

THE PRICE IS RIGHT?

I

XYZ orders 5000 custom made parts from ABC for one of its products. When the order is originally made ABC indicates it will charge \$75 per part. This cost is based in part on the cost of materials. After the agreement is completed, but before production of the part begins, ABC engineer Christine Carsten determines that a much less expensive metal alloy can be used while only slightly compromising the integrity of the part. Using the less expensive alloy would cut ABC's costs by \$18 a part.

Christine brings this to the attention of ABC's Vernon Waller, who authorized the sales agreement with XYZ. Vernon asks, "How would anyone know the difference?" Christine replies, "Probably no one would unless they were looking for a difference and did a fair amount of testing. In most cases the performance will be virtually the same -- although some parts might not last quite as long." Vernon says, "Great, Christine, you've just made a bundle for ABC." Puzzled, Christine replies, "But shouldn't you tell XYZ about the change?" "Why?" Vernon asks, "The basic idea is to satisfy the customer with good quality parts, and you've just said we will. So what's the problem?"

The problem, Christine thinks to herself, is that the customer isn't getting what was promised. Further, even if XYZ would be satisfied with the different part, shouldn't it be given the opportunity to decide if it finds the change acceptable -- and to benefit from lowered cost?

Should Christine share her further thoughts with Vernon, or should she simply drop the matter?

II

Christine shares her further thoughts with Vernon. He replies, "I just don't agree, Christine. This is business, not engineering. XYZ will be a satisfied customer, and we'll be a satisfied supplier. We're not in the business of giving away money, you know."

Is there any reason for Christine to press further?

Do you agree that Vernon is just doing "good business"?

III

Christine decides there is nothing further for her to do. The less expensive part is produced. As the shipment is prepared to be sent to XYZ, Christine is asked to sign a report verifying that the specifications for the part have been met. As she looks over the details she notices that the original composition of the metal is listed rather than the cheaper alloy. Should she sign the report anyway?

IV

Christine refuses to sign the report. However, Vernon persuades her fellow engineer, John Richards, to sign it. What should Christine do now?

COMMENTARIES

W. Gale Cutler

XYZ orders 5000 custom made parts from ABC. A price is agreed on based in part on the cost of materials to be used in the part. ABC discovers a less expensive alloy that can be substituted "only slightly compromising the integrity of the part." The customer won't be able to detect the substitution unless they do "a fair amount of testing." The part is still of "good quality" but "might not last quite as long." There is a simple, one word description of this way of doing business: FRAUD!!

The alloy substitution should be made, if and only if, the customer (XYZ) agrees to the substitution, with disclosure of what this substitution does to the expected life of the part, and an appropriate price reduction is made.

If ABC goes ahead with the substitution without notifying XYZ and the substitution of the less expensive alloy is subsequently discovered, I can assure you that ABC will have lost a customer. In no way can such substitution be considered good business.

Christine must share her thoughts about the impropriety of substituting the less expensive alloy with Vernon and if he fails to listen to reason, she must carry her feeling about this wrongful act to a higher level of management.

Vernon's actions are unethical and some of his defensive statements border on the ridiculous. For example, "This is business, not engineering" is belittling to the engineers in the company. Sound business is built on having a well-engineered product. Vernon states, "We're not in the business of giving away money." However, he is literally asking XYZ to do just that by paying full price for a part in which a cheaper material has been substituted!

Christine should not sign a report falsifying the composition of the alloy in the part and when Vernon persuades someone else to sign the report, she should go over Vernon's authority to higher management to report this. THE FUTURE OF ABC'S BUSINESS DEPENDS ON THE ELIMINATION OF DECEITFUL PRACTICES SUCH AS VERNON ENDORSES AND USES.

