CASQA STORM CONFERENCE

September 26, 2006
Sacramento, California

Opening Keynote Address

Harnessing the Complexity of Stormwater Quality Management

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Introduction

I want to welcome you here today to the California Stormwater Quality Association 2006 Conference, and I want to thank the sponsors of this conference for inviting me to provide this opening keynote address. I have been involved with the stormwater quality program for over 16 years now and during that time I have witnessed not only the incredible growth and advancement in this program but also the many problems and frustrations faced by those charged with implementing this program. While my current attention at the Water Board is no longer just focused on stormwater quality, I continue to have a keen interest in this program and I believe the stormwater quality program is critically important and necessary for the Water Boards to achieve their mission of enhancing and protecting water quality. I firmly believe that successful implementation of the stormwater quality program will enhance and improve the quality of life for the residents and visitors of this State and I want to thank those in this room and the CASQA organization for their efforts towards achieving the goals of this program.

The stormwater quality program is a very complex program. First it involves many different agents, such as regulators, dischargers, residents, elected officials, environmental interests, industries, etc., and each of these agents have different goals, agendas and strategies. Second the medium being regulated, controlled and monitored is a highly complex system involving a multitude of factors and conditions that vary considerably over time and space. Lastly, the regulatory requirements for the program are complex because they continue to change and evolve as information comes

available, they do not specifically define compliance and they allow for a high degree of flexibility. Collectively these components result in a very complex system of multiple agents and strategies that utilize an adaptive management process in order to achieve results. This morning I would like to chat about past regulatory related events or issues that I believe have contributed to the complexity of this program, and to chat about ways we may harness this complexity to improve program implementation and to better define and measure the performance of this program.

Past Regulatory Related Events and Issues

Albert Einstein once said, "Anyone who has never made a mistake has never tried anything new." The stormwater quality program certainly has had its ups and downs since its inception with the 1987 amendments to the Federal Clean Water Act. To say the least it has been both interesting and frustrating. Over the past few years there have been a number of activities by the Water Boards that have influenced the focus and direction of this program; these include:

- Prescriptive MS4 permits. Frustrated by lack of progress and compliance, Water Board staff believed more prescriptive permits were needed and necessary. During that time I was actively engaged in the program, and while I did not necessarily agree with the prescriptive nature of the permits, and still do not, I completely understood why Water Board staff believed such measures were necessary. Early MS4 permits simply required permittees to implement their Stormwater Quality Management Plans, monitoring programs and to report on their progress and compliance. Doing this provided significant flexibility, accountability and responsibility to the permittees; however, in hindsight I believe this may have been too naïve of a regulatory approach. I believe a key reason was due to a lack of adequate outreach and direction to elected officials and top management of the communities being regulated by the Water Board during the development of this program. With some exceptions, this resulted in inadequate resources being allocated for

program development and implementation because the decision makers of the communities were not fully informed and did not understand the purpose and goals of the program. There was also significant resistance to the stormwater quality program. Many MS4s simply tried to avoid the program and fought hard to provide reasons why they should not have to do anything rather than identifying what could be done. I also believe the Water Boards could have better planned and prepared for program implementation. Policies should have been drafted and adopted to better define program requirements and compliance, and to better manage expectations of the program by defining the regulatory approach to monitoring and enforcing a program that will require many years to fully implement. Water Board staff should have been better trained to ensure consistent interpretation and application of the federal regulations statewide. I also believe the Stormwater Quality Task Force (now CASQA) should have continued in its advisory and support role to the State Water Board as it had in the early years of the program, as opposed to taking on a more adversarial role as the permits became more prescriptive.

