

# Consultants vs. Operators- It Really Doesn't Have To Be Like This

By Edward Butts, PE, DEE

Recently, there has been a lot of writing back and forth in various trade publications about the role engineers, contractors, owners, and operators each have to play in the design of a water treatment plant and the resultant problems resulting from this inevitable 4-way relationship. Several letters have also indicated a current lack of respect and cooperation exists between many operators and engineers, as well as between engineers and contractors. This is truly unfortunate and, as is usually the case, unnecessary. During my career, I have been privileged to work as a contractor, an operator, as well as a consulting engineer. While performing the tasks unique to each job, I have been amazed at the animosity and disrespect that often exists between these vital professions. I believe that this chasm, and the resultant problems, that is often present is generally due to miscommunication and/or lack of communication between the parties, in addition to a misconception about the role each party should have in the design and construction of water system improvements. I feel that only through the mutual sharing of experience and knowledge can we all benefit from learning from the successes and failures of our industry brethren and, with a little luck, possibly avoid making those same mistakes in the future. Most of these mistakes, whether in design or construction, are preventable and are often the simple result of small misunderstandings and communication problems between participants on a project. In this article, I intend to discuss the relationship difficulties shared by operators, contractors, and consultants. You may notice that I refer to the term "consultants" rather than engineers or consulting engineers. This is due to the fact that in today's world, engineers are not the only professionals responsible for the design and supervision of water projects. Quite often, architects, hydrogeologists, construction managers, environmental scientists, as well as engineers, specify and supervise the construction of all types of projects. Since this is a very common practice, I will refer to all within this classification as generic "consultants". Also, although I fully recognize the importance and current respect gained (and earned) by the women in our industry, I will refer to each party within this article using the male gender terms only, this concession, however, is done for simplification only and does not mean to denigrate or underestimate, in any way, the contributions made by the many successful women in today's professional occupations.

Often in my career, I have been either in the middle or on the edge of a conflict or dispute between consultants, contractors, and/or plant operators, depending on which hat I was currently wearing. I have found, after some long and intense soul searching, and discussions with fellow engineers, operators, and contractors, that the best way to handle these disputes is through honesty, mutual respect, open communication, and remembering one overriding factor above all: the inescapable fact that we are ALL supposed to be working for the good of our client or employer. That is what it is supposed to be about after all, isn't it? Producing cool, clean, and safe drinking water. The reputable plant operator wants to do a good job for his employer and water customer; to perhaps enhance his reputation a bit, maybe raise the family's bank account a little, and proudly operate a plant that will safely and efficiently produce consistently clean and safe drinking water. Believe it or not, the consultant really wants the same thing; his survival, just as with the operator, is directly tied to the customer's ultimate satisfaction and whether or not he has properly represented the client's interests during the project. The last thing a conscientious consultant wants is to design a project that doesn't work as intended, or worse yet, doesn't work at all. But, we are all human, no less or no more than the guy in the trench or the one cleaning a filter. Consultants are certainly not deities nor are they prone to making mistakes any less or any more than the average person. The easiest way to visualize this is by remembering that consultants are really just ordinary people with ordinary needs and desires. Most of the consultants I know and associate with are everyday kind of men and women with wives (or husbands), kids, dog, and a mortgage. They do not want, nor desire, conflict with anyone on a project, if for no other reason than: it costs extra money the consultant had not planned on in his design or construction management budget and, they also just don't have the time to deal with unexpected problems. In this way, operators and consultants are similar, neither one of these groups can afford to give away work for nothing and certainly, a lot of uncompensated extra work will cause a sea of major red ink to the bottom line very rapidly or cause the bills at home to go unpaid. The best way to understand the consultants' limited role in a project is by understanding his normal contractual relationship with the client. Most of the current client/consultant contracts specify the total cost and hours budgeted for the project. If a cost or time overrun occurs, most often the consultant has to absorb those extra costs. It is therefore in the consultants best interest to streamline and coordinate the design and management elements of the project and avoid disputes