I was Director of Research for a major corporation for over 20 years. Our Analytical Department routinely ran a "fingerprint" analysis on many of the components, chemicals, plastics, cleaners, paints, etc. that we purchased and periodically checked for adherence to the specifications agreed on at the time of purchase. We once had a problem in a metal cleaning operation--analysis proved that the problem was due to change in the chemical composition of a cleaning compound. The change in the chemical composition of the compound cheapened its manufacturing cost and reduced its cleaning efficiency; we were not notified of the change and no adjustment was made in our purchase price. WE NOTIFIED THE COMPANY WE WERE AWARE OF THIS UNAUTHORIZED CHANGE AND CEASED TO DO BUSINESS WITH THEM.

John B. Dilworth

The first relevant standard business practice is that of appealing to the letter of the agreement or contract in any dispute between corporations. The most stupid, self-destructive thing a corporation could do is to deliberately violate one of the specific terms of a contract (in this case, the specification of the more expensive materials). By so doing they set themselves up for big losses through the triggering of penalty clauses against them, or through claims for damages (including punitive damages) by XYZ. More generally, violation of any part of a contract may render the whole contract null and void, hence relieving XYZ of any its obligations under the contract, including the obligation to pay ABC for the parts.

The second relevant standard business practice is the certainty that corporations such as XYZ will have some kinds of ongoing quality control procedures, including routine spot-checking of all materials and products. Any violation of specifications by ABC, especially one which applies to all of the items (they would all be made of a cheaper material) is bound to be detected.

This is so because, given the contemporary legal and regulatory environment, no company could stay in business for long which did not regularly and exhaustively test every aspect of its products. The reasons for this are simple. It is now relatively easy for customers to complain about poor quality and safety defects to government or other regulatory bodies, and those bodies have the power to paralyse or shut down a company altogether, even on minor infringements of regulations.

At the same time, the legal climate encourages customers to engage lawyers on a contingency basis to sue corporations for actual and punitive damages caused by inadequate products, and juries often impose huge fines against businesses in such cases. No company dares risk such consequences, and so they are increasingly forced to go to extreme lengths to ensure fully effective quality control on their products.

As an integral part of this quality control, the products of a company's own suppliers inevitably come under the same intense spotlight. So fraudulent behavior by a supplier will inevitably be detected. Admittedly, in a few instances a substitution or defect may not be detected right away, but no company can risk the chance of future detection of their fraud, given that the evidence is incontrovertible (a battery of scientific analyses of material composition constitute irrefutable evidence of fraud) and as permanent as the product itself (the material of most products will last for thousands of years at least).

A more likely scenario for attempted fraud than that given in the current case would be one in which the exact composition of the material was not specified in a written agreement between ABC and XYZ. Perhaps the specification was given orally only, or perhaps XYZ just assumed (following past practices, perhaps) that the more expensive material would be used. Should ABC even consider using a cheaper material in such cases?

Answer: no, because here another reality of the contemporary business environment comes into play. This is the increasingly intense competition occurring in virtually every business and industry. Whereas at one time companies such as ABC one could rely on customers such as XYZ to give them business out of habit or convenience, now the reality is that XYZ will be looking for the best part at the best price. If any supplier (such as ABC) even gives the appearance that it might be shortchanging XYZ, XYZ will immediately remove ABC from its list of approved suppliers.

This is not because XYZ has any increased moral sensitivity to fraud attempts, but simply because, given the contemporary cutthroat business climate, they dare not damage their own credibility or competitiveness through further use of questionable suppliers such as ABC.

Somewhat ironically, then, ethical values such as business honesty, or giving full value for money, are most directly enforced in cases such as these by the brutal, survival-based market realities of our world economy.

