Carl O. Hilgarth's Commentary on "The Information Due to the Customer"

Commentary On
The Information Due to the Customer

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.