have known of the claim."

Tolling Exceptions: A statutory period has the ability to be tolled , or stayed. A reason for this would be the happening of an event, which prevents the period "from beginning or continuing to run as it would otherwise do in the absence of the events occurrence."

2.4.10 Statutory Retrenchments

Some issues covered by these retrenchments, or limitations are: "limitations on the amount of chargeable contingent fees; elimination of the collateral source rule; provision for the periodic payment of judgements; elimination of strict liability and the adoption of the product state of the art defense; elimination or restriction of recovery for punitive damages.

2.5 Production and Design Defects

2.5.1 Production defects

In a manufacturing defect case, the plaintiff proves that the product is defective by showing that it does not agree with the manufacturer's specifications. However if a manufacture determined that a 20% failure rate was acceptable, none of the products falling within this range of failure should be considered defective. Random defectiveness is probably what is taken into account by the concept of production defect. It is not always a useful means of distinguishing production from design defects, if the idea is intended to refer to the rate of failure.

2.5.2 Design Defects

The Theory of Liability: There are many different views as to what constitutes as liability. The most widely exercised standard of liability is some form of risk-utility analysis. Risk-utility analysis is where the liability of the manufacturer depends upon a departure from certain standards of care. This is basically a matter of negligence on the part of the manufacturer, but many courts would have us believe that their focus is on the

product rather than the manufacturer's conduct. Although a jury will take into account the judgement or decision, in other words "conduct" of the manufacturer. However, in strict liability cases, industry custom or usage is irrelevant to the issue of the defect. Instead, the factors of the degree of danger posed by the challenged design, the probability that such a danger could occur, the mechanical feasibility of a safer alternate design, and the adverse consequences to the product and to the consumer that would result from an alternate design. One view as to what design defectiveness is in strict liability is whether the product did not perform under normal conditions as an ordinary consumer would expect, also if the plaintiff proves that the product's design caused his injury and the defendant fails to show that the benefits of the challenged design outweighs the risk of danger inherent in such a design. However a product that fills a requires/critical need and can be designed in only one way should be viewed differently.

Polycentricity: Sometimes conscious design decisions are described as "polycentric" or "many centered problems", in which each point of a decision is related to all of the others. This describes how some flaws in design may result from concisely inputting one design, which is safe under most conditions, but flawed under lower percentage conditions. Thus trade-offs in the design of a product involve safety, utility, and cost. It is the manufacturers judgment as to whether the trade-off are acceptable, if the trade-offs are known to the public, but still accepted by it. This concept of "trade-off" makes deciding product liability a more complex process. In the Bowman court, it was thought that the jury should be instructed to consider the probability and seriousness of potential injury, and the ability of the manufacturer to design a safer product without jeopardizing any of the functions and the effectiveness of the product. Opponents of

polycentricity say that when a manufacturer places market considerations before the design of a safe product, that is when a design is thought to be liable and unreasonably dangerous.

The Relation of Design and Warning Defects: The failure to warn of an obvious danger in the product is a case of liability, but to warn of an obvious danger that can be avoided through a feasible alternate design can also be seen as liable. Thus placement of written warning labels and notices, does not release the manufacturer of all of their responsibility in the safety of a product. Lack of mechanically engineered warning may also be a case of design defect, as in the case of Simms vs. Thiede (1990). Depending on the situation at hand, the degree of liability due to warning or lack there of is dependant on the view as to whether the warning is adequate and/or the manufacturer neglected to warn the consumer of the dangers.

Obviousness of Danger: Is a manufacturer liable for a product that has obvious dangers, and is misused by the consumer in such a way that he injures himself? That depends on the product and whether adequate safe guards can be implemented and if the dangers were unreasonable. However the obvious danger defense conflicts with the defense of assumption of the risk. To establish assumption of the risk, it must be shown that the plaintiff discovered the defect, fully understood the danger that it presented, and disregarded this known danger and exposed himself to it anyway. In a case of truly obvious danger, the failure to adequately warn of such a danger or hazard that is apparent to the ordinary user is not unreasonably dangerous, as stated by the Tennessee Product Liability Act, Tenn. Code Ann. 29-28-105(d).

Crashworthiness: Crashworthiness is a term used to describe the capability of a product to protect against increased injury from an accident caused by something or someone other than the product. This is mostly used in connection with automobile collisions, as in fuel tank crashworthiness, but may also include such events as when a fire extinguisher fails to work, or a burglar alarm malfunction. Most courts find that most products must be reasonably designed against foreseeable accidents. Injuries resulting from unforeseeable accidents, however, are not the responsibility of the manufacturer.

2.6 Inadequate Warnings and Instructions, and Misrepresentations

2.6.1 Warnings and Instructions

In General: A plaintiff is not requires to make an election between pursuing a case on a strict products liability theory of either design defect or failure to warn. A plaintiff may proceed with both theories if both are viable. A warning is distinguished from an instruction, in that instructions are calculated primarily to secure the efficient use of a product, while warnings are design to insure safe use. A warning must describe the nature and the extent of the danger involved. For example a jury could find that a warning on a dishwasher soap was inadequate. The warning stated that the soap was corrosive, but it did not warn that the product could cause blindness. Warning may need to detail not only the toxic qualities of the product, but also a safe means of disposal. A manufacturer may be required to warn of the absence of an antidote in the case of a dangerous poison. Also, it should take into account the environment in which its product will be used when fashioning warnings. In most cases a warning is requires in order to enable the plaintiff to use the product in such a way as to avoid a concealed danger. The

plaintiff could not complain that a warning with clearer or stronger content would have made a difference if the plaintiff had failed to read the warning that was given. On the other hand, the plaintiff has the burden of showing that, had a warning been given, it would have cause him/her to avoid the accident. If a danger is obvious, it is not required for a warning to be given, but determining cases of defective design is complicated. Sometimes expert testimony is required to determine the adequacy of warnings to a specialized group, such as doctors.

The Standard of Liability: There is a substantial division of authority regarding whether a negligence or a strict liability is to be used in failure to warn cases. With today's world consumers, it is hard from them to protect themselves from risk of serious dangers caused by the products they purchase. The manufacturer is better equipped with the knowledge of the product and can handle with more ease, any economic consequences of accidents caused by defective products. So the consumer must rely on the integrity and competency of the business community. Also, by imposing on the manufacturers the cost of failures to discover hazards, we create an incentive for them to invest more actively in safety research. Liability can also be judged by scientific knowability. If a known defect or hazard could be deemed knowable at the time of production through applying research or performing tests that were available at the time, then the manufacturer is liable and negligent in producing the dangerous product. However, it's hard for juries to understand this "scientific knowability" and judge upon these given complex issues. The effort, time, and money applied to safety research is also analyzed to see if the manufacture put up a decent effort in discovering flaws and defects in their products. The state-of-the-art is usually determined in terms of the

scientific or technological knowledge available at a given time, while the negligence standard of due care is defined in terms of what a person knew, had reason to know, or should have known regarding a danger and the means of avoiding it. These two standards are not necessarily the same, even for a manufacturer with assumed expert knowledge in the field, since the reasonable person cannot always be expected to know that which is knowable.

Persons to be Reached: A warning is mandatory only on to specific dangers that an expert is unaware. Commonly experts need not be warned if products they are using are in their field of knowledge. However, there may be specific dangers of which the expert is unaware, and thus needs to be forewarned. An intermediary is required to give warning to the consumers if they have knowledge of the defects, dangers, and/or past accidents. However, some intermediaries have no knowledge of defects. In most cases of doctors prescribing drugs, the warning can be issued to only the doctor, this is called the "learned intermediary rule" for prescription drugs. In some cases, however, the warning has to be given directly to the consumer via package insert or warning, such as in the case where it is foreseeable that a drug will be used or administered without the intervention of a doctor or learned intermediary.

Countervailing Representations: Misrepresentation of a warning can occur when the warning is downplayed or misleading. Counteractive words that describe the products safety, when in fact it was misleading can make the warning more inadequate. In some cases, salespersons, or manufacturer's detail men, emphasize it's products effectiveness, while downplaying or not warning of the defects can also count as misrepresentation. Pictures, and/or appearance of safety can also be a misrepresentation

of safety if the pictures or appearance show how safe a product is, when actually it isn't. A variety of circumstances surrounding the packaging, marketing, and appearance of a product may serve to counteract any warnings that are given. Adequacy of a warning depends upon the environment in which the product is marketed.

Post-Sale Duties to Warn: In some cases, a warning is necessary post-sale if a dangerous defect is discovered or known in the product sold. A negligent failure to warn can also exist at the time of sale. The post-sale duty may be greater than one of just warning, as in cases where the product needed to be recalled or repaired. However, in cases where corporation A buys out corporation B, corporation A is not liable for products sold by it's predecessor. On the other hand, corporation A, has the obligation to warn of dangers associated with products sold by it's predecessor if they discover a defect in the product sold by it's predecessor.

Allergic Users: Warnings are subjected based on a substantial or appreciable number of persons contingent to the allergy. This is where the defendant should have known of the risk. The definition for substantial or appreciable number is not easy to define. There has been one case where 373 complaints out of 82 million sales were considered sufficient. Common allergies such as eggs or strawberries need not be warned by the seller, but may be requires to warn that products contain ingredients that are known allergens.

2.6.2 Misrepresentations

Misrepresentation can be based on deceit, negligence, strict tort, or strict warranty. There is no need for a defect on a product to be shown other than the

plaintiff's injury is caused by misrepresentation of the supplier. Sometimes misrepresentations arise from the appearance of the product itself. A number of product defenses and liability limitations can be avoided if strict liability for misrepresentation is imposed.

2.7 Problems of Proof

2.7.1 Cause-in-Fact

A plaintiff must show that the defect existed when the product left the defendant's control. He must reasonably eliminate alternative causes not attributed to the defendant.

The plaintiff in a strict liability action is not required to disprove every possible alternative explanation of the injury in order to have the case submitted to the jury. The plaintiff need only show that the material fact to be proved may be logically and reasonably be inferred from the circumstantial evidence.

Some count have rejected the market share basis of liability for similar products that have varying degrees of harmfulness, on the ground that the market proportion rationale is inapplicable since the proportion of the market sold does not necessarily reflect the proportion of injuries likely caused by a defendant.

Often the concept of foreseeability is used to describe occurrences that can reasonably be anticipated, while proximate cause is used to describe occurrences that are the "direct", "natural", or "probable" result of another event.

2.7.2 Proximate Cause and Foreseeability

In "strict liability the knowledge of the article's propensity to inflict harm as it did is assumed regardless of whether the manufacturer or seller foresaw or reasonably should have foreseen the danger." But before a manufacturer or other seller is strictly liable for injury inflicted by a product, the product must be foreseeable, while only foreseeability of use is required in strict liability.

Misuse: Affirmation defense by some courts. Misuse is not treated as a bar to recovery unless it is considered unforeseeable. Unforeseeable misuse is considered a bar. Misuse, when attributable to the plaintiff rather than a third person is closely related to contributory negligence and assumption of the risk. The fact that the plaintiff himself is guilty of criminal conduct in his acquisition or use of a product will not necessarily bar his recovery on the grounds of unforeseeable contributory negligence or assumption of the risk(Rest 2d of Torts 889).

Alteration: A special problem of misuse concerns the alteration of a product. A substantial alteration that causes the accident may be unforeseeable, barring recovery, unless the alteration should have been anticipated because of the characteristics of the product that invite or encourage the change. Where a defendant furnishes a defectively constructed product, it is foreseeable that the product may be defectively modified in an attempt to correct the original defect.

Damages: Sec. 435 of the Rest. 2d of Torts states, 1. If the actor's conduct is a substantial factor in bringing about harm to another, the fact that the actor neither foresaw nor should have foreseen the extent of the harm or the manner in which it occurred does not prevent him from being liable. 2. The actor's conduct may be held not to be a legal cause of harm to another where after the event and looking back from the harm to the

actor's negligent conduct, it appears to the court highly extraordinary that it should have brought about the harm.

2.7.3 Plaintiff Misconduct, and Comparative Fault

a. Three types of plaintiff misconduct that can bar or limit the plaintiff's right to recovery are: 1. Contributory negligence, the failure of the plaintiff to take reasonable care for his own safety. 2. Assumption of the risk, a knowing and voluntary confrontation of an appreciated risk. 3. Misuse including alteration of the product, the use of a product in a foreseeable or unforeseeable manner.

Contributory negligence and assumption of the risk are usually treated as defenses, with the burden of proof on the defendant. Contributory negligence is determined by a reasonable person standard, while knowledge of what the plaintiff actually knew. The danger can be latent, but discovered by the plaintiff. A plaintiff may be aware of one risk without appreciating another.

b. The effect of plaintiff misconduct in strict liability: Some courts hold that contributory negligence is no defense in a strict products liability action, but that assumption of the risk is a defense. Contributory negligence of the plaintiff is not a defense when such negligence consists merely of a failure to discover the defect in the product, or to guard against the possibility of its existence.

c. Comparative Fault: Comparative fault has been widely adopted, either by statute or judicial decision. Three principle patterns of comparison: 1. Her fault is less than that of the defendant. 2. If it is not more than that of the defendant. 3. If the defendant is at fault to any degree.

Pure comparative fault is preferred by commentators and is the method usually chosen by judicial adoption. If the plaintiff is permitted to recover, their recovery will be proportionally reduced by the percentage of the fault, if any, attributable to themselves. Thus a plaintiff found 30% at fault can recover 70% of the damage.

Where there is more than one defendant, the general rule is to retain joint and several liability in comparative fault.

The reasons for retaining joint liability in a comparative fault, even where the plaintiff is also at fault: 1. The feasibility of apportioning fault on a comparative basis does not render an indivisible injury "divisible" for purposes of the joint and several liability rule. 2. In those instances where the plaintiff is not guilty of negligence, he would be forced to bear a portion of the loss should one of the tortfeasors prove financially unable to satisfy his share of the damages. 3. Even in cases share a plaintiff is partially at fault, his culpability is not equivalent to that of the defendant. The plaintiff's negligence relates only to a lack of due care for his own safety, while the defendant's negligence relates to a lack of due care for the safety of others; the latter is tortuous, but the former is not. 4. Elimination of joint and several liability would work a serious and unwarranted deleterious effect on the ability of an injured plaintiff to obtain adequate compensation for his injuries.

Comparative fault is widely applied to unreasonable assumption of the risk. Some courts apply comparative fault to conduct based on plaintiff misuse of the product. Some courts compare relative fault, others relative causation, and still others a combination of these factors in determining comparative fault or comparative responsibility. Some states by statute apply comparative fault to strict liability action.