- Audits conducted by USEPA of various MS4s have provided some insight into the overall effort, progress and compliance of the MS4 program. In my previous career I participated in and conducted a number of audits of MS4s throughout California. Most audits were conducted on MS4s that were regulated under the more prescriptive permits. The audit results were mixed. Some elements of the MS4 programs were more compliant and adequate than others. However, what I found quite interesting, actually more disturbing, was that even with the more prescriptive permits, compliance with the overall intent of the stormwater regulatory requirements was not adequate. MS4s were certainly doing more, but doing more did not result in an effective program that was protective of water quality. I believe lack of ownership and lack of measurable standards contributed to the inadequacy of the stormwater quality program, and I believe collectively the permittees,

CASQA and Water Boards share the blame. It's amazing and frustrating to me that after 16 plus years we still do not have adequate standards by which to measure the effectiveness of this program. The use, design, operation and maintenance of BMPs have not been sufficiently defined such that once implemented BMPs are used appropriately, are monitored, and are effective. I am amazed at how permittees are willing to spend public dollars to implement BMPs without monitoring their effectiveness. This would not happen in any other public works operation or maintenance activity and should not be allowed in the stormwater program. If a community found an engineering standard or maintenance operation to be ineffective it would be changed, without question. The stormwater quality program for many MS4s has not been fully integrated into a community's daily operation; rather it is treated more as an after thought or an add-on activity. As I said before, an effective stormwater quality program will enhance and improve the lives and environment for the residents and visitors of a community. Ownership of this program, by both the MS4s and the Water Boards, is absolutely required to ensure a successful program. Ownership will ensure that actions taken towards compliance is in the best interest of a community and its environment, provides accountability for the public resources used, and ensures a public agency is taking responsibility for its actions.

- Impaired water bodies and TMDLs. Development of the 303(d) list for impaired water bodies and the ultimate development of TMDLs for impaired water bodies is done outside the stormwater regulatory program; however, the MS4 permit is a tool through which TMDLs are implemented. As more and more TMDLs are being developed the focus and direction of the stormwater programs may change. Both Water Board and MS4 staff should be actively engaged in the TMDL development and be proactive in evaluating their stormwater management programs to ensure pollutants being regulated by a TMDL are addressed.

- Effluent limits. The State Water Board recently convened a blue ribbon panel of experts to evaluate and report if it is feasible to develop effluent limits for stormwater permits and if limits are necessary. The report findings indicate that limits could be developed but cautioned against developing them until further studies and information is gathered. This report confirmed the complexities of developing numeric limits. As a result, numeric limits being implemented through MS4 permits that are not associated with waste load allocations may not occur for sometime. However, the writing is on the wall and now is the time for the Water Boards, MS4s, CASQA and other parties to take a more proactive role. This program is significantly lacking in its ability to determine if a program is effective. The development of numeric limits or some other measure of performance is critical for determining the success of this program.

Harnessing the Complexity of the Stormwater Program

To harness the complexity of the stormwater program means to deliberately change the structure of the program in order to increase the measure of its performance. John F. Kennedy once said, "Our problems are man-made, therefore they may be solved by man. No problem of human destiny is beyond human beings." We must use our knowledge of the complexity of this program to do a better job through learning to live with the complexity, even taking advantage of it, rather than to ignore or eliminate it. We cannot use complexity as an excuse for delays or for not doing anything. Since the beginning of time mankind has not allowed complexity to stop progress. The ingenuity and creative nature of our engineers and scientists has resulted in man continuing to harness the complexities of mother nature and the universe; for instance the complexity of hydrology and hydraulics together with the very limited data and knowledge of future development did not stop the building of dams, levees, and other structures that allowed the development of communities in areas once prone to flooding or in areas that lacked water supply. Many of us have worked in or visited high rise buildings, or driven on roads and bridges designed and built with limited

seismic data and based on many assumptions and factors of safety while seismic data is continually collected and building codes changed. If we can put hundreds of people in planes and fly them around the world in the same day, send men and women to the moon and beyond, conduct complex and fragile medical operations on babies while in the womb or replacing damaged hearts, lungs and other organs, and put millions of data points on a chip smaller than the tip of my little finger, we can certainly succeed in developing comprehensive stormwater quality programs that protect water quality. But we have to want succeed. Without the will to succeed we will fail. You see I am a very optimistic person. Yes at times I can complain about the slow progress of this program or become frustrated at the lack of success, but I have always believed that we can tackle stormwater quality issues and develop programs that are effective and beneficial to the communities of this State while protecting water quality. So, how might we begin to change the dynamics of this program from being stagnated due to complexity to using the complexity to our advantage? Let me suggest the following ideas:

- Both the permittees and Water Boards must take ownership of this program. I consider this a key to the future success of this program. The Water Boards must step forward and develop the appropriate policies and guidance material necessary to ensure this program is implemented in a fair and consistent manner. Regulatory decisions must be justified and based on sound science and research data and not based on a one-size fits all approach. Staff needs to know the conditions and characteristics of a community and must better educate and inform the permittees of their concerns. Permit requirements must be clear but allow sufficient flexibility to allow programs to develop and expand based on the site-specific information and characteristics. They should return to the use of the management plan as the key planning and regulatory document for program implementation.

  For too long permittees have focused on the negative impacts of the program. They must begin to realize and identify the benefits of the stormwater quality program for its community. Permittees must stop telling the regulators what they

cannot do and begin identifying what they can do and why. Stormwater quality should be fully integrated into the daily operations and practices of the MS4's programs and activities. Stormwater quality programs, BMPs and priorities must be clearly developed and justified based on sound science and research.

- The ultimate success of this program will require MS4s, the Water Board, NGOs and other interested parties to work together in a cooperative and collaborative manner. This was the approach taken during the early years of program development and a primary reason the Stormwater Quality Task Force was formed. I remember back in the early 90's participating in smaller working groups where water board staff, MS4 representatives, consultants and other parties sat around conference room tables to discuss issues and hammer out our differences; this type of dialogue with all parties present continues to be needed and necessary. We must begin to find ways to partner and work together on problem solving. We need to leverage our resources and time. We need to find ways to bring representatives of the NGOs back to the table to begin constructive dialogue on how to solve the problems faced by our communities today when implementing their programs. Although I may not agree with the NGOs that this program is a total failure, I do understand and agree with their concerns and recognize that they play a critical and important role in the development and implementation of our regulatory programs.

- Both the permittees and Water Boards must be accountable for this program. Performance measures and standards for the development, implementation, operation and maintenance of the BMPs must be developed, and BMPs must be monitored. Permittees and the Water Board must be accountable for the success of this program. Permittees must be accountable to their community by demonstrating the public dollars expended are being monitored to ensure BMPs are effective and have accomplished the goals of the stormwater program. Water Board staff must be accountable for verifying compliance of the programs and must ensure documents submitted are adequate to demonstrate compliance.

- All parties should treat stormwater as a resource rather than as a waste that must be removed and disposed of as quickly as possible. MS4s should determine ways that stormwater can be reused as a benefit within the community, such as, being used for groundwater recharge, captured and used for irrigation, used to create beautiful water features or ponds in communities and parks, or other projects where captured stormwater can be used to augment fresh water supplies. Consider thinking outside the box on how stormwater may be a commodity, such as communities capturing and treating, if necessary, stormwater to market to users that need a water supply that is not for drinking water or other domestic use.

- MS4s should consider fully integrating all water supply, control and environmental regulatory programs within a community regardless of the agency, district or party responsible for implementing the program. Drinking water, flood control and drainage projects and domestic and industrial wastewater are all programs within a community that could directly or indirectly affect the stormwater quality program. These programs should not be considered exclusively of each other. To be truly effective the programs should be fully integrated and the programs should be developed such that they are complementary and not in conflict with the stormwater quality program.

- Building off this point, the Water Board should consider a watershed permitting approach that could include pollutant credits or trading between the permittees within a watershed. I remember attending the earlier Stormwater Quality Task Force meetings and hearing the MS4s complain how runoff from agriculture was the culprit and how the Water Boards should be going after them and not the municipalities. The Central Valley Water Board is now regulating runoff from agriculture and in meetings with the growers they are pointing their fingers at runoff from municipalities as the cause of water quality concerns. Wastewater treatment plants complain that they are being held accountable for pollutants that

are caused by others, including stormwater. Also, the Central Valley Water Board is currently developing a Drinking Water Policy to address the how we regulate discharges to water bodies designated as municipal water supplies. Considering the number of parties that are users of our waters for either supply or disposal, it may be time to begin regulating based on the total watershed or defined drainage area.