whenever possible. Often, in order to trim costs, owners will not include the cost of the consultants involvement or even attendance at startup of a new or retrofit plant construction in the consultants contract. Unfortunately, egos, unforeseen problems, and territorial wars often interject themselves into the mix during design and/or actual construction that ultimately results in problems or hard feelings. Operators are not the only classification of tradesmen to sometimes feel animosity towards consultants, primarily engineers. I have personally experienced, and am certainly not proud of, past clashes with electricians, underground excavators, and plumbers, among others. In almost all cases, the problems could have been avoided with a little better, and earlier, communication between myself and the other party, even if it was not necessarily up to me to start the dialogue. Usually, by the time a big problem rears it's ugly head the project is already in some trouble due to time or cost issues. The client is not generally interested or sympathetic in who is at fault; he just wants the project finished and functional and within the allotted schedule and budget and is usually not willing (or able) to come up with the extra funds to pay for the problem. The contractor, sometimes accurately, fears that they will receive the blame, and thus the extra costs involved with the problem, even if the problem is beyond his control or not his fault. In addition, the contractor may feel that the consultant has only a reputation and ego to preserve rather than real dollars and is not usually willing to budge towards a change order at all, even if the need is apparent. Conversely, the consultant may believe that the contractor is only after the money and will do anything, through multiple change orders and shortchanging the job, if necessary, to arrive at the ultimate profit he desires. The plant operator, often overlooked and ignored in this quadrangle, often feels slighted and not respected for the lack of input during the design process he was permitted and, therefore sometimes enjoys the difficulties faced by others during startup of the facility. From my experience, none of these parties are seldom always right and generally all are at least partly wrong, but unfortunately these disputes often end up in arbitration, or in extreme cases, court, but almost always with mutual suspicion and resentment the final result shared between the contractor and the consultant or the consultant and the operator with the client often also affected. Developing a negative and uncooperative attitude benefits no one and usually leads to long-term issues between participants on a project that can last for years. Based on my experience, there are some methods to help avoid some of these problems and I will address some of these methods and suggestions as they apply to consultants and plant operators.

## FOR CONSULTANTS:

1) The consultant must remember that the operator is basically a professional, just as he is, but usually with different priorities and needs. The operator not only must operate a diverse and complicated plant, he must also deal with equipment breakdowns and repairs, budget concerns, endless internal forms and paperwork, constant changes in water quality, never ending "new and improved" regulatory requirements and reporting rules, scheduling problems, safety issues, and all the other problems unique to the job. The operator, as a fellow professional, is entitled to the same respect that the consultant feels he should be given. Many times, the operator has had to obtain his training from a combination of schooling and field experience or perhaps through many years of hard work alone. Anyone who is this devoted to their profession and has spent the years of work and training required to obtain the benefits of certification along with the responsibility they now carry is fully entitled to the same level of respect and recognition enjoyed by anyone with any degree, letters behind the name, or other self perceived consultant status and should be recognized as such a professional.

2) The consultant should seek out the advice of experienced and knowledgeable operators who will be operating the plant he is designing BEFORE preparing the design documents and certainly before releasing them for bidding. An experienced consultant will recognize that there is no one individual engineer (or firm) that can possibly have all the experience, knowledge, and background necessary to provide for every conceivable occurrence, treatment and construction variable, regardless of past experience, and he should seek out the counsel of those individuals who will be placed in charge of running the plant during the design phase. After all, what good is the best design if the facility is not operated as intended? I have seen numerous designs that were excellent on paper but were later modified by the operator simply because it would not work as designed. What good is that? The consultant must remember to put his ego aside and place the needs of the client ahead of his desire to be all things to all people in the consulting world and always remember that his primary responsibility is to serve and represent his client in the best and most efficient way possible and provide the water customers with the highest degree of safe drinking water possible.

3) The consultant must recognize that the operator often has decades of experience in plant operation and water treatment beyond his own and he should be willing to

gain from the benefit of this differential. This is especially important to consultants with less than 10 years of design experience who too often think that the answer to every problem must lie in a book somewhere, if only they could just find it! In the real world it just simply doesn't work that way. The consultant must recognize that the operator is the person with his hands on and in the water, day after day, and is often the person best suited to give opinions as to the nature of the most cost effective treatment means and methods.