2.7.4 Subsequent Remedial Measures

Evidence of the subsequent measures is not admissible to prove negligence or culpable conduct in connection with the event. This rule does not require the exclusion of evidence of subsequent measures when offered for another purpose, such as proving ownership, control, or feasibility of precautionary measures, if controverted, or impeachment. The rule is generally held to exclude evidence of remedial measures only if taken by the defendant after the plaintiff's injury, and it does not exclude evidence of such measures taken before the injury.

The rule does not exclude: 1. Evidence of remedial measures taken by one other than the defendant. 2. Evidence of remedial measures taken a defendant after the plaintiff's accident when these measure are involuntarily undertaken. The rule does not apply unless the evidence concerns conduct that can fairly be described as a remedial measure.

Evidence of subsequent remedial measures may be admitted, even in a negligence case, if offered for some purpose other than that of showing negligence or culpable conduct.

R.407 states that evidence of subsequent remedial measures is admissible when offered to prove "feasibility of precautionary measure, if controverted, or impeachment." The feasibility of providing a safer design or warning is often a principle issue in products litigation.

2.7.5 Miscellaneous Problems of Proof

History of unsafe and safe use: Evidence of unsafe use and of prior accidents with similar products is admissible for a variety of purposes, including proof of notice of the alleged defect by the defendant, the magnitude of the danger, the forseeability of user conduct, the defendant's ability to correct the defect, and causation.

Spoliation: It occurs when a person willfully or negligently disposes of product evidence vital to a litigant's case. The person who disposes of the evidence may be held liable to the litigant for the damages they likely could have recovered, but for the disposal. The disposer may be the product supplier, or another owing a duty to preserve the evidence.

Expert Testimony: Expert testimony may be essential in a products liability lawsuit to establish a prima facie case of defectiveness, causation, damage, and other issues in the suit. Expert testimony is addmissionable if it will aid the fact finder in its determination of an issue in the suit. Experts may be lay persons, in the sense of lacking academic credentials, provided they have acquired specialized knowledge through experience with a product.

State of the Art and Industry Custom: Courts have difficulty distinguishing between state of the art and the industry custom, and a number of counts permit evidence of industry custom to show state of the art. State of the art is defined as the scientific or technological knowledge available or existing when a product is marketed.

Codes, Reports, and Technical Literature: Safety codes drawn up by industry sponsors associations are admissible on the issue of defectiveness, due care, and other disputed issues in a case.

Discovery: The use and abuse of discovery have become controversial issues in civil litigation, including products liability.

3. John Frazier vs. S-B Powertool Company

3.1 Background

On May 14, 1996 John Frazier, the plaintiff, was ripping a piece of 27"x 2 ½"x ¾" pine stock on his Skill 10" table saw, model 3400-type 2, when his hand came in contact with the rotating saw blade (see **figure 1**). He sustained severe injuries to his left hand and fingers. The plaintiff was immediately rushed to the hospital, where it is shown in the medical reports that his middle finger on his left hand was amputated, his ring and index finger were fractured and partially amputated, and his left thumb was cut down through the nail almost to the first knuckle (see **figure 2**). This was all allegedly the result of a kickback that Mr. Frazier experienced while ripping a board, causing his left hand to come in contact with the rotating saw blade.

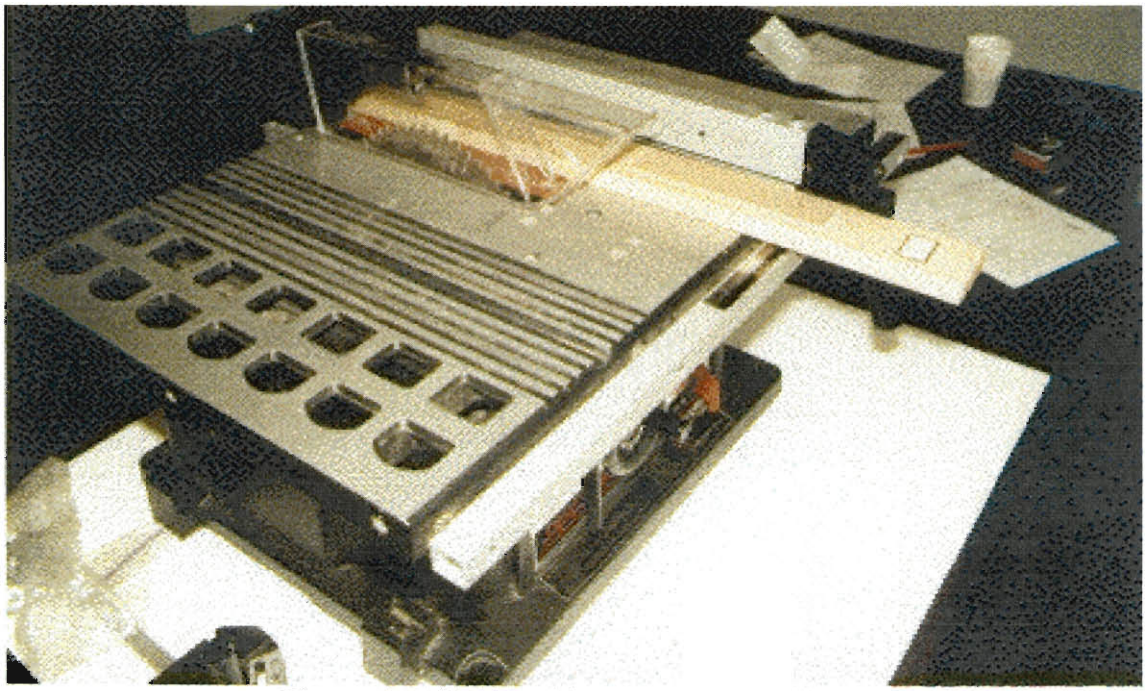


Figure 1: Skill 10" table saw, model 3400-type 2

John Frazier was a 76-year-old man who has been married for over sixty years and has seven children. He currently resides in Braintree, Massachusetts, but his wife, Leanore, lives in Florida. Mr. Frazier spends a lot of his time visiting his wife and children in Florida and California. Mr. Frazier is currently retired, although he is still the director of a bank and still works one day a week inspecting property for the bank. Prior to this he used to work as an electrical contractor and a wire inspector, and one of his sons has taken over the business since then.

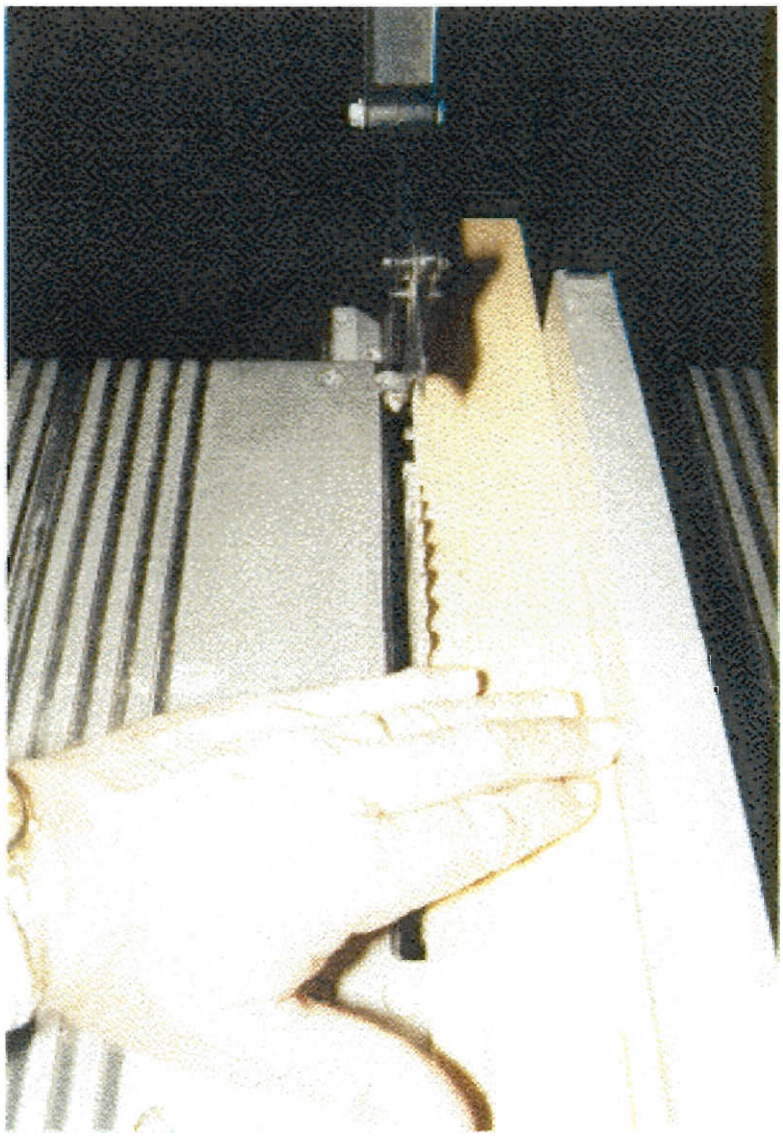


Figure 2: Frazier's description of the accident

3.2 General Accident Description

The following is the plaintiff's claim, as described by statements in his deposition. The deposition of John Frazier was sworn and examined on Wednesday, July 16, 1997 at the offices of Gerry Shea Court Reporting Services, One Union Street, 2nd floor, Boston, MA 02108.

John Frazier was ripping a piece of pine stock to be used at his daughter's house in California, to cover a piece of pipe that was attached to the pool pump on the side of the house. The stock that he was using was 27"x 2 ½"x ¾". He was using a Skill 10" table saw, model 3400-type 2 (see **figure 3**). 10" refers to the diameter of the circular cutting blade. Mr. Frazier claims that as he was pushing the piece of wood through the table saw to rip it to it's new width, he experienced what is known as a kickback. The consequences of a kickback can be dangerous, if the proper safety devices are not provided on the machine such as, anti-kickback pawls or a blade guard. A kickback occurs when the blade of the saw binds on a piece of wood, causing it to be thrown from the machine at a high velocity. During the incident in question, Mr. Frazier experienced a kickback, and this is when his left hand came in contact with the saw blade. According to Mr. Frazier's deposition he was midway through making the cut when "…all hell broke loose…the next thing I knew, my – I looked down, there is a bunch of fingers laying on the table."

Mr. Frazier claims that the table saw designed and manufactured by S-B Powertool Company was an unreasonably dangerous machine. Mr. Frazier claimed that the accident was the result of a kickback, caused by a defective rip-fence and a defective anti-kickback device. Mr. Frazier accused S-B Powertool Company of negligently designing, manufacturing, and distributing a defective table saw. Mr. Frazier also claims that the table saw breached express and implied warranties of merchantability and fitness for particular purposes. As a result of the injury Mr. Frazier had four fingers on his left hand severely damaged, forcing him to spend a lot of money on medical bills, and suffer great pain of body and mind. He won't be able to enjoy life to the same degree that he did

before the accident, so he is seeking a recovery in the amount of $44,683.40 plus the cost of any future medical expenses related to the accident. However, in order to win this suit, the plaintiff must show that the defect existed when the product left the defendant's control. The charges that Mr. Frazier had placed against S-B Powertool Company were:

- Count 1- "Negligence"- the negligent design, manufacture, and distribution of a defective product
- Count 2- "Breach of Warranty"- The implied merchantability and fitness for a particular purpose were false.

3.3 Investigation and Analysis

Our group acted as the expert for the defense in the case of John Frazier vs. S-B Powertool Company. We analyzed the scenario described by John Frazier. According to Mr. Frazier, he was making a rip cut to a piece of pine wood 27"x 2 ½"x ¾" on the day of May 14, 1996. In the process of ripping the board, Mr. Frazier allegedly experienced a kickback, causing his left hand to move forward and come in contact with the saw blade. This kickback was supposedly the result of the rip fence being misaligned, so as to cause the piece of wood to bind between the blade and the fence. Due to the photographic evidence provided, there certainly was a kickback (see **figure 4**). As you notice in the picture, the anti-kickback pawl is bent and has left marks on the board, this indicates that there was a kickback, but we believe that the accident proceeded differently than Mr. Frazier gave in his deposition from that point on.

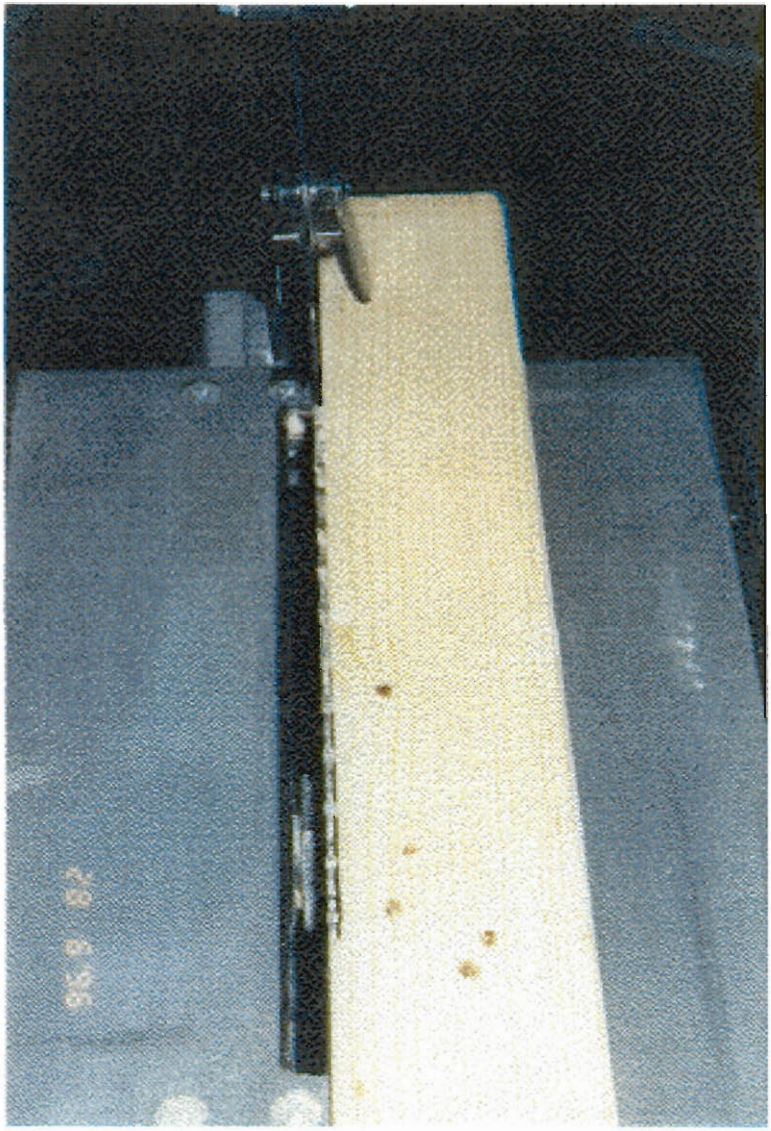


Figure 3: Marks from anti-kickback device

Mr. Frazier sustained serious injuries to his left hand, which consisted of the amputation of his middle finger, partial amputation of his index and ring finger, and a cut down the middle of his thumb. According to the medical reports Mr. Frazier's middle finger on his left hand was completely amputated along with his index and ring finger being severed below the first knuckle (see **figure 5**). This being the case, we don't see how it was possible for the accident to have happened the way that the plaintiff, John

Frazier, described in his deposition. This is primarily due to the fact that Mr. Frazier's pinky finger on his left hand was completely untouched. If the accident had proceeded the way that Mr. Frazier had deposed, it is most likely that his pinky would have been the first finger to come in contact with the blade and be amputated or damaged.