- MS4s should begin to treat their Stormwater Management Plan as sacred as their General Plan. General Plans are the planning document for a community's development and growth; it is the "bible" for a community's development and growth. It must be strictly adhered to and, if changed, must be done so through a public process. The General Plan is reviewed and updated every five years. Ordinances, regulatory codes, policies and standards are developed to ensure full compliance with the General Plan. Employees are required to ensure the General Plan and related requirements are met. Can you see the similarity of the stormwater program with the general plan? If not, then I suggest you reconsider the importance of your stormwater plan. A stormwater management plan is the planning document that serves as the roadmap for development and implementation of your stormwater quality program. It too will have ordinances, codes, policies and standards developed to ensure compliance. Employees should ensure the stormwater quality plan is followed and adhered to at all times. Changes to the plan should be done so through a public process.

- Building on this, we must remember that the stormwater quality program is a long-term program. It will take years to fully implement. We must recognize that these programs will require substantial time to see definitive and quantitative results. Therefore, one of the challenges that face the Water Boards is for staff to slow down and resist the need to change its programs and permits. As stated before we must find ways to define performance standards so that we can measure progress over time and to identify the incremental successes of this program.

- Finally I challenge the MS4s to assess their true commitment to this program. Has this program been fully integrated into the daily business of your agency or is it an add-on? I also challenge the MS4s and CASQA to meet and work with the NGOs to identify studies and/or projects for this program that are designed and implemented in such a way that all parties agree with the study or project and agree to accept the results. It is much easier for the Water Boards to use data from studies that are not contested by the various interested parties.

CASQA's Role

What is CASQA's role in harnessing the complexity of this program? CASQA serves as the hub for the California stormwater quality program and as such has significant influence in the overall focus and direction of this program. As the hub they can help manage and control the complexity by serving as the designer or policy advisor in deciding what is the right balance of variety and uniformity in this program. They do so by helping to develop policies, conducting research and providing valuable guidance to the MS4s and the Water Boards.

Conclusion

The challenges of the stormwater quality program are significant and these are compounded by the high degree of complexity caused by the various agents and strategies involved in this regulatory program. CASQA must recognize their important role in helping to harness this complexity. It is time to stop and reflect on the past 16 plus years. How can this program be managed differently in order to ensure that the complexity is used in a manner to improve the performance of this program rather than becoming a cause for its failure? I have suggested a few ways but I am certain there are more. What would be the cost of not harnessing the complexity? Could it result in increased prescriptive requirements in permits, implementation of stringent numeric effluent limits or increased third party lawsuits? Could it result in deterioration in water

quality, at great cost to communities that live near and use those waters? Most likely one or all of these will occur. I suggest CASQA play a key role in shaping the future of the California stormwater quality program and to serve in a leadership role in harnessing the complexities facing this program.

In closing I would like to say that I have always respected and admired the efforts and work of CASQA. Many important individuals that have been instrumental in shaping and directing the California stormwater quality program have served as leaders of this organization. I believe CASQA continues to play a critical role, their service is invaluable, and I thank CASQA for all their current and past efforts in this program.

Before I end my address this morning I would like to once again stress how critically important the successful implementation of this program is to protecting the water quality of our state. I have a particular affinity for water and I am sure that is why I have devoted my career to the protection of water quality. In preparing my speech I was reminded of a quote by John F. Kennedy that relates man and the sea, and I would like to share it with you:

> "I really don't know why it is that all of us are so committed to the sea, except I think it's because in addition to the fact that the sea changes, and the light changes, and ships change, it's because we all came from the sea. And it is an interesting biological fact that all of us have in our veins the exact same percentage of salt in our blood that exists in the ocean, and, therefore, we have salt in our blood, our sweat, and in our tears. We are tied to the ocean. And when we go back to the sea, whether it is to sail or to watch it, we are going back from whence we came."

I thank all of you in this room for your participation, your contributions and your continued interest in ensuring the success of our stormwater quality program.

Enjoy your conference.