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Dr. William F. Marcuson, III  
President, American Society of Civil Engineers  
1801 Alexander Bell Drive  
Reston, VA 20191-4400  
[Sent by E-mail]

**Re: New Orleans, Hurricane Katrina,  
And the Soul of the Profession**

Dear Bill,

As you requested, I am writing to broach a set of subjects that are not addressed in print in our ILIT Final Report on the performance of the New Orleans levees, but that are of great importance nonetheless. I had hoped to meet and discuss this with you privately, but you made it clear that you are far too busy for that, and would continue to be so through the final busy months of your Presidency. Accordingly, as you recommended, I have allegorically taken pen in hand.

There were a number of issues in play these past two years, and the most apparent of these was the performance of the New Orleans regional flood protection system during hurricane Katrina. Nearly as obvious were the several principal investigations thereof, the (still ongoing) repairs to the levee system after the event, and the broader and deeper lessons to be extracted from all of this.

Also of considerable importance, however, were a number of issues that occurred, or were contested, out of sight of most of the general public.

In my own view; these past two years were not mainly about who did well or poorly, nor about who was to blame for the New Orleans disaster, nor even who got what right in the technical investigations that followed; it was a search for truths and hard lessons, and it was also a battle for the ethics and the soul of the Profession.

And that important battle is not yet won. Indeed, current indications are that it may presently be in the process of being lost.

Three precious things were lost to Hurricane Katrina. One was the City of New Orleans; a more tragic loss than many have yet fully appreciated as the prospects for eventual recovery continue to dim. The second was a blow to the public's perception of the Civil Engineering profession, and their confidence in our ability to suitably protect them. And the third was a loss of integrity within the Profession in the aftermath of the initial disaster; a profoundly important loss led in no small part by the two most important Civil engineering agencies/institutions in the world. And that loss is currently still going unaddressed and unrepaired on the part of ASCE.

You will already know some or all of this. It is my fond hope, however, that some of this will be surprising and new to you, as you may have been given only partial and/or misleading reports on some of this, and may have only sensed and/or suspected some of the rest.

I want to make it clear that I am not writing this on behalf of our investigation team. What follows is my own take on this. If retribution is to be exacted, as history (including recent and ongoing events) suggests that it will, then it is myself who should be sought out and attacked, not the many honorable men and women of the independent investigation teams.

My timing in forwarding this letter is occasioned in large part by my regard for your long-standing friendship with my father, our own relationship, and my literally life-long admiration for your service and contribution to the profession. I am aware that you will step down as President of ASCE later this week, and that you will then have one additional year as the former President to remain involved. It is very important to me that you be afforded an opportunity to be proactively involved with beginning to re-assert the ethics and integrity of the profession's flagship Society, while still in a key leadership position, as I fear that you will otherwise be at risk of being recorded in history as having been one of the key figures at the helm when the Society critically failed in its ethical responsibility.

One of the principles of our investigation last year was that "light of day" is the most powerful weapon for truth available to most of us on a regular basis. When bad things happen, they often occur quietly, and in the dark. When the light of day is shone upon them, bad things often cease, and the perpetrators often slink away. When earnest disagreements occur, open discourse and sharing, and even debate, are generally the best ways to resolve these. When the two powerful ingredients of truth and light of day are combined together, they can be remarkably powerful forces for good.

With that in mind, the responsibility will fall at any point in time upon someone (or some group of someone's) to be the keepers of the flame, and to ensure that sufficient light shines upon things as to keep the Profession sound and well. That task cannot really be self-selected; it is both a function of historic accident and also professional maturity and accomplishment. And you are now among those sharing a very critical measure of that responsibility.

The failure of the New Orleans regional flood protection systems was one of the two most costly failures of engineered systems in history (rivaled only by the Chernobyl reactor meltdown). It was not, however, all that much more daunting than some of what has followed.

I would never have imagined that I would live to see select elements of two of the world's pre-eminent civil engineering organizations, two organizations with tremendous public trust and responsibility, be caught behaving so badly. These past two years, both the USACE and ASCE have been dishonored by the unacceptable, and even unfathomable, actions of a few. These are two of the most important civil engineering organizations in the world. If that cannot be reversed and repaired, and if recurrence cannot be prevented, then the ethics and the very soul of the Profession are in peril.