Figure 4: Mr. Frazier's hand

We believe that Mr. Frazier realized that he made a mistake, but doesn't want to be stuck with all of the medical bills, so he was looking for a means to blame the manufacturing company S-B Powertool Company, because he figured that they were a big rich corporation and they could afford it. Blaming the kickback on the defective rip fence was Mr. Frazier's means of placing the blame and responsibility on the company. We will now show how we think the accident really happened.

3.4 Accident Reconstruction

Now that the original scenario has been discussed and refuted, the next step is to determine what actually did happen to John Frazier. This is not a difficult task to complete, due to the nature of Mr. Frazier's injuries. We believe that Mr. Frazier was injured because he did not use the blade guard that was provided with the table saw. He also violated specific instructions and warnings written in the owner's manual and on the saw itself. Specifically, we think that due to the nature of his injuries, the only way that Mr. Frazier could have been injured in the manner described in the medical reports is if he reached over and behind the rotating blade to pull the wood from the other side, and that's when his thumb came into contact with the saw blade. If Mr. Frazier had been using the blade guard and followed the instructions and warnings provided with the saw, he could not have been injured. The examination of the Skill 10" table saw involved in the accident, by Professor Hagglund, showed that the rip fence was parallel to the blade, which means that a kickback did not occur because of a misaligned rip fence. Examination of the cut surface on the workpiece showed that the blade teeth contacted the side of the wood, and this is probably what caused the kickback (see **figure 6**). However, a kickback would not have caused Mr. Frazier's left hand to move forward toward the blade. If that was really the way that the accident occurred, then his little finger would have been amputated first, and it wasn't.

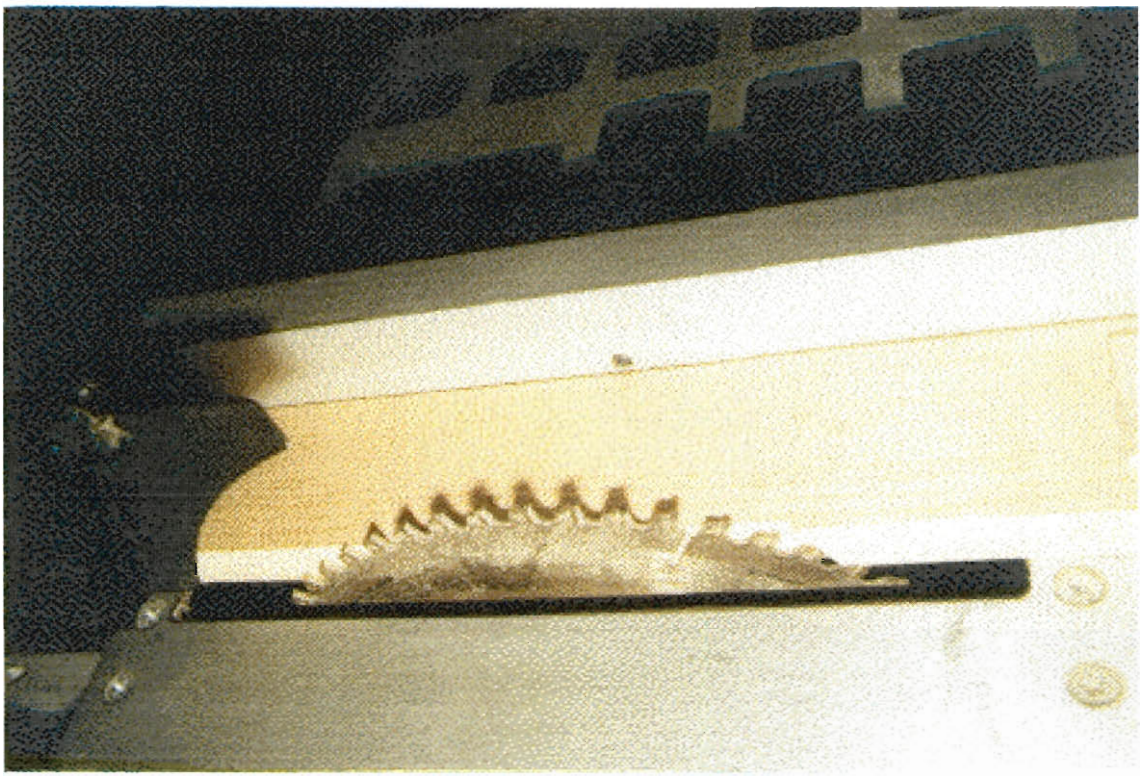


Figure 5: Saw blade coming in contact with side of wood

The physical evidence of the accident and the medical reports led us to believe that the accident happened because Mr. Frazier was not using the blade guard that was provided for the saw, while he was ripping. It appears that Mr. Frazier reached over and behind the blade to try to free up the wood that was coming out of the blade. This then shows that he pulled the wood away from the fence, causing the teeth of the saw blade to dig into the side of the wood, and this is what cause the kickback (see **figure 7**). As the wood moved toward Mr. Frazier as the result of the kickback that he himself caused, his left hand, which was behind the saw blade, was sucked into the rotating blade, because it had been holding the wood that just came out of the saw blade. Mr. Frazier's thumb then came into contact with the blade on the backside of the blade, where the saw blade first

cut through his thumb, then index finger, middle finger, and ring finger. There were 12 warnings on the saw itself. They are as follows:

Warning: For your own safety- read and understand the owner's manual.

1.) Always wear safety goggles

2.) Do not wear loose fitting gloves, neckties, jewelry, or loose clothing

3.) Always use the blade guard and splitter for every operation, it may be used including all "thru-sawing"

4.) Keep hand out of the path of saw blade

5.) Always use "push sticks" when required for "non-thru" cuts and when ripping

6.) Do not perform any operation "free-hand". Use fence when ripping and mite gauge when crosscutting

7.) Know how to avoid the risk of a kickback

8.) Make certain that wide or long workpieces are properly supported

9.) Never reach in back or over saw blade

10.)Do not remove jammed or cut off piece until the blade has stopped.

11.)Disconnect saw from power source before making repairs or adjustments

12.)Do not operate while under the influence of drugs, alcohol, or medication

If Mr. Frazier had followed instructions 3, 4, 7, and 9, then he would not have been injured and the whole accident could have been avoided.

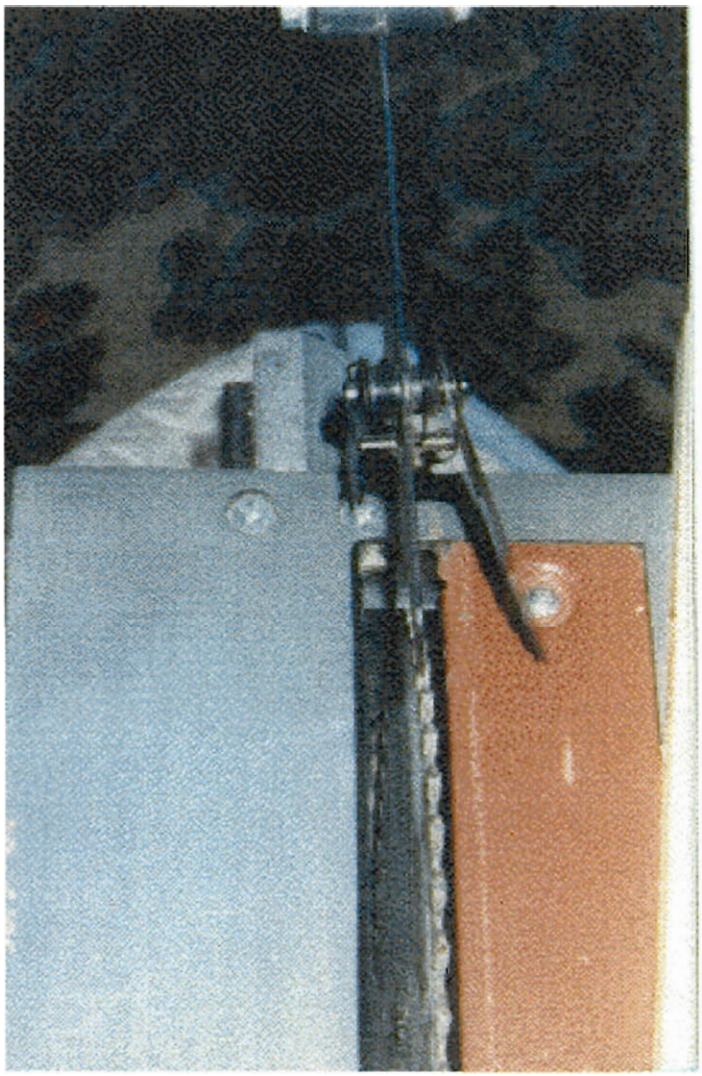


Figure 6: Evidence of Mr. Frazier pulling wood to the side

3.5 Final Assessment

John Frazier is 100% responsible for the injuries, which he received on May 14, 1996. There are three types of misconduct, which can bar a plaintiff's right to recovery. These are contributory negligence, assumption of risk, and misuse.

Contributory Negligence is defined as the failure of the plaintiff to take reasonable care for his/her own safety. This is clearly the situation as far as John Frazier is concerned. Frazier was aware of the proper procedure for ripping a board on the table

saw. He chose not to use a push stick, and attempt to set the board free from the backside of the saw blade with his hand. This is an undeniably and unsafe practice. Following an unsafe practice constitutes lack of reasonable care for one's safety. Thus Frazier is guilty of contributory negligence.

Assumption of Risk is defined as the knowing and voluntary confrontation of an appreciated risk. Frazier was aware of the inherent dangers of the table saw and the proper procedures for it's use. He had many years of experience using this piece of equipment. This awareness should have caused him to follow proper safety guidelines. Frazier, however, chose to ignore the warnings, along with common sense. This constitutes voluntary acceptance of the inherent dangers of the machine, and thus assumption of risk.

Misuse is the unsafe use of a product in a foreseeable or unforeseeable manner. Frazier is also guilty of this, however misuse is not normally used as a defense in a products liability case.

4. ESTATE OF LAURA HERNANDEZ VS. MICHAEL D. MACKENZIE AND ZACHERY S. TAYLOR

4.1 Introduction

On July 21, 1992 at approximately 9:10 a.m., Laura Hernandez was travelling north along Route 12 in Ashburnham driving a Dodge Aries K car. She was returning home to her children after working the late shift. At precisely the same time, Michael D. Mackenzie was driving an International tractor-trailer in the southbound lane. The trailer on the truck was an eight-wheel tanker, which had been full of water. Mr. Mackenzie had just finished filling a pool in Ashburnham off of Route 101 and was heading to his next destination for his employer Taylor Transportation.

At the approximate time stated above, Ms. Hernandez' car and Mr. Mackenzie's truck impacted at some point along Route 12 in Ashburnham. Resulting from the accident, the Hernandez car was spun and came to rest against the guardrail, facing the opposite direction of traffic in the northbound lane. The Mackenzie tractor came to rest against the same guardrail in the northbound direction. Post-accident, the trailer of the truck started in the northbound lane and the back of the trailer ended up in the southbound lane of travel.

No witnesses were present at the time of the impact. After the accident, some motorists stopped and the Police Department, Fire Department, and Emergency Medical Services of the Town of Ashburnham were notified. Ms. Hernandez was pronounced dead on arrival by the Emergency Medical Technicians. Mr. Mackenzie experienced no injuries as a result of the collision.

4.2 Background

. The plaintiffs in this case are Hector Hernandez, Administrator for the Estate of Laura Hernandez, Giselle Fred, Louie Fred, Alex Rodriguez, and Laurimar Rodriguez. At the time of the accident, Ms. Hernandez, deceased, was thirty-two years old and a mother of three. She worked third shift while raising her three children on her own. The plaintiffs contend that Michael D. Mackenzie, one of the defendants, was at fault in the motor vehicle accident, which resulted in the death of Ms. Hernandez.

The defendants in this case are Michael D. Mackenzie and Zachary S. Taylor. Mr. Mackenzie was driving the truck involved in said accident. Mr. Taylor is the owner of Taylor Transportation and the employer of Mr. Mackenzie.

Five different people were deposed in this case, Ronald P. Laplante, Chief of Police for the Town of Ashburnham, Michael D. Mackenzie, driver of the truck, Robert Kohlstrom, potential witness of the accident, James H. Burson, the plaintiffs' expert and owner of Code 16 Investigations, and Charles Dietrich the defenses' expert.

4.3 Ronald R. Laplante

4.3.1 Background

Ronald R. Laplante is the Chief of Police for the Town of Ashburnham. He has acted in this capacity since January of 1974. He has been in the department part-time from 1965 to 1969 and full-time from 1969 to the present. He took many courses while in the Massachusetts State Police Academy such as criminal law, statute law, motor vehicle law, first aid, CPR, self-defense, and others. Since becoming a full-time officer, he has continued his education and taken many other courses, yet at no time during his

training did he study anything related to accident reconstruction. In fact in being asked during his deposition if he performs accident reconstruction, Laplante replied, "No, I don't."