Carl O. Hilgarth

After reading about the casual manner Christine Carsten proposed a material substitution in a part ABC was to begin manufacturing for XYZ, my first inclination is to take Christine to the engineering reference bookshelf, reach for the engineering standard practices and have her read them. Especially the section on preparing

engineering change proposals. She should have prepared a value engineering change proposal (VECP) for the proposed material substitution. The VECP would describe the proposed substitution of the less expensive metal alloy to make the part, the projected impact on the performance and life of the part, and the projected manufacturing cost savings. After review and approval of the VECP by engineering, it would be forwarded to Vernon Waller to review with XYZ. If XYZ accepts the VECP, Vernon would negotiate a revised pricing agreement. The VECP is critical since the price per part the XYZ is paying to ABC is based in part on the cost of materials.

Vernon's acceptance of Christine's casual presentation and his decision not to tell XYZ is as irresponsible as Christine's engineering. Further, by signing the report, John Richards knowingly falsified product information compounding the problem. What if the material change is discovered by XYZ's receiving inspection? (A simple Rockwell hardness test may be all that is needed to tell the difference.) What if the parts fail under warranty, and XYZ is forced to absorb the cost of repair or replacement? Don't Vernon, Christine, or John foresee that if some of the parts fail earlier than anticipated, XYZ might decide to investigate the cause of failure, do some testing on their own, and find out about the material substitution? What are they going to say or do when XYZ calls regarding the counterfeit parts supplied by ABC? Pull out the report signed by John Richards and claim that XYZ is doesn't know what they are talking about? Is the \$90,000 that Vernon will make for ABC enough to pay for the lawyers or make up for the business ABC is going to lose? Ethically, Vernon has not just done "good business." He has proposed to steal \$18 per part from XYZ by delivering counterfeit parts. Since Christine is responsible for proposing the material substitution, she must continue to press Vernon further on the issue.

Well, Christine backs off deciding there is nothing further she can do and the counterfeit part is produced. At this point, I'd like to know who authorized production of the counterfeit part? Did engineering? Did Vernon? Who prepared the report verifying that the specifications for the part have been met? Was it engineering or was it Vernon? Noticing the original alloy composition is listed in the specification causes me to think that Vernon made the alloy change unilaterally, and didn't bother to change the original part specification because Christine told him that no one would notice the substitution "unless they were looking for a difference and did a fair amount of testing."

Were I Christine, I would insist that the report be corrected to list the cheaper alloy. If this couldn't be done, she should correct the report so it states the proper alloy used in the part, and sign it. She should be responsible for her engineering. In refusing to sign the report, Christine probably thinks she is doing the ethical thing. However, by backing off the issue when she felt there was nothing more that she could do and not insisting on maintaining the integrity of the product specification either as originally written or by a VECP, she abrogated her responsibility as an engineer to participate in none but honest enterprises (Order of the Engineer). Her proposal was instrumental in Vernon's decision to substitute the lower quality alloy in the part. The counterfeit part is as much her responsibility as it is Vernon's even though she didn't sign the report. Vernon's lack of business ethics and concern for the quality of the product, and Christine's undocumented engineering contribute equally to this situation.

Assuming XYZ relies on supplier quality certification to minimize receiving inspection costs, transmitting the report misrepresenting the part opens ABC disqualification as a supplier when they find out about the cheaper alloy. They may also demand a retroactive price adjustment. When this happens, how will Vernon's doing "good business" stand up? Since Vernon's ethics are situational, will he say that he didn't know anything about the change and that engineering made the substitution and then covered it up by signed a report specifying the original alloy? Will Christine and John be the scapegoats since there is no documentation to the contrary?

Aviation is inherently safe, but it is totally unforgiving of any carelessness. What if the part manufactured by ABC goes into an aircraft manufactured by XYZ and in one case its performance is not virtually the same, causing an accident? There will be a public investigation. Imagine the consequences to Vernon, Christine, John, and ABC.

Vernon, Christine, John, and probably ABC better clean up their operation. Contracts needs to get out of engineering decision making, and engineering needs to get more disciplined and documented in its interface with contracts, especially since ABC as a custom part manufacturing firm relies on engineering to design the parts they contract to manufacture. They must recognize that in the long run it is better to do what is right rather than what is expedient, be honest and trustworthy in their relationships, and truthful and accurate in what they say and write.