You asked for details as to my concerns. The letter which follows presents a number of such details. They are laid out largely in chronological order of occurrence, in an effort to provide you with an understandable structure and form for a volume of material that is difficult to get one's hands fully around. And one's heart as well.

Each of these details is of some importance on its own, but it is the sheer volume and confluence of these that are the main point. What we have seen these past two years has been a significant, and still ongoing, effort to promulgate misleading studies and statements, to subvert appropriate independent investigations that would provide useful second opinions, and to use the institutional might of the two most powerful civil engineering institutions in the Nation to literally attempt to change some of the critical apparent answers regarding lessons to be learned in the wake of this major disaster.

That deeply saddens me, as these two institutions (ASCE and the USACE) are both of critical importance to the nation. Both need to be bastions of honesty and appropriate professional integrity. Failing to act in that manner poses an unacceptable risk to the longevity of these two vital institutions. And to the safety and welfare of the nation.

Now that the main investigations have been completed there will, of course, be a need to work to re-build the former cutting-edge technical capability of the USACE, and its focus and commitment to public safety and welfare (ahead of cost-efficiency and other more politically favored issues as have been dictated by Congress over the past several decades.) They need to re-acquire, and then retain and nurture, increased numbers of top-flight engineers, re-acquire their capabilities for research, re-orient themselves as a “high reliability organization” (HRO), and massively overhaul some districts with entrenched problems with regard to dysfunctional professional culture. They also need to be better funded and allowed to pay their people better; they need to be able to be more competitive in hiring from the better universities, and they need to be better able to retain the all-important mid-career engineers who are so vital to the health of any engineering organization. And they need to be allowed (by Congress) to systematically outsource less of their work; letting their own engineers stay sharp by doing more of the challenging engineering. Less outsourcing is also brutally important with regard to retention; it is an assault on any engineer’s soul to be asked only to review the work of others (especially if they are also underpaid). All of that will be a long and difficult task, especially if Congress again progressively (or conveniently) lapses its attention span and fails to adequately support (and fund) these vital efforts to re-build the Corps. Or if Congress acts punitively in the ongoing wake of Katrina, and further “cuts” the Corps and its funding, as may be viewed to be politically attractive or convenient in the short-term.

There are also, however, an equally important pair of additional tasks ahead in terms of rehabilitating and re-asserting the professional ethics and morals of both the USACE and ASCE. Those may be either easy or difficult tasks; depending on the integrity and strength of the leadership of those two important organizations over the next few years.

What follows will be rather lengthy, and you are clearly very busy completing your term. If you like, you could skip ahead to the end (Sections 5, 7 and 10) for the more concise summary. It is not my intent to be concise, as is usually appropriate with the exposition of engineering issues. This is far more difficult stuff, and it is my intent to get it said, and out into at least a bit of light of day, and thus to provide both you and Mr. Pat Natale with the opportunity to begin to take the steps necessary to effect what I believe are urgently needed repairs to the ethics of the Profession, and its pre-eminent professional society.

### **(1) Rough Beginnings:**

Things began badly right from the start.

We were late getting to the field after Katrina, and so missed out on the opportunity to make direct observations of important field data in the wake of Katrina as critical data became degraded and even buried by both weather (including a second hurricane passing by) and by emergency breach repair activities. When the two principal “outside” (ASCE and NSF) field investigation teams finally reached the field, five precious weeks had elapsed, and vital data was being buried or destroyed daily. This destruction of vitally important data was not related to any malfeasance; it was simply the inevitable result of necessary emergency field operations.