4.3.2 Post-Accident Scenario

On the morning of July 21, 1992, Chief Laplante arrived at the accident site on Route 12 in Ashburnham shortly after it happened. He was the first and only officer to appear at the scene. His appearance occurred after that of the Town of Ashburnham Fire Department and they're Emergency Medical Services team as well as many spectators. Upon his arrival, he was informed that the driver of the car, Laura Hernandez, had already been taken to Burbank Hospital.

Chief Laplante's first course of action at the scene was to find out if there were any witnesses to the accident among the spectators. Upon finding none, it brought the driver of the truck, Michael D. Mackenzie to his police cruiser and advised him in his rights. Next, he questioned Mackenzie as to his account of how the accident happened. Then, having absolutely no background in or knowledge of accident reconstruction, he began his own assessment as to what may have occurred.

After interrogating Mackenzie, Chief Laplante stepped out of the police cruiser and requested of Lieutenant Ruschioni of the Ashburnham Fire Department to take any pictures of the accident that would be necessary for the investigation. These pictures included both vehicles and any marks or debris that he could locate. Next, Laplante created a drawing of the accident scene to file in his police report, before the vehicles were removed (see **figure 7**). This drawing included his opinion as to where the impact occurred and the distances of the vehicles at rest with respect to the point of impact.

After making his drawing, Laplante called in a truck team to remove the two vehicles from the scene.

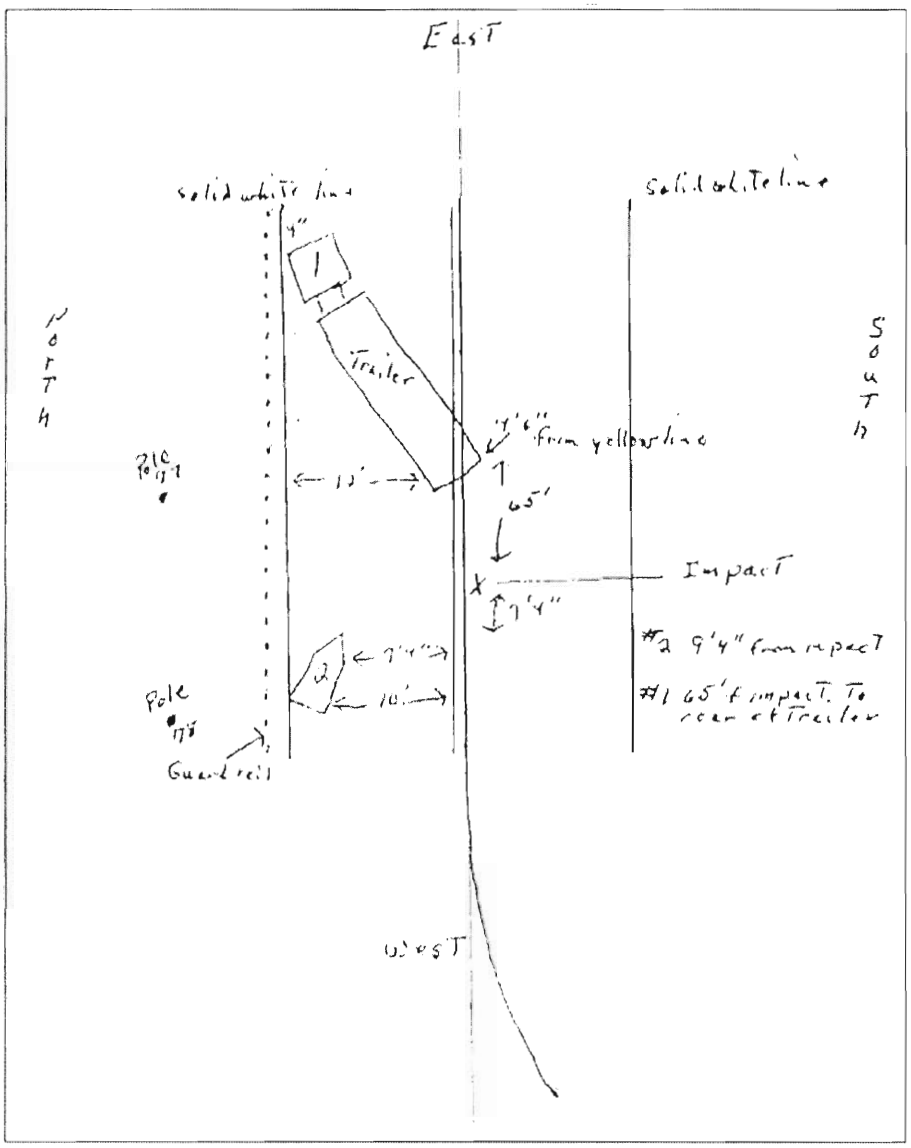


Figure 7: Chief Laplante's drawing of the accident scene

Chief Laplante, acting on a tip from Bud Fletcher, a funeral director for Fletcher's Funeral Home in Winchendon, also contacted Robert Kohlstrom at approximately 5:30 p.m. the night of the accident to find out what he may have potentially seen on that day. Mr. Kohlstrom, who was also deposed for this case, did not shed much light on the event with respect to Laplante's investigation, since he did not actually witness it. The

questioning of Mr. Kohlstrom was the last step in Laplante's investigation before he filed his police report.

4.3.3 Post-Accident Discussion

In questioning during his deposition, Chief Laplante was asked to detail the steps he followed when making his drawing of the accident. He was also asked how he came about his decision as to who was at fault. When asked by Mr. Campobasso what he did to complete the process of putting together his diagram, Mr. Laplante answered that he drew the lines seen, solid white lines on either side. He drew in the dotted lines that indicate the guardrail. Then, he drew in the two lines together in the center of the dotted lines, which represent the fact that they were both solid yellow lines. Laplante drew in the diagram of the truck and the vehicle, and then he wrote the measurements from the lines to which they point.

Mr. Campobasso also asked Chief Laplante questions to see if he followed a certain schedule when investigating the accident and creating his drawing. He was asked if he marked the positions of the vehicles using spray paint. Laplante answered, "No, I didn't." Campobasso also made the query as to whether Laplante marked the positions of the vehicles using any method at all. His answer was, "Not that I recall." He was asked if he marked any road markings such as indentations, rubber, or any other pertinent clues with spray paint, and Laplante answered, "No, sir." When questioned as to if he knew what the coordinate method of measurement was and whether or not he followed it, he said, "I did not do that." Laplante was also asked if he took any measurements pertaining to any distances on the ground representing rubber from tire marks or indentations from any particular point. His answer to this question was also no.

Although he says that he does not have the actual skid marks in feet, what Chief Laplante states that he did measure was the distance of the Hernandez vehicle to the center line, the distance from what he felt was the point of impact to the rear of the trailer, the distance of the rear of the trailer to the center line, and other similar measurements. Laplante feels that a gouge mark left on the southbound side of the double yellow line on Route 12 was the point of impact of the two vehicles. He bases his opinion on where the collision occurred on debris that was left in the road, where the marks from the two vehicles started, and a gouge in the road which he felt was fresh.

As to how the debris assisted him in concluding that the point of impact was where he indicated, Mackenzie stated the following. "Well, normally if, for example, if I walked out to a particular car out in this parking lot out there and gave it a good kick in the fender, stuff from underneath that car would normally come down and lay there, all right. And that's what I based it on that impact was there. The road was clear of any debris, of dirt, stuff from underneath the vehicle except for that general area." When asked how far from the yellow line the gouge mark was, Laplante estimates that it was probably about six inches. Upon further questioning, he says that he has no idea what part of either vehicle caused the gouge mark, and he at no time attempted to find out such.

Laplante, during his analysis of the collision, states that he at no time attempted to calculate the speed of either the car or the truck using any method or scientific formula. He also admits during questioning in the deposition that he does not know what linear momentum is, and he is neither familiar with nor has he ever utilized a time-motion formula. Campobasso also asked Laplante if he made any determination as to whether or

not the brakes of the truck had been applied at any time. He contends that it his is belief that the brake marks on the road were left by Mackenzie's truck after impact.

In questioning during the deposition by Alfred J. Monahan, lawyer for the defendants, Chief Laplante was asked if after his investigation of the accident and his view of the scene and his measurements if he formed an opinion as to whether or not the Hernandez vehicle was across the yellow line in the truck's lane. Laplante says that he feels that the Laura Hernandez' car was on the wrong side of the road. Therefore, it is his opinion that Ms. Hernandez was at fault in this accident.

4.4 Michael D. Mackenzie

4.4.1 Background

At the time of the accident, Michael D. Mackenzie was twenty-one years old and had been driving tractor-trailers for Taylor Transportation for approximately two to three months. He went to high school at Monty Tech in 1989 where he graduated with an automotive certificate. After high school, Mr. Mackenzie went on to earn a diesel certificate from a nine-month program at the Diesel Technology Institute in Enfield, Connecticut. He did not at any time drive trucks while at DTI, but he took courses that involved aspects of tractor-trailers such as engines, transmissions, drivelines, differentials, brakes, electrical systems, and air systems. Mr. Mackenzie states in his deposition that he is "very familiar" with how the air brake system of a truck works.

Throughout his high school years, Mackenzie worked for R-D Transportation in Winchendon, Massachusetts. He worked as a mechanic and learned how to work on trucks through hands-on experience. During his time at DTI, he continued his work

experience as a mechanic working for RM Sullivan Transportation out of Springfield, Massachusetts. Mackenzie's mechanic experience was also utilized at his job for DM Hudson in Sterling, Massachusetts from 1987 to 1993.

During his years of work for the aforementioned companies, Michael Mackenzie began his truck driving experience as well. His duties as a mechanic required him to move the tractor-trailers from the yard to the garage to work on them and vice versa. Through this practice, he learned how to maneuver the truck as well as the trailer. Mackenzie first got behind the wheel of a tractor at age fifteen, as he states in his deposition, for R-D Transportation.

His on the job training without a permit of license continued until he was approximately sixteen or seventeen years of age. At that point, he received his Class One Learner's Permit. For six months, he continued to drive tractors on the yard at work, as well as practice driving on the road with his stepfather, Dennis Cook. Mackenzie learned to drive from Cook, who had also been previously employed for R-D Transportation, through observation, instruction, and on the road experience. After the six-month period of learning how to drive with his Learner's Permit, Mackenzie took the Class One Driver's Exam at the Registry of Motor Vehicles in Winchendon, Massachusetts. The test consisted of a circle check, driving maneuvers, parking maneuvers, and the regular road test. He received his Class One Driver's License at age seventeen.

4.4.2 Accident Scenario

Michael Mackenzie began his workday on July 21, 1992, the day of the accident, at approximately 6:00 a.m. at Taylor Transportation. As he had learned the night before, his duties would be to fill swimming pools that day. Mackenzie, that day, was to drive an

International Tractor-Trailer. The trailer of the truck was a silver, eight-wheel tanker that was forty-three feet long and capable of holding up to 9,000 gallons of water. Before leaving Taylor Transportation, he did a pre-road inspection or circle check of the vehicle, which included checking the lights, tires, breaks, and drivelines.

After his check of the vehicle, Mackenzie left Taylor Transportation to fill the tank, which was empty, at Whalom Lake. He filled the tank with an indiscriminate amount of water, stating at the deposition that he does not recall how much he actually pumped that day. From this point, Mackenzie alleges that he traveled to at least one stop off of Route 101 in Ashburnham, where he filled a pool with an unknown amount of water. After this stop, he continued on to his next destination, travelling south along Route 12 in Ashburnham with what he states was an empty tanker.

The route that Mr. Mackenzie was taking was a familiar one. He says, while being deposed, that to the best of his knowledge, he had previously driven that particular route for Taylor Transportation. Mackenzie was making the turn on Route 12 South, at the accident site, when the collision with Laura Hernandez' car occurred.

At the moment of impact with Ms. Hernandez' automobile, Michael Mackenzie contends in his deposition that the first point that he saw her car was "over the hood of the truck." It is his testimony, that at no other point of travel, was he aware of the presence of her vehicle. He only became aware of her car, when he saw the trunk of her Aries over the hood of his own truck. He says that he has a clear memory that the car was either brown or tan, but did not see it approach.

At the precise moment of impact with the Hernandez vehicle, Mackenzie says that he estimates he was travelling between thirty and thirty-five miles per hour. He has no

idea what speed Ms. Hernandez going. Mackenzie also goes on to state that he has no idea as to where his bumper and tire were located in respect to the road at the point of impact. He does, however, say that his tractor-trailer was on his side of the double yellow line.

As the two vehicles impacted, Mackenzie testified that the first thing that happened to his truck was that the hood popped open (see **figure 8**). He goes on to state in the deposition that neither the cab of the truck nor the trailer jumped up and down. He says that the tractor-trailer stayed on the roadway through the collision. After the accident, Mackenzie's truck came to rest against the guardrail in the northbound lane of travel. He states that the cab of the truck was against the guardrail. The trailer began in the north side of Route 12, blocking travel, and ended in the south side lane of travel.

Once Mr. Mackenzie's tractor-trailer came to a stop after the accident, the first thing that he says he did, was attempt to call 911 for help using the cellular phone in his truck. His call was an unsuccessful one. He also says that at no time did he go over to the vehicle of Laura Hernandez and stayed in close proximity to the tractor. At some time after the accident, the Chief of Police for the Town of Ashburnham, Ronald R. Laplante, arrived on the scene and took Mr. Mackenzie's statement as to how the accident occurred. After speaking to the officer, Mackenzie was driven home by his boss, Zachery Taylor.

4.4.3 Post-Accident Discussion

Michael Mackenzie, in response to questioning by the plaintiffs' attorney, Stephen M. Campobasso, states that he does not believe that the stretch of road on Route 12 where the accident happened was a straightaway. He again affirms that he was

travelling between thirty and thirty-five miles per hour before coming into the turn. Mackenzie says that coming into the turn, he slowed down approaching the corner, taking his foot off the throttle and letting the truck coast. He does not recall as to whether he applied the air brakes of the truck either before of after impact.

Figure 8: Tractor-Trailer at rest against guardrail

When questioned during the deposition as to what the state of his tractor-trailer was after the accident, Mackenzie made the comment that it was "pretty smashed up." The damage was isolated to what Mackenzie believes was the front six feet of the left side of the tractor. Along with the damage sustained from the impact itself, the tractor also suffered stress fractures and cracks further down the line.