Neil R. Luebke

The main focus of this case is a deceptive business practice and an engineer's responsibilities with respect to it. ABC has just signed a contract worth at least \$375,000 with XYZ. We do not know the basis of the contract, but it was probably a bid on specifications developed by XYZ. Again, we do not know whether the materials to be used in the parts manufactured by ABC were detailed in the contract. It is conceivable the contract could have merely called for dimensions, strength requirements, and the like, without dictating the particular alloys that should be employed. If ABC did not make any contractual agreements regarding specific alloys and the newly discovered alloy meets all of the specifications, then there does not seem to be a problem in this case, and the company deserves some credit for its inventiveness. In particular, Christine Carsten might deserve a bonus for helping the company make an additional 24 percent profit.

Let us assume, however, as seems more reasonable in the case, that a particular metal was specified. While the less-expensive alloy has generally the same properties, it is demonstrably inferior in certain respects, and without question it is a different metal than was originally agreed to in the contract. By failing to inform XYZ of the alternative alloy and possibly renegotiating the contract, Christine's firm is, from a moral point of view, engaged in deception motivated by the prospect of selfish gain. From a legal point of view, ABC is probably involved in fraud and deceptive nondisclosure. Deceptive nondisclosure here involves the failure to tell the client about some important fact regarding composition of the product. Fraud, of course, is a misrepresentation of material fact that leads another to take some action to that party's detriment, in this case, XYZ paying more money for a part than is justified. We should not assume that ABC would lose in a business sense by disclosing to XYZ the possibility of the new alloy with a lessened production cost. XYZ may be favorable toward the lower production cost and less concerned about the long-term durability of the part. Having already won the contract on the basis of a different alloy, it is probably the case that ABC's production cost might be less than its competitors' no matter what alloy is used. Renegotiating the contract with XYZ may lead to even more profit than ABC expected originally. Furthermore, in XYZ's eyes, ABC comes off as an inventive, progressive group that might be looked upon with favor in future contract negotiations.

By contrast, if ABC does not inform its client of the alloy change and the misrepresentation is discovered, ABC might find itself sued for the total cost of this contract. There is also the possibility of lost contracts and lessened reputation in the future. If one of the slightly inferior parts is related to some kind of product liability case, ABC could be responsible for still more damages. Even if no court actions occur, the possible discovery of the use of the alloy will certainly not rest well in future relationships between ABC and XYZ. Christine's suggestion that XYZ will not discover the change of alloy is not likely to be true. While XYZ would probably not undertake expensive unprompted testing of the material, it is not unreasonable to suppose that something could prompt them to do the testing. Even if ABC kept the alternative alloy secret for a year or two, XYZ might eventually

learn the information through, say, a disgruntled employee of ABC or through one of ABC's competitors. Looked at in terms of consequences, ABC's nondisclosure is exceedingly risky behavior, whereas disclosure and possible renegotiation of the contract would bring favorable results. Aside from consequences, ABC has both a legal and a moral duty not to engage in deception in contracts. Vernon Waller's opinion that failing to disclose the new alloy to XYZ is "good business" is simply wrong.

What should Christine Carsten do? It is likely that there are many more people at ABC involved with this parts order than Vernon Waller and Christine Carsten. Another engineer, John Richards, is mentioned later. While Vernon Waller authorized the sales agreement with XYZ, it is not clear from the story that he has final authority regarding any changes in that agreement. At the very least, Christine should insist on a meeting of all engineering and management people at ABC who have key roles regarding this project. It is unlikely that the others attending such a meeting will unanimously concur with Vernon Waller. If they do, Christine would be well-advised to look for employment elsewhere, because her ethical and professional standards will likely be tested again in the future.