The ostensible reasons for delaying our arrival were concerns for our safety, and concern that we might somehow impede emergency operations. There was likely some truth to these, but

most of our people have extensive experience in early arrival at major catastrophes, (including earthquakes in Third World countries where there were many thousands of bodies in the rubble, and where issues like sanitation and safe water were problematic, and usually with frenzied emergency rescue attempts still underway) because we learned long ago that vital data disappears alarmingly quickly when emergency rescue operations, bulldozers, and weather operate. The argument that we might somehow have impeded emergency breach repair efforts was more specious; a number of our personnel had led or participated in such repair efforts, and we certainly all understand field operations and how to stay out of the way (and we were a small group.) Indeed; instead of “impeding” such efforts we actually ended up having to impose ourselves to prevent the potential second failure (re-breaching) of the large interim breach repair at the 17<sup>th</sup> Street canal site; which had been inadequately executed and was actively internally eroding and progressing towards likely eventual failure prior to our intervention. You were involved in that intervention, and I am grateful.

Reluctance to have “outside” teams come in was natural and understandable. If that was all of it, this letter would not be necessary.

What came next was the beginning of a very disturbing period.

ASCE’s executive staff had worked out an arrangement with the Corps (and DoD) to collaborate with the Corps and to provide an External Review Panel for a Corps-led investigation that eventually became the Interagency Performance Evaluation Team (IPET) investigation. We did not, initially, adequately appreciate the meaning of the word “arrangement”. Led by ASCE’s Mr. Larry Roth and Mr. John Durant, this initiative was (in Larry’s own words) an outstanding opportunity for ASCE to “earn a position at the table” from whence to affect policy in the period to follow; and also to draw a fee of \$2 million.

That might have been construed as a potential conflict of interest, but as it turned out that would have been to significantly understate the matter. We found ourselves in the field, with vital data disappearing daily, being escorted around by a team from the Corps led by a fellow named Dr. Paul Mlakar. Most of these Corps personnel were engineers and geologists of high professional integrity and capability, and we had much to learn together and from each other. Two of the Corps field team escorting us around were different, however; their role was to keep the Corps personnel from speaking too openly with the rest of us and thus potentially spilling any beans.

The ASCE and NSF field teams immediately realized the vast scope of ground that needed to be covered, and the tremendous urgency as data was disappearing daily, and we immediately became a single, composite team; operating jointly to maximize our efficiency and the individual talents available. Besides, most of us had known each other for years. The Corps’ engineers and geologists joined right in as well, as best they were allowed. The urgency and importance was apparent to all; data and initial observations not gathered in those first precious two and a half weeks in the field would be gone forever.

Toward the end of that first week in the field, on our last night before cross-loading and then handing over to the “second week” ASCE and NSF field team members, we faced the challenging task of preparing a semi-formal outbriefing for the Corps the next morning. That was of considerable importance, as we had seen much that the Corps were clearly not yet properly aware of (including the ongoing, uncontrolled internal erosion of the temporary breach repair at the 17<sup>th</sup> Street Canal which we judged to be progressing at an unpredictable rate towards potential failure.)

Unfortunately, our labors to prepare the next morning’s outbriefing were delayed for more than 4 hours by a prolonged argument (by conference phone) with two senior executive staffers at ASCE headquarters (again Mr’s. Larry Roth and John Durant), and by the additional involvement in this extended debate of Dr. Paul Mlakar from the Corps.

Larry and John had scheduled a large press conference for the next day, to be held at the site of the 17<sup>th</sup> Street canal breach. The problem was: the “deal” between them and the Corps was such that our field teams were not permitted to have learned anything while in the field. Instead, we were simply to have “measured and obtained perishable data”, and any learning was then to be the result of subsequent analysis and study. Accordingly, we were forbidden to have been enlightened at all by our seven to nine days in the field.

Of course, that’s not how it works. We did not simply go out and just “measure things”. The great trick to forensics is to know what to measure and observe. And why. And what it means. And to place it in context. And to develop multiple working theories. And to discuss and argue these with accomplished and experienced colleagues, and refine them, while keeping all doors open. And then to go back and measure and observe some more. And again to refine the picture. And in this way to iterate and be as sure as possible to obtain all potentially pertinent observations and data; even in the limited timeframe allowed.

It was ethically and professionally offensive to the two assembled teams of experienced experts to be told that they were to simply wave, say that they had measured things, and that they had learned nothing. And at a time when a distraught population, and the government (both local and federal) were in desperate need of some small sense that engineers were performing a straight-forward, honest investigation and were making some progress. And when everyone needed a sense of trust.