In the deposition of Michael Mackenzie, Mackenzie states that he believes that Laura Hernandez was in his lane of travel, the southbound lane, by one and half feet

when the accident occurred. When asked how he came to this conclusion, Mackenzie states two reasons. His first inference is that the rear section of the car he saw was on his side of the street. Therefore, he believes that it is a safe assumption to state that if the rear was on his side, then the front was on his side as well. The second conclusion he makes is arrived at through inspection to the damage of his truck (see **figure 9**). He decides that the damage to the front of his truck clearly indicates that "she was a good foot and a half into the front of the truck." When questioned again by Mr. Campobasso as to how he knows that Laura Hernandez' vehicle was in his lane, Mackenzie answers, "if she wasn't in my lane we wouldn't have had impact." It is the decision of the defendant, Michael D. Mackenzie, that Laura Hernandez was in his lane of travel, and therefore completely at fault.

Although Michael Mackenzie says that he sustained no bodily injuries as a result of the accident, he does contend the he has dealt with many nights with no sleep. When asked if it was a traumatic event, he states "Yes, it was. Something that's been trying to go away for the last two and a half years and hasn't gone away."

4.5 Robert Kohlstrom

4.5.1 Background

Robert Kohlstrom, the day that the accident occurred, was a forty-five year old married man who lived in Leominster, Massachusetts. Mr. Kohlstrom was employed as an assistant supervisor at Tamor Plastics at the time when his deposition took place. Kohlstrom was driving his Ford F-150 pickup truck on Route 12 North in Ashburnham, because his brother had died that day. He was travelling from Leominster to the Fletcher

Funeral Home in Winchendon to drop off the clothes that his brother was to wear in his casket.

Figure 9: Damage to truck

4.5.2 Pre-Accident Scenario

At a time, which would have been shortly before the accident, as testified by Robert Kohlstrom, he was travelling north on Route 12 when he encountered the truck being driven by Mr. Mackenzie. He states that the truck was coming up a hill toward a bend in the road. Kohlstrom, who at one time drove tractor-trailers himself, also adds that he believed Mackenzie was accelerating up the hill for the purpose of not having to downshift when approaching the top.

As the truck approached, Kohlstrom became startled because he was "afraid the truck was coming too close to the line." He states in his deposition, "He kind of put a little scare into me and I yanked my wheel to the right, and I continued on my way."

Quoting Kohlstrom, "I remember him coming very close to the yellow line." He does go on to add, however, that he has no recollection of the truck actually crossing the line. It came within what he thought was approximately one foot of it.

Kohlstrom feels that the truck was only two or three car lengths away when it first came into view, and it took about two seconds for them to completely pass each other. After what he feels was approximately six seconds after passing the truck, according to Kohlstrom, he heard a loud crash. After reversing direction and travelling back along Route 12, he came upon the scene of the accident. Kohlstrom offered his assistance. Since it was not needed, he left the scene.

4.6 James H. Burson

4.6.1 Background

At the time of his deposition, James H. Burson, expert witness for the defense, was the 48-year-old owner and president of his own accident reconstruction company, Code 16 Investigations, Incorporated out of Townsend, Massachusetts. Burson graduated from Ayer High School in Massachusetts in 1966. He graduated from Mount Wachusett Community College in 1969 with an Associate's Degree. From 1969 to 1972, Mr. Burson served in the United States Army, being honorably discharged in December of 1972. After leaving the armed forces, he matriculated at Suffolk University, receiving his B.S., B.A. in accounting in 1978.

During his time at Suffolk, Burson joined the State Police in Massachusetts. He entered the State Police Academy in November of 1973 in Framingham. His training at the academy lasted twenty weeks. While there, his courses entailed aspects such as

firearms, criminal investigations, some accident investigations, first aid, self-defense, criminal law, and motor vehicle law.

Burson distinguishes between accident investigation and accident reconstruction in the following way. "An accident investigation is basically laying down the facts; who was where, what, when, registration numbers, license numbers, location of the accident and any other physical observations as the officer makes. That would be considered the basic accident. And some measurements if they so deem. Whereas, reconstruction is going into detail' measurement of skid marks, measurements of angles of approach and departure, crush damage, measurement of the vehicles themselves. Photographing the vehicles and doing calculations based on measurements taken for the determination of speeds, et cetera."

During 1982, Burson took two forty-hour courses in accident investigation. The first forty-hour course was taught at the State Police Academy and was given by three different instructors. This course concentrated on preliminary data, calculations such as minimum speed, skid marks, defining what types of skid marks are being observed, measurements, and scale drawings. After successfully completing the first course, Burson took an advanced accident investigation course that same year taught by the same instructors. This course, which was also forty hours, went into far more detail on the calculations used including a start on the reconstruction using the work force conservation linear momentum. More detailed analysis was learned, such as pedestrians, car pedestrian accidents, motorcycle accidents, more detail on critical speed formulas, airborne equations, and headlight and lamp analysis.

After taking his preliminary accident investigation courses in 1982, Mr. Burson took an eighty-hour accident reconstruction course at the University of North Florida in September of 1983. The courses within the field of accident reconstruction which were taught included derivation of basic formulas that are used, derivation of the critical speed formula, heavy course work involving the conservation of linear momentum, field work involving conservation of linear momentum, vault testing, and actual testing of the formulas.

After graduating from this course, he served as the accident reconstruction team for A Troop of the Massachusetts State Police Department until 1985. While serving in this capacity, Burson was called in for any and all fatalities and any serious personal injury accidents, which his shift commander deemed appropriate. During this time, he estimates that he performed between one hundred and one hundred fifty accident reconstructions. Mr. Burson retired from the State Police Department in 1987 due to a medical disability.

In 1987, Burson started his own accident reconstruction company, Code 16 Instructions, Incorporated. He testifies in his deposition that in his capacity as a reconstructionist, he has reconstructed accidents in approximately ninety to one hundred twenty civil cases. Of these, he has appeared in court to testify approximately thirty times and represented both plaintiffs and defendants. He has acted as a reconstructionist in three different cases for which tractor-trailers were involved. When asked during his deposition if there have ever been any occasions when he has testified or has been introduced as an expert witness when he has not qualified as an expert in the superior court, Burson answered, "No, sir." His credentials have never been challenged.

4.6.2 Accident Reconstruction

James Burson, through his accident reconstruction, places the truck driver, Michael Mackenzie, on Laura Hernandez' side of the road at the moment the impact occurred. Although he visited the accident site, most of the evidence from which he worked came from pictures of the post-accident scene. Mr. Burson, provides many answers to questions in his deposition, that he feels proves that Mr. Mackenzie is at fault in the accident.

Burson believes that Mackenzie was driving his truck at a speed of between forty and forty-five miles per hour when the impact occurred. He feels that Mackenzie entered Laura Hernandez' lane and drove up over the hood of her Aries bouncing off to the right. The size of the tractor in comparison to that of the car was much larger, causing the car to rotate during impact and end up facing the opposite direction at rest. As the tractor came off the car, it bounced snapping the front steer axle and popping the left front tire. (see **figure 10)** The tractor-trailer continued in a skid to the left, crashing into the guardrail in the northbound lane of Route 12.

The first piece of evidence that Burson offers as to the fact that Mackenzie was on the wrong side of the road was a black line cutting across the left yellow line created by the Hernandez vehicle's left front tire. (see **figure 11**) Burson says in his deposition what his basis was for determining that the black line was left by the car. He says that looking at photographs of the position of her tire at rest (see **figure 12**) and the damage seen to the left front of her vehicle, this is approximately the way a tire would look when spun sideways.

Figure 10: Deflated tire and broken steer axle

The next bit of evidence that Mr. Burson supplies as to the fact that the defendant was in the northbound lane of travel at the time of impact was a large spot which partially covered the right yellow line. (see **figure 13**) Burson contends that the spot was caused by the left front tire of the tractor. He points to other marks in the same picture which were also caused by the truck's front left tire. Burson was asked in the deposition what his factual basis was for stating that the three marks he identified were left by the left front tire of the truck. He answered, "Because the truck was bouncing when it left him.

The cab was actually bouncing. These marks indicate where the truck, the front tire, the left front tire of the truck struck the ground as it's bouncing down the road."

Figure 11: Mark caused by left front tire of car

Burson is also asked in the deposition, if there is another basis in addition to the bouncing dynamic to say that the marks were left by the left front tire of the truck. He replies that there is, stating that the markings on the Hernandez vehicle prove such. (see again **figure 12**) Mr. Burson feels that the marks are caused by rubber transfer of the

left front tire of Mackenzie's truck because the marks are black and the color of Ms. Hernandez' car was white.

Figure 12: Damage to car

Mr. Burson explains his belief that the tractor drove over the hood of the car through the damages to the vehicles and the nature of their impact. The impact occurred on the left front side of both the car and the tractor. (see **figures 12 and**) Burson believes the Mackenzie's truck impacted Hernandez' car at the left front bumper right at the headlight assembly. (See again Figure X) The damage to the truck occurred right at the left front wheel well where the bumper wraps at the tire. (See again Figure Z)

In his deposition, Burson was asked to explain what it was about the nature of the impact that led him to the conclusion that the left front tire of the truck drove on to the

top of Laura Hernandez' vehicle. He stated that it was the dynamics of the vehicles themselves, the size of the vehicles relative to one another, and the type of damage that was seen. He believes that the type of damage that was viewed on the Aries and the damage seen on that of the truck did not coincide with the front end of the truck staying on the ground.

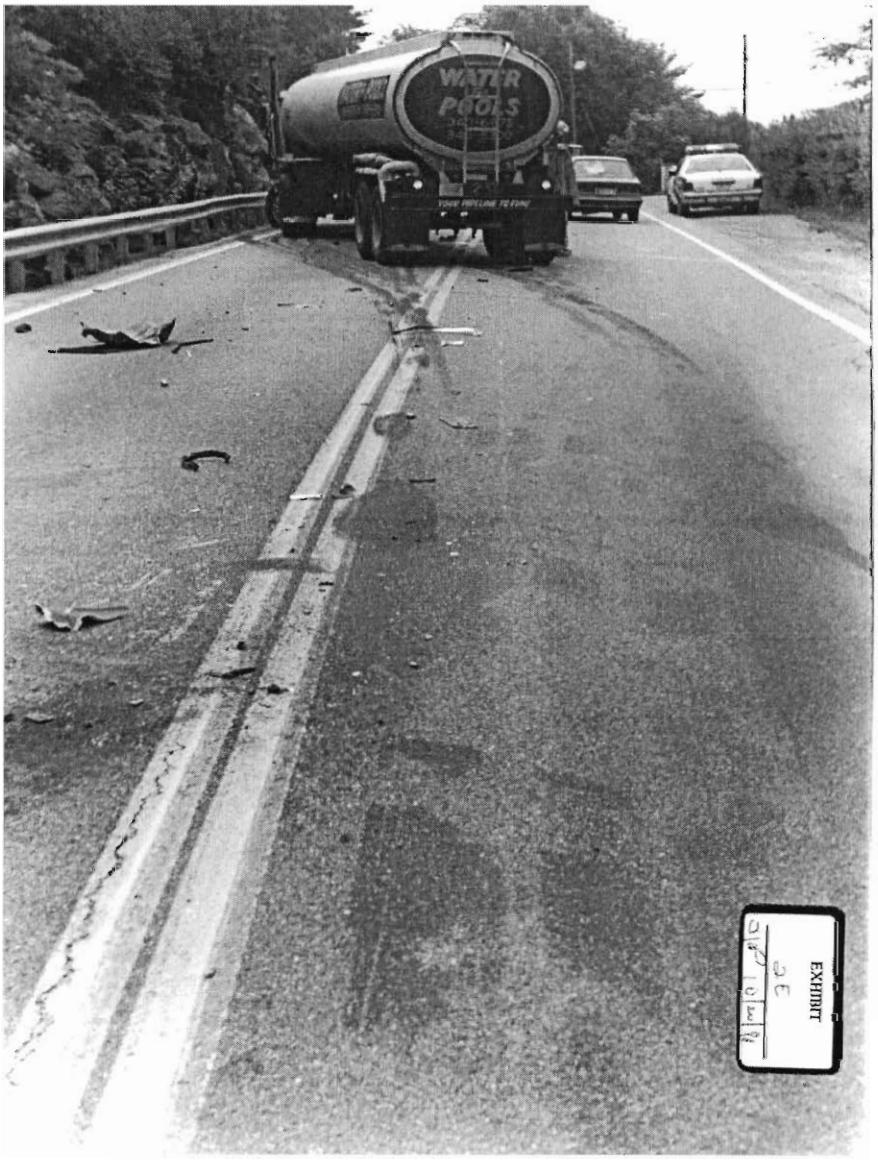


Figure 13: Spot depicting truck over yellow line

Burson goes on to state in his deposition that "the tire (of the truck) has to be over the center line to hit the headlights. The headlights are on the left front tire of the vehicle. In order to catch the headlights with that left front side, the front of that truck has to be over on the northbound side of the travel lane over the center line into (the) northbound lane." James Burson, expert witness for the plaintiffs, has done exactly what he is expected to do, place the blame on the defendant in this case.

4.7 Charles Dietrich

4.7.1 Background

Charles Dietrich was sixty-two years old at the time that his deposition was taken and a resident of Malden, Massachusetts. He is the president of the Dietrich Group, Incorporated whose services were acquired for this case by the defense. The Dietrich Group provides forensic engineering services to clients in mechanical and electrical engineering, automotive and vehicle engineering and in structural analysis. Dietrich represents both plaintiffs and defense and has appeared in both the Superior and Federal Courts.

After graduating high school, Charles Dietrich attended the Massachusetts Institute of Technology. He received a Bachelor's Degree in electrical engineering in 1956 and received a Master's Degree, also in electrical engineering, in 1958. Dietrich's education continued after receiving his Master's Degree. He took courses at MIT in systems engineering and statistical analysis. He also took a course at the University of Michigan in biomechanics of impact, which was related to motor vehicles.

Dietrich was employed at Bolt, Beranek & Newman as both a junior and senior engineer after leaving MIT. He worked for this company from 1958 to 1985 full-time. He began accident reconstruction for the firm in 1968 testifying in his first case, also that year. He started the Dietrich Group in 1985. He finished his duties for BBN in 1986, and began working full-time for the Dietrich Group. He belongs to the American Association for Advancement of Automotive Medicine, the Audio Engineering Society, the Society of Automotive Engineers, the Human Factors and Ergonomics Society, the International Society for Traffic and Medicine, and the Sports Club Car of America.