If Christine has had any experience in projects such as this, she knows that at the end of the project she is required to sign off on the report verifying the contractual compliance in the production process. Should her falsification of the report or falsification by any other registered engineer become known to the appropriate officials, registration might be revoked, at least for a period of time. While disciplinary practices differ among the states and in Canada, revocation is certainly a possibility. The widely used educational film *The Truesteel Affair*, a film made in Canada but circulated through the National Society of Professional Engineers in this country, details the consequences of a professional engineer falsifying a report on the fabrication of some construction steel. One of the messages in that film is that the engineer involved should have sought advice from his fellow engineers, especially from the officers of his local professional society. If the events in our case move to the point that Christine is asked to sign an inaccurate report, she would be well-advised to follow that same advice. This warning also applies to Christine's fellow engineer John Richards. John's signing the verification report, however, does not let Christine off the hook. She still knows of and has been party to the deception, and, furthermore, she knows that a fellow engineer signed a deceptive report. She may have a professional obligation to report John Richards' actions. She should at least do what she can to inform John Richards of the seriousness of the situation and to bring home to him her reservations about the type of action he has been asked to do.

Is the price really right? Morally and legally, the price seems far too high for Christine Carsten. It is also likely to be too high for John Richards and others at the ABC company.

Wade L. Robison

I

Christine should talk with Vernon. There are two different issues that are raised by Vernon's not passing along either the savings in cost of production or the information that the custom made parts are to be made with a different material than XYZ's engineers had originally thought would be necessary.

First, as Christine points out in her original conversation with Vernon, "In most cases the performance will be virtually the same--although some parts might not last quite as long." It is unclear whether there are two problems here, or only one. Christine may be saying both that some of the parts will have a shorter lifetime than they would were they made of the other alloy and that for some of the parts, or--and this is also unclear--for some of the features of the parts, the performance will not be the same as it would be for those made with the other alloy. Either all the parts will be used in the same way, but the failure rate will be higher in general (perhaps because the

parts are not as strong now), or, perhaps, some of the parts will be used in ways different from other parts, and they will not perform as well as ones made with the other alloy would perform. In short, the parts will be of lesser quality than those ordered, and that diminution in quality will manifest itself either in a shorter lifespan for some of the parts or in decreased performance for some of the parts, or both.

In either event, ABC will be getting an inferior product for its money. One way to come to understand whether anything moral is at issue is to ask whether a change will cause any harm, and ABC will be harmed because it will have to purchase new parts sooner than otherwise, and that will cost them more money, and/or because it will have an inferior product produced with these parts because the performance with them will be inferior to what would have been the performance expected of the part made with the other alloy. So ABC will be harmed by changing the composition of the parts, and anytime harm occurs because of one's actions, one needs to assess whether one ought to act in that way.

One ought not to cause harm unnecessarily, and so one needs a good reason for causing it. Physicians have a good reason to cause pain to patients by inoculating them because the patients are benefited in the long term by being immune from diseases that would cause them more harm. So the question is whether XYZ has a good reason for causing harm to ABC. The answer is that it has a reason, namely, increased profits, but that is not a good reason for causing harm. Christine is right when she thinks that "the customer isn't getting what was promised." If I promise someone something, and then substitute something else, I have broken my promise, and we thus have two harms here--the harm that comes from breaking one's promise and the harm that comes from causing ABC to spend more in the long run for the custom made parts.

The harm that comes from breaking one's promise may seem a minor harm, but think of what might happen were ABC to discover that the reason the parts it ordered have a shorter lifespan than it thought they would have is that XYZ has substituted something different from what ABC thought it ordered. Not only would ABC have the basis for a legal suit, presumably--if the order originally included specifications for the alloy to be used--but it also would no longer have any reason to trust XYZ to deliver what was promised. Everything ordered would have to be checked, that would increase ABC's costs, and it might decide that the increased costs of doing business with XYZ were not worth it and might take its business elsewhere. Breaking one's promises often does not cost one much: if no one finds out, and one generally keeps one's promises, then no one will be the wiser. But when one is found out, the cost are usually so high as to outweigh any advantage one may have had from breaking the promise to begin with. So Vernon risks losing ABC as a customer should ABC ever find out that the parts they ordered are not exactly what they got.