We were, for example, scheduled to have the press conference at the 17<sup>th</sup> Street canal breach site, in full view of the breach itself. The large, intact displaced levee block at that site had translated laterally approximately 52 feet near the center of the breach. When asked by the press if the block had moved from here to there, we were instructed to reply “We don’t know.... we are studying it. We’ll know more in about one year.” We spent 4 hours late into the night (past midnight) arguing with Larry Roth and John Durant at ASCE HQ (who were on a conference speaker phone in the middle of the table), and Dr. Paul Mlakar of the Corps (who was with us in the room throughout), as the two teams of assembled distinguished national and international experts explained both that our professional integrity and competence would be surely questioned, and that the integrity of ASCE and of the “independent” NSF and USACE investigations would be questioned as well. In the end, Larry and John, along with Dr. Mlakar, put their foot down; if we did not all “play ball”, then the further planned field work of the “week two” teams already beginning to arrive would be cancelled. A direct threat to the two investigations.

So we met even later into the night, and decided collectively that it was clearly more important (and more urgent) to continue to acquire the vital ephemeral field data that was being buried daily than to have an appropriate press briefing; in another eight or nine days we would be finished in the field and the threat to bar us all from further urgent field work would no longer apply.

There were 13 members of the two (combined) ASCE and NSF field teams in that hotel conference room that night. Four members of the ASCE Geo-Institute team, two from COPRI, two foreigners (one from Holland and one from Japan), and five from the NSF team. Plus Dr. Paul Mlakar. A note was passed around the room (except to Dr. Mlakar) as we argued with the two disembodied ASCE HQ voices emanating from the centrally placed speakerphone. It was handwritten by one of the two foreign representatives, and contained a single word: Coverup!! (The underlining and two exclamation marks were original with the note.) A bit later, the active ASCE members in that room considered resigning (from ASCE) in protest. One of the two foreigners, one of Holland’s top levee engineers (thus not an ASCE member) had the seminal word on that point; he asked if he could immediately join ASCE.... (pregnant pause).... so that he could resign too. That pretty much summed it up.

We then stayed up the rest of the night (the five or so remaining hours), and presented a very important outbriefing to the local Corps at 0800 the next morning. [The 17<sup>th</sup> Street canal breach repair was not the only section that was geotechnically inadequate with regard to unfiltered erosion; it was just the one showing the clearest signs of trouble at that stage. The same unsuitable materials and similar placement geometries had been used in the repairs of the two large breaches at the west end of the Lower Ninth Ward (one of which had already re-breached once during the lesser storm surge produced by hurricane Rita, re-flooding the Ninth Ward for a second time), and for at least one of the two large breaches on the London Avenue canal, and we felt that there was an urgent need to further improve and buttress those repairs as well. Indeed, we told the Corps that those sections would likely be risky and problematic at relatively low water stages (possibly as low as those produced by even unusually high tides). Approximately eighteen days later a particularly high tide occurred, and the north breach repair section at the west end of the Lower Ninth Ward sprung a large “seep” that was fought for 8 days before being brought safely back under control.]

The press conference that followed fooled no one. We subsequently came to know the principal members of the national press covering New Orleans and Katrina pretty well, and they all tell us that the press conference at the site of the 17<sup>th</sup> Street canal breach served only to convince members of the assembled press that some sort of cover-up was, in fact, apparently underway.

When we returned from the field, we promptly (after getting the 17<sup>th</sup> Street Canal breach repair section properly buttressed) began preparing an initial field report. Since we had operated as a single combined team in the field, we had agreed to prepare a joint report. The “second week” (second nine days) team was very lopsidedly NSF-loaded, so overall contribution to the field works had been fairly even. More importantly; we didn’t care how credit was shared, only that information vital to the devastated people of the region, and to both the local and federal governments (as there was an odd blackout with regard to useful information coming from the Corps, even to the federal government in Washington) was responsibly disseminated in a timely manner.