4.7.2 Accident Reconstruction

Mr. Dietrich, who was hired to be the expert witness of the defense, performed no calculations when formulating his opinion as to whom was at fault in this case. However, through his viewing of the photographs, he was able to place Laura Hernandez in the lane of Michael Mackenzie at the moment of impact. In his deposition, Dietrich says that Mackenzie was entirely in the southbound lane, his lane, at the time of the collision. He says that it is fair to conclude, due to the damage sustained on the car and truck (See Figures F and D) and where he feels that the skid marks originate in the road that the Hernandez car was at least eighteen inches into the southbound lane.

Dietrich, again without doing any actual analysis or calculations, states in his deposition that there is no reason to believe that truck was going any faster than the low thirties in miles per hour. He says he formed this opinion through the general distance the truck traveled after impact. He states that he looked at the pictures and didn't see the truck go a great distance post-collision.

Charles Dietrich, who is the expert witness to the defense, did what he was hired to do. He testified that the defendant, Michael Mackenzie, was in his lane of travel when the accident occurred. Unfortunately, he has done so unconvincingly. His whole basis for his opinion comes from his general view of the pictures he was presented. He himself admits that he did no analysis or calculations in this case.

4.8 Accident Reconstruction

Taking into account the depositions that we read and our own calculations and views of the photographs, we came up with our own decision as to who was at fault in the accident. Using the information provided by Mr. Kohlstrom as well as our own calculation using the formula, we place the speed of Michael Mackenzie between forty and forty-five miles per hour, the moment before impact. At that speed, the trailer that he was towing would begin to tip due to the turn that he was trying to negotiate.

In order to correct the tip, Mackenzie cut the wheel of his tractor hard to the left. In doing so, he crossed the double yellow line on Route 12 in Ashburnham. This resulted in his crossing from his lane of travel, the northbound lane, into Laura Hernandez' lane, southbound lane. At this point, we contend that the cab of Mackenzie's tractor-trailer impacted Laura Hernandez' Aries. The front left side of his truck collided with the front left of her car. At the moment of impact, the tractor struck the car at the left front bumper at the headlight assembly. (see **figure 12**)

After the initial contact, Mackenzie's cab then drove up over the hood of the Hernandez' car causing the damage seen. (see **figure 12**) The weight of the truck compared to the weight of the small car, caused the car to rotate due to its momentum.

The car spun causing the tire marks left at the yellow line. (see **figure 11**) The tractor, meanwhile, came off of the hood of the car and bounced once maybe more on the road. As the tractor bounced, the front steer axle was broken. This event cause something on the undercarriage of the truck to come free, causing the gouge mark in the southbound lane that was thought to be the point of impact by Chief Laplante.

The truck's left tire became deflated and turned completely to the left as a result of the impact with the ground. (see **figure 10**) Mackenzie, after impact, applied his air breaks and his momentum and the fact that his wheel was turned to the left carried him across the yellow line leaving the approximately sixty-five foot long skid marks in the road. (see **figure 14**) The truck hit the guardrail in the northbound lane causing further damage to the truck as well as the guardrail. The tractor finally came to rest against the guardrail in the northbound lane with its tractor stretching across the northbound into the southbound lane. (see **figure 14**) Laura Hernandez' vehicle, which was spun due to the impact, also came to rest against the northbound guardrail facing the opposite direction as her original route of travel. (see **figure 14**)

4.9 Final Assessment

It is our belief in this case that the driver of the International tractor, the defendant Michael D. Mackenzie, was at fault in the accident that occurred on Route 12 in Ashburnham, Massachusetts in which he hit Laura Hernandez' Dodge Aries K car. Because Mackenzie caused the accident, he is also responsible for the death of Ms. Hernandez. Therefore, we feel that both Mr. Mackenzie and his co-defendant, Zachery S.

Taylor, should be responsible for monetarily compensating the estate of Laura Hernandez.

Figure 14: Skid marks and final resting positions of vehicles

5. Estate of Hector Lopez vs. Encore Wire Corporation, MGS Manufacturing, INC., and EWC Leasing Corp.

5.1 Introduction

On December 10, 1997, 25 year old Hector Lopez was performing work under the direction and supervision of Encore Wire, on the premises owned, maintained, operated, and controlled by Encore Wire, when he was violently entangled in a Rewinding Machine designed, manufactured, and sold by MGS Manufacturing, INC. Upon entanglement, Mr. Lopez was repeatedly thrown against the floor and/or Rewinding Machine and suffered severe battering of the head, neck, back, legs, arm, and skull which resulted in his untimely death.

Norma Lopez, wife and personal representative of the estate of Hector Lopez, is accusing Encore Wire Corporation, MGS Manufacturing, INC, and EWC Leasing CORP of willful acts or omissions, negligence, and defective product design that led to her husband's tragic and unexpected death. Ms. Lopez is seeking an appropriate settlement to make up for the pecuniary loss, mental anguish, emotional pain, and sorrow that she and her three-month old son, Victor, have suffered, as well as the loss of love, affection, comfort, and happiness.

5.2 Background

At the time of his death, Hector Lopez was a full-time employee of Encore Wire, in good health, and providing for his family. He was instructed to operate the Rewinding Machine to remove defective wire from a wire spool so that Encore Wire could sell the defective wire for its scrap value, and in the process became violently entangled. Mr.

Lopez was conscience and alive and aware that he was caught in the machine and screamed in terror for assistance to prevent his injury or death. Encore Wire employees witnessed the occurrence but were unable to shut down the Rewinding Machine or respond to the screams in timely manner.

The Rewinding Machine in this case was designed and manufactured by MGS Manufacturing who then sold it to EWC Leasing. In turn, EWC Leasing leased and/or sold the machine to Encore Wire. On behalf of MGS Manufacturing, Dean Williams, Vice-President of engineering, and William Gurecki, an electrical engineer, gave their depositions before the court. Gary Bliss, representative of Encore Wire, also provided a deposition. The question at hand is who, if anybody, is at fault for the death of Hector Lopez and what could be done to prevent occurrences like that in that in the future.

5.3 Causes of Action

5.3.1 The defendant, Encore Wire, at the time and on occasion in question, engaged in willful acts or omissions, and gross negligence, and such acts or omissions, among others, are as follows:

- Encore Wire knowing and willingly instructed decedent Hector Lopez to operate the Rewinding Machine in an obviously unsafe manner involving an extreme degree of risk, with a high probability that serious injury or death could occur.
- Encore Wire had instructed Hector Lopez that if he was caught, to unspool onto the floor.

- Encore Wire knowing and willfully failed to provide a safe place in which to work, free from recognized hazards that caused or were likely to cause death or serious physical harm.
- Encore Wire knowing and willfully failed to warn decedent Hector Lopez of the dangerous condition on Encore Wire's premises.
- Encore Wire knowing and willfully failed to provide proper training for Hector Lopez regarding the proper and safe use of the Rewinding Machine.
- Encore Wire knowing and willfully failed to provide supervision to Hector Lopez while operating the Rewinding Machine.
- Encore Wire had actual knowledge at least one year before the death of Hector Lopez that it lacked warning signs around its wire production machines in order to prevent caught-in hazards, yet Encore Wire failed to post warnings of any type on the machine, until after the untimely death.
- Encore Wire knowing and willfully failed to install proper controls and/or instrumentation on the Rewinding Machine to prevent injury or death to persons operating the machine.
- Encore Wire knowing and willfully failed to properly train workers how to disengage the rewinding Machine.
- Encore Wire knowing and willfully failed to erect barriers to restrict access to dangerous components of the Rewinding Machine.
- Encore Wire knowing and willfully failed to install deadman switches on the Rewinding Machine.

- Encore Wire knowing and willfully failed to install a brake on the take-up portion of the rewinding Machine.
- Encore Wire knowing and willfully failed to provide instruction, warning, and training to Hector Lopez in a language he could understand.
- Encore Wire had actual knowledge at least one year before the death of Hector Lopez that interlocks on its wire production equipment had been bypassed or made inoperable, yet Encore Wire knowing, willfully, and intentionally bypassed safety devices on the Rewinding Machine.
- Encore Wire was on notice at least one year before the death of Hector Lopez that its wire production machines, including the Rewinding Machine, were not in compliance with applicable safety standards for machine guarding, subjecting employees to caught-in hazards, yet willfully failed to comply with these safety standards.

5.3.2 Defendant MGS Manufacturing at the time of the occasion in question engaged in willful acts or omissions, negligence, gross negligence, and strict product liability, and such acts or omissions, among others are as follows:

- MGS Manufacturing knowingly designed and marketed a defective product, to wit, the Rewinding Machine, which was unreasonably dangerous when used for its intended purpose.
- MGS Manufacturing knowingly and willfully designed a defective product that lacked critical safety devices to prevent injury or death to individuals operating the Rewinding Machine.

- MGS Manufacturing knowingly and willfully failed to erect guards and/or barriers to restrict access to the Rewinding Machine.
- MGS Manufacturing knowingly and willfully failed to install deadman switches on the Rewinding Machine.
- MGS Manufacturing knowingly and willfully failed to install a brake on the take-up portion of the rewinding Machine, which would have resulted in immediate stoppage of the machine and prevented injury to operators caught after the E-stop was activated.
- MGS Manufacturing knowingly and willfully ignored the fact that an economically and technically feasible safer alternative design existed for the Rewinding Machine.
- MGS Manufacturing either had actual knowledge or could reasonably foresee that the Rewinding Machine would be used to unspool wire onto the floor.
- MGS Manufacturing acted with malice and a conscience indifference to the rights, safety, and welfare of others by willfully omitting from their Rewinding Machine critical safety devices, warnings, operating instructions, and admonitions to not use the machine to unspool wire, as to convey the false impression that its product was safe.
- MGS Manufacturing had actual knowledge prior to designing the Rewinding Machine on which Hector Lopez was killed that the design of its machine was defective in that operators using the machine to unspool wire had been caught in a rotating reel and seriously injured, yet MGS willfully omitted design changes and warnings.

- Designers of the MGS Manufacturing Rewinding Machine had actual knowledge as early as 1964, that operators were susceptible to caught-in hazards on the machine yet willfully did nothing to eliminate or warn of this hazard.

5.3.3 Defendant EWC Leasing, at the time of the occasion in question, engaged in willful acts or omissions, negligence, malice, gross negligence, and strict product liability, and such acts and omissions, among others, are as follows:

- EWC Leasing knowing and willingly specified, leased, and/or sold a defective product that lacked critical safety devices to prevent injury or death to individuals operating the Rewinding Machine.
- EWC Leasing knowing and willingly failed to erect barriers to restrict access to the Rewinding Machine.
- EWC Leasing knowing and willingly failed to install deadman switches on the machine.
- EWC Leasing knowing and willingly failed to install brakes on the take-up portion of the machine.
- EWC Leasing ignored the fact that an economically and technically feasible safer alternative design existed.
- EWC Leasing knew or reasonably could foresee that the Rewinding Machine would be used in wire scraping operations.
- The Rewinding Machine specified, leased, and/or sold by EWC Leasing was defective and unreasonably dangerous because there were no warnings on the machine in Spanish, and EWC Leasing knew or could reasonably anticipate that the

operators of the machine were alien workers and others who were able to read and understand only the Spanish language.

The willful acts or omissions and negligence, malice, gross negligence, and strict liability were each a proximate and producing cause of the occurrence in question in the death of Hector Lopez, and the resulting damages sustained by the plaintiffs. As a direct and proximate result of the EWC Leasing knowing and willingly willful acts or omissions, negligence, malice, or gross negligence, and strict product liability of the defendants named above, the decedent suffered injuries including multiple lacerations, multiple fractures of the skull, fractured clavicle, broken arm, multiple contusions and abrasions of the legs, arms, shoulders, back and hands, and maceration of the brain.

5.4 Deposition of Dean Williams – 12/12/98

5.4.1 Background

Dean Williams is a 72 year old Professional Engineer who works for MGS Manufacturing in the engineering design department. He graduated from the Rochester Institute of Technology in 1947, which at the time was only a three-year school that did not grant degrees. He obtained his PE license for engineering in New York State in 1957, and has held jobs at a few different companies prior to his employment at Encore Wire.

5.4.2 Direct Examination

Direct examination was performed by attorney Dick Urquhart and focused on Mr. William's past experience and involvement in take-up and payoff machines. Mr.Williams stated that he began his career out of college at Rome Cable Corporation

where he worked as a draftsman for six or seven years before becoming assistant plan engineer. During his sixteen years at Rome, he became familiar with take-up and payoff designs and equipment among other things. In 1963, he left Rome Cable Corporation to work briefly for Edmonds Company, until going to work for Bartell. Mr. Williams started at Bartell as chief engineer and director of engineers. He was mainly involved with machine design including linear capstans, take-ups and payoffs, rigid stranding machines and planetary stranding machines. He stated that safety electronics that are to be included in these types of machines are direct requests of the customers. In one particular instance, a company requested a walk through machine that would be exposed on both sides. He opposed this idea because he did not want the operator to be located on the input side of the machine, and therefore being able to walk up to the reel while it was winding wire and possibly get caught. Mr. Williams was asked how MGS notified its customers that they were responsible for determining safety devices, such as foot pedals or deadman switches and who determined which features were standard and which ones were optional. He replied that whoever was dealing with the customer would consult them as to what they needed or wanted as safety measures. However, according to Mr. Williams, there are usually no guards or barriers around a take-up or payoff machine because they mostly just get in the way of the operator. He says that, "People recognize you are not supposed to get up next to a reel and try to stick your hand in there or anything like that."

Mr. Williams has been aware of injuries that were associated with a take-up or payoff machine in the past while he was still working at Bartell. An employee at Camden Wire was operating one of Bartell's machines when he became entangled in it

and very badly injured. Prior to the injury, the spool had been placed on backwards in order to spill wire onto the floor. Mr. Urquhart asks Mr. Williams what changes he made to the design at MGS to help prevent this type of occurrence from ever happening again, and he replied none. When asked why not, Mr. Williams simply replied, "I knew it happened, I knew it was a terrible accident, but I didn't know what to do about it." He states that he never gave admission to any customer or client to use a take-up to unspool wire unto the floor, nor had he ever thought about doing such a thing. Attorney Urquhart questions why after the accident he never thought about any additional safety devices such as foot pedals, pressure pads, or a light curtain that could be added to the machine to ensure a proper shut down to eliminate future reoccurrences. Or why he did not share any of this information with the designers at MGS. Mr. Williams could only answer that he didn't think there was any reason for it that he could see.