But I mentioned that there were two different issues raised by Vernon's actions. The second is perhaps somewhat more problematic because it raises the question, "What is a fair profit?" Is one entitled to charge whatever the market will bear, or should one pass along any savings to one's customers and charge only what gives one a decent profit for one's work? We may bring out the issue more clearly by supposing that XYZ's suppliers find a new source for the alloy originally thought necessary and that the price to XYZ is significantly lower than what XYZ had calculated it would be in determining that the final price should be \$75 per part. Does XYZ have an obligation to pass onto ABC the savings from their discovery? Suppose that the savings are not, say, \$2 per item, but \$35 per item. Whereas before XYZ was making a profit of, say, \$20 for every \$75 item sold, now it is making a profit of \$55 for every item. Does it make a difference how much of a profit XYZ is making?

This question raises issues that take us far beyond this case, but we can say a few things about it. One is that

discovering that one can purchase something at a cheaper price is itself not without cost: one has to hunt in catalogues, presumably, talk to suppliers, make new arrangements, cancel old ones, and so on. So XYZ has incurred some costs in lowering its costs, and it should be entitled to recoup those costs. It thus is not obligated to pass on to ABC all of its savings in purchasing the alloy at a lower cost.

But should, again, ABC ever become aware that XYZ made a profit of \$55 on every \$75 item--and one must realize that, among others, salespersons talk--then XYZ will get a reputation for gouging. That is, they will become known as a company that will make as much money as they can whenever they can. This will have its effects on their business, for instance. Companies will bargain that much the harder to lower the price, thinking that XYZ will be making enough profit even with a lower price, and XYZ will find itself having to mark up items in order to have a bargaining position. It will thus price itself out of the market for some potential customers, who will see the price and not realize that XYZ is willing to bargain. But even those who bargain with XYZ and come up with a contract will be left not being completely sure that they came up with a good contract. They will still wonder if, perhaps, XYZ has not still made a big profit and will hunt around for other suppliers. So XYZ will perhaps lose customers, who will feel no loyalty to a supplier who will gouge when it can.

So, by all means, Christine ought to talk further with Vernon. He is taking a short-sighted view--take the profits upfront and do not worry about the potential long-term consequences--and is causing harm to ABC when that is wrong.

II

If Christine's entire further conversation with Vernon is as reported and all he says is, effectively, that he is just doing good business, then she ought to press the point further. He presumably thinks he is doing "good business" because he is making more money for the company from this contract than he would if he passed along the savings to ABC, but he is making more money only because he is supplying a different product to ABC than was originally contracted for. Whether the contract itself specifies the content of the part or not, it was presumably presumed by both during the negotiations that a particular alloy would be used. Or, to put the point perhaps less contentiously, XYZ presumed it, and ABC would have no reason for thinking any other alloy would be used. It is not good business to cheat a customer, and that is effectively what Vernon is doing.

He is also assuming, without evidence, that ABC will be a satisfied customer. But if the parts are not as long-lived as it thought they would be, and if there is a higher rate of failure in some functions than it would there would be, ABC may well not be a satisfied customer and may look elsewhere for a supplier next time. It is not good business to encourage customers to go elsewhere the next time they have to purchase parts.

III

If the original contract specifies that the parts are made from the alloy originally chosen, then Christine cannot sign a report "verifying that the specifications for the part have been met." They have not been met, and it is her professional obligation to make sure that what is produced is what was contracted for.