4) Finally, the consultant must recognize that neither Mother Nature in addition to Murphy (i.e. Murphy's Law) have taken the time to read his specifications and sometimes a good design on paper may just not work. Very simply, if the consultant has used good judgment and diligence in the preparation of the design, if he employed rational judgment and bench testing when selecting the treatment process, if he has sought out the advice and counsel of those more experienced in the subject area, if he has adequately monitored the construction and assured himself as to the integrity of the design; he has done everything expected of him. Yet, with all of this prudent caution, mistakes do sometimes happen. When they do, the consultant must put aside any egocentric concerns and seek out the advice and counsel of those individuals, such as plant operators, who can help correct the problems. Do you notice that I put the full responsibility on the consultant for these above items? This is exactly what he gets paid for. No engineer can possibly anticipate every characteristic of the actual design and construction process, no matter what school they attended and no matter how many projects they have SEEN completed.

Of course, I cannot let operators off the hook too easily;

#### FOR OPERATORS:

1) The operator should realize that the consultant is there to produce the same final outcome as himself, he only provides a different service towards this outcome. Both parties have the same ultimate goal: to provide the client with a successful project that will produce tangible benefits, i.e. clean and safe water, for the consumers. The consultant is not there to "disrespect you" no matter what it may seem like, his job is simply to represent the client, and the client's interests in the best way he can. As a matter of fact, the consultant is generally duty bound, by contract and ethics rules, to put the interests of his client ahead of even his own. Although I am sure that one exists somewhere, I cannot personally recall a situation

where a consultant purposely sabotaged the success of a project for personal reasons. Certainly, any consultant who regularly practices using these methods will be weeded out in a short time as the profession, clients, or regulatory agencies will eventually discover these actions and force the consultant out of business. I know from personal observation that the vast majority of consultants are fair and honest individuals who actually pride themselves on their ability to work with operators as well as contractors.

2) The operator should seek out the advice of a local consultant whenever a situation or conditions warrant, even if the consultant is not necessarily involved on your specific project. Although it is true that many operators feel that you cannot possibly learn or know any water treatment related knowledge from a book or without direct operational experience this statement is not entirely true. Modern technology has provided us with processes that will now treat water that could not be treated even 10 years ago, there is a world of newer technologies coming along every day that are being pioneered by engineering firms, that's right, engineering firms. The consultant may be able to offer you some past personal experience of possible methods or resources you may have not previously known about and that may also help you in your everyday job. If you really want to be a hero to your employer, I can think of no better way than by finishing a project with few or no problems and in a time frame where so many others have previously failed. Also, consider offering advice and friendship to local consultants, even if they don't ask for it. Get to know them as individuals over a cup of coffee and share some of your war stories. Offer to assist in the preparation of specifications and offer up some advice regarding risky procedures or construction methods that may be beneficial or come back to haunt either or both of you in the future. Remember, he really only wants what you want: a successful and reliable project and satisfied client that you can both brag about.

3) Ask to be involved in the design portion of the project. Provide input that is technically feasible, cost effective, and reliable. Don't be defensive or arrogant should one of your recommendations not be accepted but politely ask for a detailed and full explanation. Read and understand every detail of the project design and specifications BEFORE you complain about the consultant. Quite often, disputes result simply from the operator's failure to fully grasp and understand what the consultant's intent is for a specific design element.

4) And finally, if you are involved on a project with a consultant and problems do occur, immediately contact the consultant and attempt to find a mutually agreeable solution to your concern. One of the most serious and frequent problems I observe between operators and consultants is the desire, by some operators, to disregard or worse yet, totally ignore the consultants' role in the project. An approach such as this will definitely lead to suspicions and ill feelings on the part of the consultant and your employer that will not benefit anyone in the end. Involve the consultant in all relevant decisions and do NOT try to go around him or circumvent his authority and try to deal directly with the contractor on technical matters. This is surely a recipe for a project disaster that will undoubtedly lead to severe problems with the consultant, and probably the contractor and your employer as well. Respect his role and decision authority during the project and submit any disputes through the channels described in the contract documents. As I previously indicated, consultants will be much more receptive to input or criticism if a legitimate problem is encountered and he has been fully involved and informed throughout the construction process.

To summarize, I sincerely hope that the suggestions that I have offered will benefit both consultants as well as the operators who operate the facilities we design. To my engineer brethren I offer a simple challenge: take the information that I have extended to you, combine it with your own talent and experience, and share the result with the operators you will be working with. I guarantee that opening this line of communication will result in less conflict, better communication, and a happier client. Through this effort, you will be able to join the many professionals who feel: it doesn't have to be like this.

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