Mr.Williams is shown an exhibit that shows the layout of the machine in question as it was intended originally. He clearly states that if you take any machine and misuse it, there can be danger such that someone could become seriously hurt. Mr. Urquhart inquires that if an operator were stranding at the main operator's station and had been instructed to reverse the reel and unspool wire onto the floor, whether or not he would be susceptible to risk or injury. Mr. Williams replies that turning around the reel and unspooling it onto the floor is terrible misuse of the machine and therefore would it would definitely be dangerous.

Mr. Williams states that he is aware that MGS provides manuals to purchasers of its take-up and payoff machines. MGS did in fact provide a manual to Encore Wire, but some important warnings and/or instructions seem to be lacking. No where in the manual

does it specify the operator or manufacturer not to use the MGS take-up to unspool wire unto the floor. Nor are there any warnings or admissions on the machine that would instruct an operator not to unspool wire onto the floor. There is no place in the document that states that a take-up should be used strictly and only for a take-up.

During his career as an engineer, Mr. Williams has never been involved in a risk analysis of the equipment he has designed. He knew that it could be hazardous to an operator if he/she did not understand the equipment, yet he did nothing specific to circumvent such a risk. He says that he never intended this machine to be used to unspool wire onto the floor. Finally, a very crucial and important question is asked by Mr. Urquhart. He asks Mr. Williams if he agrees that the addition of a deadman switch or foot switch, in the control panel of the rewinding train, would provide a safer alternative design. He replied that yes, it probably would be safer.

5.4.3 Cross Examination

Attorney Barry Hasten, representative of Encore Wire, questioned Dean Williams next and focused his attention to functional ability of the rewinding machine. If the wheel was put in backwards, each and every one take-up that had been sold by MGS has the ability to run in scrapping mode, where the wire could be scrapped onto the ground. The machine can still run regardless of whether or not there is wire going through it if you just have the tachometer generator and a broken wire switch. The broken wire switch would not stop a machine, typically, if an operator became caught up in a reel. If a wire breaks, the broken wire switch is designed to stop the motor so that the machine would come to rest.

5.5 Deposition of William Gurecki – 9/29/98

5.5.1 Background

William Gurecki is the Vice President of Engineering at MGS Manufacturing and the most knowledgeable person about all the matters associated with the machine in question. Prior to this position, he was Vice President of Operations and a mechanical and electrical engineer in the engineering department. He received his Bachelor of Science degree in mechanical engineering from Clarkson University and a Master of Science degree form Rensselaer Polytechnic Institute.

5.5.2 Direct Examination

Attorney Dick Urquhart starts out the line of questioning rather simple and straightforward inquiring some facts about the take-up machine and particular product liability documents. It becomes evident that MGS does not have a safety department, but rather they use their engineering department, both mechanical and electrical, to review the safety of the machines that are produced. On the particular machines that were sold to Encore Wire, Dean Williams completed the mechanical design work and Bill Gurecki did the electrical design work. The scope of work for the second purchase order by Encore was to provide two new traverse assemblies for each of the two take-ups and provide electrics for the second machine.

The deposition shifts towards the type of operator training that MGS provides to their customers. The training involves going over various controls, the different functions of the machine, reviewing the maintenance manual, etc. According to Mr. Gurecki, they only provided training to one operator at Encore Wire, and they did not provide any operating instructions.

MGS Manufacturing knew of a previous occurrence where an injury occurred as a result of the use of a special machine that they had provided for Omega Wire. The only precaution they took to notify other customers was to install warning labels on the particular machines. To Mr. Gurecki's knowledge, there was no type of safety analysis conducted on these machines prior to being sold to Encore Wire, or a formal hazard analysis. In 1997, MGS determined that their take-up and payoff machines needed additional labeling to enhance the various possible pinch points and other dangerous portions of the machine. However, the operators of the existing machines were not notified of the addition of these new labels. Around this time, MGS also provided a cable pull switch, on the back or opposite of the reel loading position, which could be reached at any point along the back of the machine. But again, they did not notify owners of existing machines of this new added safety feature, nor did they offer the cable pull switch to Encore Wire. There were no written instructions or procedures given to Encore Wire that addressed the proper procedure to use for getting a loop out of a spool. Mr. Gurecki claims that the machine was being used improperly to scrap wire, and states that the machine's system was designed to take wire from one spool, count it, check for sparks, and place it in a certain footage onto another spool. He said he had no idea that the machine would be used for scrapping wire, and therefore never notified Encore that this machine should not be used that way. He believes that a wire manufacturer will produce defective wire, and at some point, that wire may have to be scrapped. Although he has some recommendations for scrapping wire, he never communicated his suggested methods to Encore or any other customers. This is very important information because it

shows that MGS is aware that scrapping wire will occur by its customers, and yet they do not warn against it or even mention some of the risks or dangers involved.

It is Mr. Gurecki's opinion, as stated in his testimony, that changes were made to the electric logic of the system that allowed the machine to be used in the improper method for scrapping at the time of Hector Lopez's death. Attorney Urquhart moves his line of questioning to the use and availability of deadman switches that are provided by MGS. Mr. Gurecki states that he is familiar with the general operation of a dead-man switch, and that he has known about their design for years. However, MGS only offers this safety feature upon request of the customer, and MGS does not directly notify their customers that this option is even available. Although the addition of a dead-man switch would only increase the cost of the machine slightly, he never even contemplated the use of one on the machine that they sold to Encore Wire.

MGS converted the dual payoff/take-up machine to two separate units as a result of the purchase order. The traverse assemblies had to be split on the machines as well as the producing of a completely new electrical panel. The layout of the machine consists of a single operator's station, which contains the push buttons to run and operate both machines, the digital lay control, and a footage counter for the line. The operator's station is connected to a single electrical panel, which is connected to the counter assembly, which has connections back to the single payoff. Mr. Gurecki states that the machine should be used in the following manner: product is run from a payoff reel, through the counter, and onto one side of the take-up. Upon completion of the footage, the traverse was to move over to the other side, at which the operator would have prepared another reel to run on the left side, and the traverse would come over and begin

running on that spool. In the meantime, the operator could unload the full spool and load another spool onto the right side. Some modifications of the machine occurred in 1994 as a result of purchase order 1004 from EWC Leasing. MGS changed the traverse, which spans both take-up machines, to provide two individual traverses located on both machines. In addition, they provided separate electrics that would run the other traverse that was installed and made the appropriate changes to the overall circuitry.

The counter and spark tester is a vital part of the operation of this line. The counter measures the footage of the material passing through it and also provides a signal to the control panel to maintain a constant speed. The spark tester is an insulation check for the quality of the wire passing it. It passes the wire through beads with a high-voltage differential; and if the sparks jump through it, a fault is created and it indicates a problem with the insulation. The take-up reel will not operate if the limit switch has been tripped, in other words, if there's no wire present in the counter assembly.

Mr. Gurecki is then questioned about appropriate barriers or danger zones as recommended by OSHA. Inside the danger zone, which should require some kind of barrier of guard, is the operator's control panel. MGS never recommended to Encore Wire to establish a danger zone for its equipment, but they do however currently recommend it routinely to their customers. After the accident it becomes evident that not only the equipment was moved, but also the control station. Mr. Gurecki declares that he had no knowledge of these changes, and that they are actually very dangerous because of the close proximity to the path of the wire coming across the take-up machine.

Some more questions about the use of warning labels and manual instructions are introduced. There are no warnings in the manual for machine operators and there are no

indications of warning placards or labels that are placed on the machine before it is put into service. There is also no indication in the manual that the operator should put a safety barrier around the machine, as specified by OSHA. Very importantly, there are no warnings in the manual that declare that the machine should not be used for unspooling. MGS does provide these warnings in their manuals today, because after reviewing some of their procedures they felt it necessary to include more information to their customers.

The deposition finishes up with questions regarding the proper use of the equipment and machinery provided by MGS. Mr. Gurecki concludes the deposition by strongly stating that in his opinion, it would never be safe to use his take-up machine to unspool wire onto the floor.

Attorneys Barry Hasten and Steve Baggett have reserved their questions until the time of trial.

5.6 Deposition of Gary Bliss –11/24/98

5.6.1 Background

Gary Bliss started working full-time for Encore Wire in 1993 and held the job as Plant manager. He has been promoted once to his current job title as Vice President of Product Development and Environmental Matter. He is responsible for production, heading up new projects, and overseeing the environmental affairs at Encore. He has a high school diploma and although has completed several college business courses, he has not yet received a degree. Mr. Bliss served as a platoon sergeant in the Marine Corps and has worked at two similar companies prior to Encore Wire.

5.6.2 Examination

By the time that Gary Bliss reached the scene of the accident, Hector Lopez was already entangled on the reel and notes specifically that his one of his legs was caught up in the reel to his waist. Employee Carlos Juan Diego was the first person to approach Mr. Lopez and shut down the machine. Employees Billy Alley, Pablo Valverde, and Sharon Walters (who is responsible for overseeing the health and safety of Encore Wire employees) attempted to cut Mr. Lopez from the reel until the McKinney Fire Dept. arrived and finished the task.

According to Mr. Bliss, Carlos Diego repeated several times to him that Mr. Lopez had gone against the safety rules of Encore Wire by going around to the front of the machine without shutting the machine off. He further states that Mr. Lopez had been instructed verbally on numerous occasions not to cut wire while the machine was still running and that in this instance he had made a very big mistake. At the time of the accident, Mr. Lopez was scrapping wire onto the floor as a result of defective wire. Encore Wire has no written instructions about the proper procedure for scrapping wire. Mr. Bliss has seen take-up machines used to scrap wire at both of his previous employers and states that Encore has been using the take-up portion of MGS Rewinding Machine for the past three and a half years. To his knowledge, the only changes that have been made in the scrapping procedure at Encore since December 10th is that if it's something small, they'll pull it off by hand, and if it is something large, they could be using a collapsible reel.

Jeff Long was the supervisor of the Rewinding Department at Encore at the time of the accident. It was his responsibility to establish what wire is too big to unspool onto

the floor and also to instruct employees how to properly use the machine for scrapping wire. Employees are taught during their on-the-job training to unspool wire at a very slow speed; because in manufacturing, you would think the faster the machine goes, the more you can do. But in this case, it is not. The slower you go, actually, the more you can get off, because there is no chance of it tangling up. So if an operator was unspooling wire too quickly, using this procedure, there would be a greater chance that the wire could tangle or backlash. Mr. Bliss does not have any knowledge of how fast the reel was turning at the time of the incident, and he is unaware of anyone else who would be knowledgeable. On the day after the accident had occurred, the dial on the potentiometer was examined and found to be set at a speed that is considered a little bit lower than what would be considered as a slow speed. He does not believe that the setting on the dial had been tampered with because the area had been roped off immediately after the accident.

Mr. Bliss is questioned about any modifications to the electrical system that may have been made to the take-up machine by Encore Wire. He claims that to his knowledge no such changes were ever made. He also states that Encore did an adequate job of training Hector Lopez in the correct and proper use of the machines so that the dangers and risks of the machine could be avoided.

5.7 Deposition of Billy Alley – 01/07/98

5.7.1 Background

Billy Arnold Alley has been employed by Encore Wire for four years and is currently one of the two Plant Managers. He is responsible for preventive maintenance and supervision of the employees that work on the machines. He manages Plant 2, which

is the location of the MGS rewinding take-up machine that Hector Lopez was entangled and killed upon. Mr. Alley's supervisor is Gary Bliss, who we already heard testimony from.

5.7.2 Examination

The questioning is focused on the MGS take-up machine, the training provided to Encore's employees, and the sequence of events that occurred the day that Hector Lopez was killed. Mr. Alley is asked about the amount of training that employees receive before operating the machines. He claims that employees are trained for about a month how to use the machines properly. It becomes evident that Gary Bliss is the man in charge of seeing that the machines are installed correctly. Mr. Alley has approximately one hundred and fifty people reporting to him in Plant 2, approximately ninety percent of them being Hispanic. This was brought before the court to show that Encore has a significant number of Spanish speaking employees, yet no warnings or instructions are provided in that language.

Mr. Alley is questioned about the events that occurred the day of the accident. At the time of the accident, Mr. Alley was at the other end of the plant working on a drawing machine. He became aware that an accident had occurred when one of his leadmen came and notified him. Carlos Juan Diego was the employee who stopped the machine after the accident by hitting the emergency stop. During conversation, Mr. Diego told Mr. Alley that Hector, for some reason, went around without stopping the rewinding machine, and tried to cut the wire while it was still running. He believes that Mr. Lopez was trying to cut the wire when his arm, leg, or cutters became entangled, similar to a lasso, as the wire was being scrapped.

The rewinding machine, as stated by Mr. Alley, is only used for scrapping wire five percent of the time. During training, operators are instructed never to leave the operator's station without turning the machine off and never to walk near the spool even when it is in rewind mode.

5.8 Deposition of Olegario Silva – 01/07/98

Olegario Silva has been employed at Encore Wire for about seven or eight months and currently runs the forklift and operates the rewind machine. Her testimony does not provide any crucial information except that she witnessed the accident. She states that she saw Hector Lopez become entangled in the wire by his feet and start turning and turning inside the reel. She was unable to hear Mr. Lopez scream because of the earplugs she was wearing. She witnessed Carlos Juan Diego, also known as Shorty, run over and shut down the machine by hitting the emergency stop button.

5.9 Final Assessment

After careful investigation and analysis of this case, we conclude that Encore Wire Corporation, MGS Manufacturing INC., and EWC Leasing CORP. are all at fault and each partly responsible for the untimely death of Hector Lopez. We do not feel that Mr. Lopez contributed to his death in any way, because he was just doing what he was trained and instructed to do on the job site.

We feel that Encore Wire made inappropriate modifications to the MGS take-up machine and was instructing Mr. Lopez to improperly operate it. They placed their

operators in an unsafe and high-risk environment and ignored several well-know safety features. We therefore find them 55% responsible in this case.

MGS Manufacturing INC. is also at fault in this fatal incident. They had foreseeable knowledge that the design of their machine could be dangerous if used for scrapping, and yet they did nothing. They also could have made certain safety features, such as appropriate guarding, dead-man switches, brakes, etc. standard on their machines instead of only offering them at the request of the customer. They did not provide adequate warnings or operating instructions to the employees at Encore Wire. We find MGS 40% responsible in the death of Mr. Lopez.