That led to the next unfortunate surprise. Larry Roth had explained to me back in early September that ASCE had been ingloriously kicked out from the 911 investigation of the World Trade Center, and that they had learned their lesson and would never again make those same mistakes. I had assumed that he meant that ASCE would henceforth act within the guidelines and spirit of their own Canon of Ethics, and thus avoid similar embarrassment, but that turned out not to be what he meant at all. What he meant was that a non-disclosure clause that had been inserted into ASCE’s health and safety waiver/form for forensic investigations would be vigorously enforced. Buried in amongst the usual disclaimers dealing with the possibility of injury and illness, etc., was a very strong and binding non-disclosure clause. It turned out that some of the ASCE field team members had not even noticed this as they signed their forms.

We were working hard on our initial (joint) field reconnaissance report, in order to meet a very firm deadline of November 2<sup>nd</sup> (representing the agreed upon delivery date to the U.S. Senate 24 hours prior to the next day’s scheduled formal briefing/testimony session before the U.S. Senate Committee on Homeland Security and Government Affairs.) Only four days prior to this hard deadline, with the report nearly ready to go, Larry Roth confronted poor Peter Nicholson (the leader of the ASCE field team), with a copy of Peter’s signed non-disclosure agreement, and required him to pull all of the ASCE field team members off the joint report. And all of their materials as well.

I’m not sure which is the greater shame; that he would undertake so transparent and obvious an effort to derail the urgently needed report (as the Federal government continued to struggle to get their hands around the disaster, and to respond, without adequate technical input from the Corps), or the fact that we had all (the members of both the ASCE and NSF teams) jointly foreseen the

possibility that he would undertake such an action, so that the NSF team had actually written 5 of the 7 chapters, and the Executive Summary, just in case such a ploy was attempted at the last minute. (So that we could quickly re-write the remaining two chapters if necessary and still meet the Senate deadline.) The ASCE Field team had written only two chapters, and contributed field photos only to those; we were certainly able to re-do those two chapters in the four days remaining. We explained this to Larry, and gave him to the end of the day to decide on his course of action as we had a firm deadline to meet. Faced with this, and the uncomfortable prospect of having to then explain his actions (and the missing names of the ASCE team members on an important report that had been promised to the Senate committee as a jointly authored report) Larry caved, and the report traveled under joint authorship, as was appropriate.

The report was an immediate hit. The Senate committee staffers read it overnight, and both Sen's. Collins and Lieberman gave excellent and very insightful summaries in their opening statements at that Senate hearing that next day. They also, correctly, bemoaned the lack of similarly useful information emanating from the Corps. Poor Dr. Paul Mlakar was the fellow tasked with representing the Corps at that Senate hearing (Peter Nicholson represented the ASCE field team, Dr. Ivor Van Heerden spoke for Team Louisiana, and I spoke for the NSF team). Under repeated questioning, it became apparent that all Paul was allowed to say was that "we are studying that, and we will know more in a year." At the end of the session, Sen. Collins leveled her formidable stare nearly directly at poor Paul and said something very close to the following: "Dr. Mlakar, I understand that you have been sent here to tell us nothing. As a good soldier, you have done that admirably. I want you to go back and tell those who sent you, however, that this committee will not tolerate that, and that we will also not tolerate continued failure on the part of the Corps to provide requested documents and data to these other investigation teams." Interestingly, she stared intently not at Paul, but rather at Dave Pezza (from Corps HQ) seated just behind him in the audience, again demonstrating excellent understanding.

That initial field report (that Larry had tried to kill) went on to become the seminal reference document on the technical aspects of the disaster throughout Washington for the next few months. When we subsequently made a trip back to Washington D.C. to brief Senators and Representatives, Congressional committees and staffs, and various agencies/acronyms across town, copies were on everyone's desks and we were shocked to learn that there was still not much useful technical information coming from the Corps to help the government in Washington to begin to understand and deal with the technical aspects of this catastrophe. Initial 15-minute meetings with full Senators were extended as they cancelled subsequent meetings in their urgent eagerness to learn more details, and we sometimes had to be finally dragged out by our handlers so that we could make it to our next meeting/appointment. That was terribly inappropriate; ours should not have been the only responsible technical input they were receiving.

When the Corp's full-scale (IPET) investigation finally began, IPET's first formal activity turned out to be a very detailed review of that same initial (joint) field report. They reviewed and analyzed it in great detail, often a paragraph at a time, wrote (and published) unusually extensive discussions, and concluded that it was a darned good initial report.