In addition, if the original contract is as indicated, then it is probable that Vernon knew that all along. He is thus not just taking advantage of a loophole in the contract by substituting one alloy for another when the contract did not make it clear what was necessary, but clearly breaking the contract in order to increase the profits to the company. So, whereas one might just think him slightly sleazy in trying to wring as much money as he can from the contract, now one must think him criminal in not only breaking the contract himself, but also urging someone

else in the firm to do the same--and to cover for him. For if Christine signs the report, Vernon can always claim, in his defense should things come to that, that he just took the word of the engineer here, that she is the professional who ought to know about such matters, and that he is just the salesperson, or whatever, and certainly not professionally competent to make such judgments.

So Christine cannot sign the report. That would break a contract with XYZ, and it would open her to the legal repercussions if XYZ should find out and sue, as they would be entitled to do.

IV

If Vernon is able to get another engineer to sign the report, Christine is in an awkward position because now, should she act further, she will not only get Vernon, but also a fellow engineer in trouble.

But she has an obligation to take the matter higher if for no other reason than that the company may be sued by XYZ. It is not enough morally just to act within the law, but it is always a mistake not to act within the law. One pays in so many ways--monetarily, by having to pay damages as well as for the original difference in costs, and politically, as it were, by being presented publicly as a company willing to cheat its clients for extra profit.

That a fellow engineer may well be harmed is unfortunate, but if he had a good reason for signing the report, despite the discrepancy, he will give it, and if he did not, it is not up to Christine to protect him when the company as a whole may be harmed by his and Vernon's actions. One is not obligated to protect a fellow profession from his or her own mistakes, and the obligation is especially weakened when others may be harmed by those mistakes. Christine now only has to be concerned about the harm being done to XYZ, but also the harm that may be done to ABC.

In addition, she may be harmed, knowing all this, and yet not acting. We are sometimes in the unfortunate position of coming to know something that necessitates our acting when we would prefer not acting. Seeing a parent abuse a child, for instance, creates a prima facie obligation to do something, and one must at least consider what one ought to do in such a case, perhaps investigating whether the abuse is longstanding or not. Here the harm is clear, and that Christine is no longer in the chain of authorization for its occurrence is not important. What matters now is that she knows it. To prevent harm she must act.

Donald Chivens

Christine realized that a material change without permission from the customer XYZ is not proper. Legally and ethically, honesty is required in a case such as this. Handled honestly, both ABC and the customer XYZ could benefit from a lower cost. Given no cost (or performance) incentive, XYZ would have no reason to agree to a slightly inferior material. Christine certainly reacted ethically by pursuing this subject with Vernon. Aside from the ethical issue here, it is also possible that there are important factors that Christine and Vernon are not aware of, and this "closet" decision could be a large financial risk.

When Vernon disagrees with her objections by saying, "This is business, not engineering," he is implying unethical behavior (dishonesty) is justified as a part of "good" business. This dishonesty is clearly not an ethical business decision, but it is also not an ethical engineering decision. In fact, what is the distinction between business and engineering on an ethical matter? In addition to this, it is blatantly bad business based upon potential financial risk. Ethically, Christine should press further, but depending upon her position in the company relative to Vernon, this could be difficult, and she might be risking her job to do so.

When Christine refused to perjure herself by signing the report, she acted ethically, but if she allows the report to be released with the other engineer's signature, she is still allowing (and therefore condoning) a dishonest action. At this point she faces a difficult array of decisions. The lower the managerial level at which she could influence corrective action, the "safer" might be her position within the company. Since this dishonest decision was made by Vernon, who appears to be in a marketing position, an engineering manager might be able and willing to intervene. She might even be rewarded for her actions. If the managers above her all support Vernon's decision, then perhaps she should be seeking employment elsewhere anyway!

Looking back over this scenario, Christine would have been wise to more aggressively pursue an honest approach at the outset. Customer XYZ would then have been dealt with honestly regardless of the "negotiations" within ABC to achieve that. By the time the less expensive parts have been produced, it is too late for XYZ to play a part in the decision, and belated honesty will be very costly (in goodwill and perhaps dollars) to ABC.