EWC Leasing CORP. is also partly responsible in this case. They purchased the machine form MGS Manufacturing, and in turn leased or sold the machine to Encore Wire. The strict liability law places them at fault because they exchanged the machine without making any modifications to include appropriate safety features. We believe that EWC Leasing contributed 5% to the sudden and tragic death of Hector Lopez.

6. Mock Trial

To conclude this Interactive Qualifying Project, a mock trial was held for the cases of *"The Estate of Laura Hernandez vs. Michael Mackenzie"* and *"The Estate of Hector Lopez vs. Encore Wire, MGS Manufacturing, and EWC Leasing."* The trial took place on Sunday, May 2, 1999 in the Price Conference Room. The cases were thoroughly analyzed by each of the IQP groups and expert testimony was presented to the objective mock jury.

Groups were selected to present their views and opinions on the cases based on their own investigations, research, and analysis. For each case, the facts and background information were introduced first, followed by arguments for both parties involved in each of the cases. Interesting ideas and speculations were presented in each case, which showed that a considerable amount of time, and effort was put into the preparation of this trial. Finally, when all the groups were satisfied that the information supplied was sufficient, the members of the jury were asked to consult with each other and reach a verdict.

The jury deliberated for quite some time and eventually reached a decision. In the first case presented, they found Laura Hernandez 20% at fault in the accident that took her own life, and Michael Mackenzie 80% at fault. They awarded $750,000 to the estate of Laura Hernandez.

In the second case presented, the jury declared the following percentages of responsibility: 5% Hector Lopez, 50% Encore Wire, 40% MGS Manufacturing, and 5% EWC Leasing. They awarded a total sum of $5,000,0000 to the estate of Hector Lopez.

The presentation of the mock trial lasted approximately three hours. It was a very interesting and favorable experience that was enjoyed by all that attended.

7. Conclusion

In the actual "*Estate of Laura Hernandez vs. Michael Mackenzie*" case in real life, Mackenzie's insurance company originally offered to settle out of court for $50,000 but the plaintiff refused. After hearing the testimony of Dr. Hagglund, the insurance company offered a considerably higher settlement. Both parties settled out of court for $650,000.

In the actual case of "*The Estate of Hector Lopez vs. Encore Wire, MGS Manufacturing, and EWC Leasing,*" both parties agreed to settle out of court for $2,000,000.

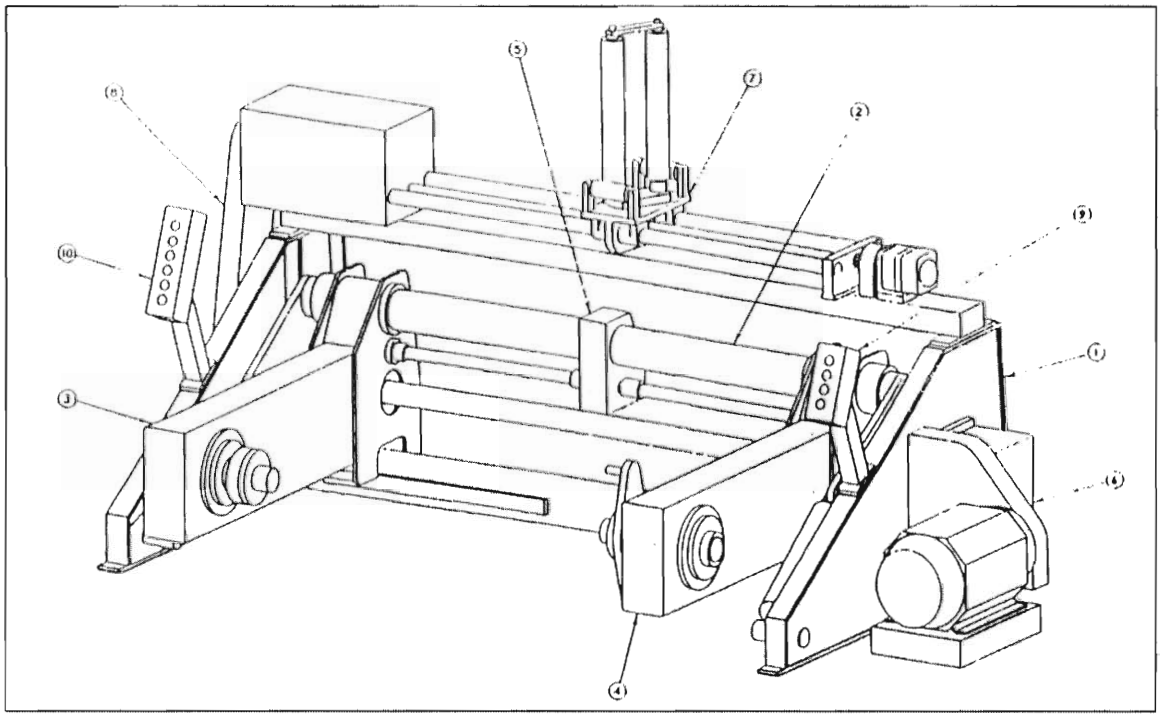
8. Bibliography

Lux, William J., An Engineer in the Courtroom, Society of Automotive Engineers, Inc., Warrandale, PA, 1995.

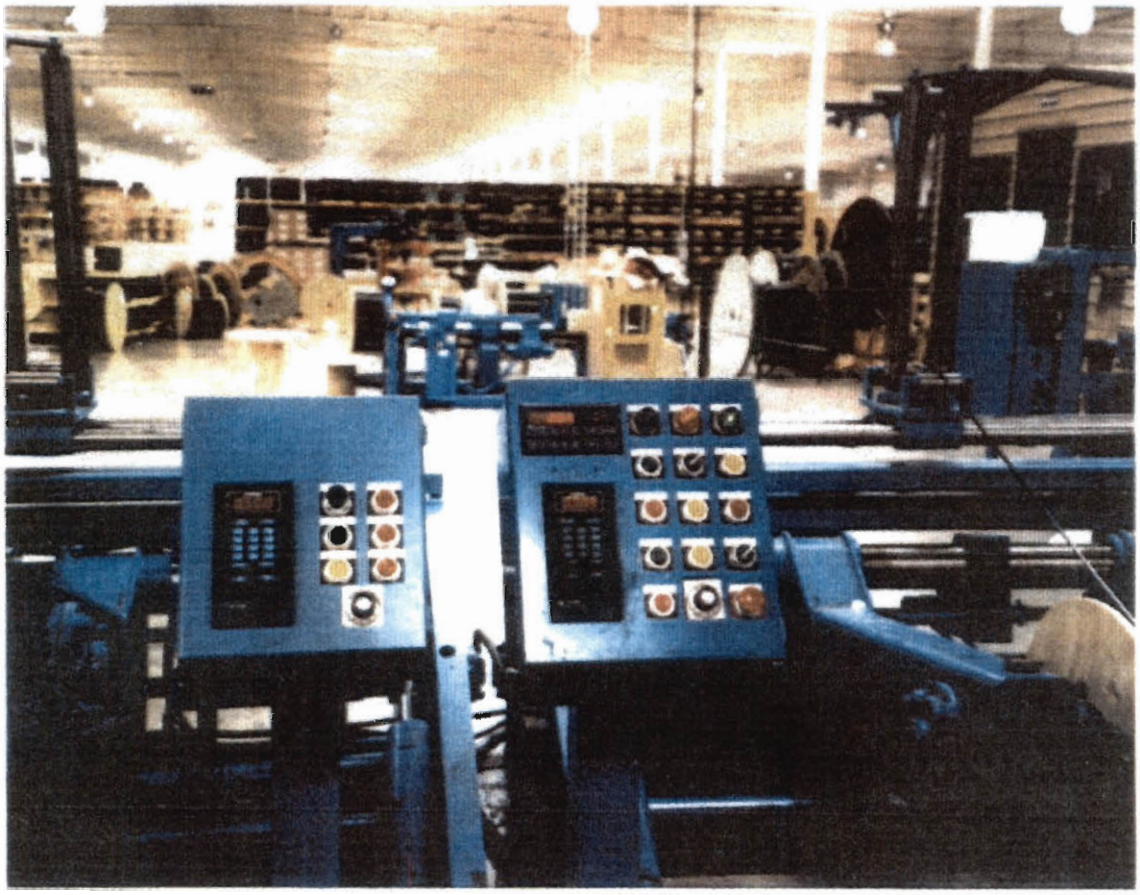
Phillips, Jerry J., Products Liability in a Nutshell, Fourth Edition. St. Paul, MN West Publishing Co., 1993.

9. Appendix

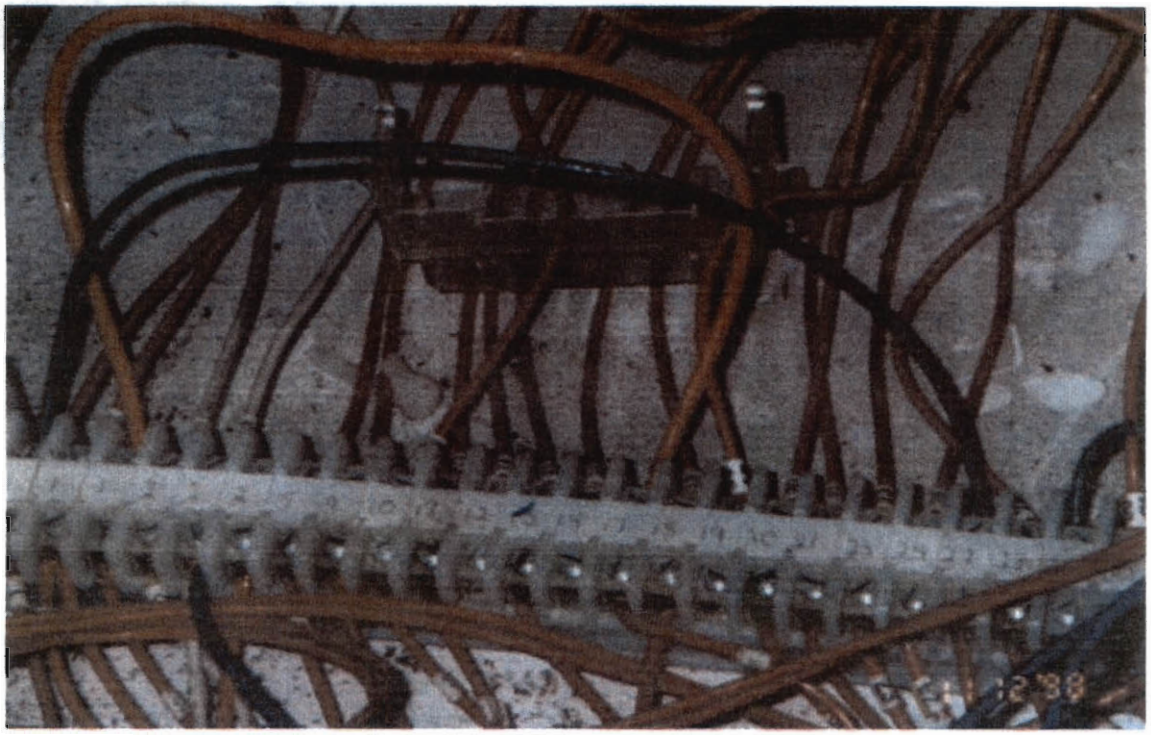
9.1 List of Appendices



A.1 Shaftless Take-up Machine

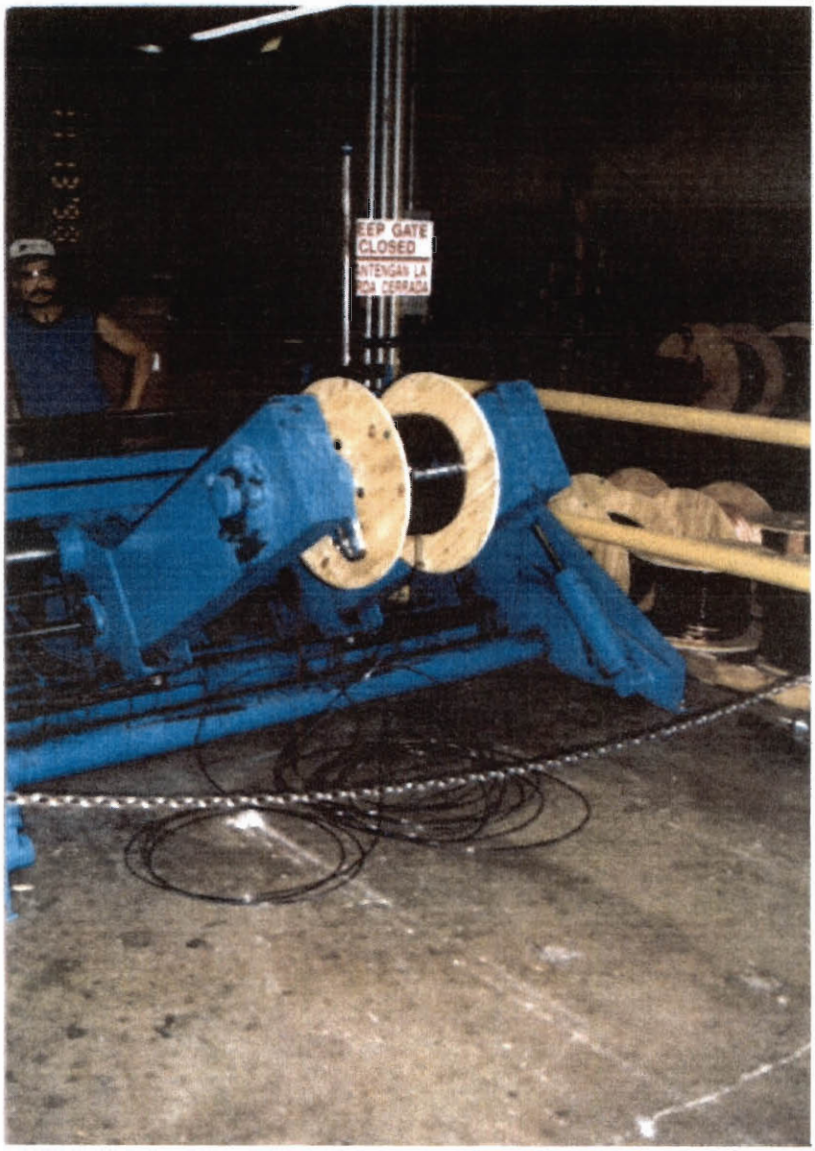


A.2 Operator's Control Panel



A.3 Electric Counter Bypassed by Encore Wire

A.4 Fatality Scene



A.5 Modified Take-up Machine After Fatality