Upon returning from the Senate hearing of November 3<sup>rd</sup>, we then had 10 days to revise and finalize our written submittals for the permanent Senate record. The two (joint) teams voted to take advantage of this 10 day period to further refine and polish this initial field report (and to eliminate typo's, etc.) Several days before the new deadline, Larry Roth submitted (by E-mail) many pages of "absolutely required" ASCE revisions to the report. Many of these served (inappropriately, and certainly prematurely) to verbally exonerate the Corps on various points. That was both

inappropriate and unnecessary. We were neither blaming nor exonerating anyone at that stage.... it was just a preliminary field investigation report. I never actually had the opportunity to respond to Larry regarding those “required comments” on behalf of the now jointly operating team, as by this time the ASCE field team’s members had had enough and were sufficiently incensed that they revolted before any of the rest of us had time to respond; Larry Roth and John Durant had not been in the field, they were not authors of the report, the field teams were experienced professionals,..... and they backed Larry off and his required revisions never had to be considered further. So the report traveled as a fairly tight, readable, and very useful initial technical field report and overview of the event.

ASCE then posted our “joint” report on the front page of their website, managing to imply that they had done most or all of it (despite their team members’ unfortunately constrained contribution, and ASCE Headquarters’ two attempts to either kill or effectively compromise the report). If it had been for sale, rather than downloadable for free, we would have been incensed.

Larry Roth, having now been thwarted multiple times, then required the complete withdrawal of the ASCE field team members from any and all further collaborative activities.

One of the ASCE field team members, a gentleman of admirable personal calibre and ethics, was motivated by that action by Larry to dig out the official ASCE Canon of Ethics at that point. He re-read it, and promptly resigned from the ASCE field team and joined ours; a course of action that he felt was the only acceptable course based on ASCE’s own published professional Canon of Ethics. That fellow was Prof. Joe Wartman, of Drexel University, and he subsequently suffered the expected retaliatory bashing for that by ASCE (and so will re-enter this story later.) A second, and far more senior ASCE field team member (Dr. Gordon Boutwell) elected to continue to serve jointly on both the ASCE field team, and our own, as that was his understanding of the appropriate professional course of action. Gordon has served ASCE unusually well over a long and distinguished professional career. He is also of advanced age, an ASCE Life Member, and a former Marine. He had absolutely no fear of ASCE, and was damned if they were going to bully him. He also cleared his decks, by retiring and selling his geotechnical firm to get them out of the line of fire. Other members of the ASCE field team quietly apologized to us, and wished us well, but were afraid to directly confront such a powerful organization behaving so badly.

One of our difficult tasks now became to assemble the larger team that would continue the investigation forward through geo-forensic analyses, broader organizational and human factors investigations, and more. That clearly entailed a need to assemble a team of sufficient technical ability, experience and reputation that its findings could not easily be assailed (as efforts to assail them would clearly be made). It was also necessary to get together with the prospective team members and explain the likelihood that we would have to work uphill, into the face of “friendly fire” from both the Corps and ASCE headquarters, and that we could also expect (if history is a guide) to face potential retaliation throughout our careers after the fact. We were nonetheless overwhelmed with volunteers, and had our pick. That was an impressive and heart-warming testament to the ethics and commitment of the Profession at large.

## **(2) The Even Tougher Middle Period:**

Pretty quickly after the catastrophe, the IPET investigation process had been set up. This was initially designed as a bit of a narrow process in two regards. The “Interagency Performance Evaluation Team” (IPET) was set up to be “comprised” of multiple federal agencies, and consultants and researchers from numerous universities and other institutions, etc., to demonstrate



that it was not the Corps investigating itself. But it was, of course, really the Corps investigating itself with the help of its own selected consultants. To add credibility, the ASCE would provide an External Review Panel (ERP). The ERP would review only the IPET investigation's works (not those of the other, independent teams as well), and would actually perform more as an internal consulting and review team, working closely interactively with the IPET throughout the investigation. Finally, to add even further credibility, the NRC would form an additional panel to review the results of those studies; again just those studies and not also those of other teams. The whole process was set up to be a very narrow track, along which the train would run. ASCE would be paid \$2 million for its part in this.

Once things began, the train immediately failed to run down the narrow track intended. At its first meeting, in January of 2006, the honorable (and distinguished) men and women of the NRC panel promptly rebelled their narrow charge and insisted instead on examining all sources of information; not just that stuff that would be packaged and presented to them by IPET. That should probably have been anticipated; I hope that our government would from now on expect distinguished civil engineers to reflexively operate ethically and to "do the right thing". WE are not politicians, and the concepts of duty and public service have a very different meaning to most of us! The ASCE's ERP eventually followed suit (beginning on March 11<sup>th</sup> of 2006), and have also insisted on examining all sources of data and studies developed by all of the investigation teams; not just the stuff packaged and presented to them by IPET.

The IPET process was unsuitably "narrow" in a second way too. The scope of their first year of investigation was to consider only purely "technical/physical" issues and phenomena. There would be no consideration or study of organizational issues, political issues, funding issues, human factors, etc. Led jointly by Larry Roth and Dr. Paul Mlakar, the mantra was repeatedly espoused at the first ERP meeting that the investigation "would look only forward"; there would be no looking back, and no consideration of fault or blame.

That, of course, was patently ridiculous.

Our team, which by then numbered approximately 35, with unprecedented conjugate breadth and depth of experience in civil engineering forensics for major disasters, had long ago learned the folly of those limitations. Eliminating consideration of those key things would be like the investigators on the CSI show on TV simply counting the number of bullet holes; but without being allowed to consider the ramifications. Twelve shots means that the killer emptied the full clip; likely some anger involved. One shot through the forehead; probably a passionless professional hit. Context is vital. The IPET team was directed to neglect vital context (e.g. political factors, organizational issues, funding and resources, human factors, local interference, etc.), and the important insights that these would inevitably have provided. They were also only to "look forward"..... How would that work? What type of failure investigation can be performed without massive effort to track back and uncover the roots of the failures?

Fortunately, the NRC Panel in early January of 2006 also correctly and laudably pointed out these same types of inadequacies of IPET's unreasonably narrow scope with regard to these limitations for a forensic investigation. Unfortunately, these observations by the NRC Panel did not result in any changes in the official IPET scope or approach. In the end, the IPET investigation would be surprisingly unsuccessful at a technical level, particularly with regard to the vital area of geo-forensics, and these types of initial "set-up" issues or limitations in scope as to what they were allowed to consider contributed directly to that failure.

The NRC panel also made some very insightful and cutting initial observations in their first letter-report (of January, 2006) with regard to the large centrifuge testing program proposed as part of the IPET studies. They noted that these expensive centrifuge tests would, of course, show only what the models had been built to evince; they would not necessarily have the full range of field

complexities and conditions, and so would not be of much use in determining what had actually happened in the field.

That was a very brave and forthright observation, especially given the heated political context within which all of this was occurring. As would have been expected of an outstanding group of distinguished professionals.

And as things progressed, there was a second element of waste that sapped additional major resources from the IPET studies. Large efforts, and sums, were spent trying to drive waves into the north end of the 17<sup>th</sup> Street Canal; the single most disastrous failure site for the Corps. Early statements made by the Corps in the wake of the disaster had (incorrectly) insisted that the floodwalls lining the three downtown drainage canals had overtopped; so efforts were made to demonstrate such overtopping. This included analytical efforts to “bounce” storm waves from Lake Pontchartrain along the curved sides of the inlet at the north end of 17<sup>th</sup> Street drainage canal (which is curved at its north end specifically to prevent the entrance of waves of this sort), and very expensive physical modeling efforts were undertaken involving fabrication of a 180-foot long scale model (and use of wave generation pads) in a large hangar at WES. Then someone finally came to the field and saw how small the openings beneath the bridge crossing the north end of the canal were. Too small to transmit waves. In the end, all of that expensive work came to naught; no significant waves entered the north end of the 17<sup>th</sup> Street Canal, and the roughly 9 to 9.5 feet of simple storm surge rise within the canal was still all there was; and that was well short of overtopping. [This effort was even more disenchanting because WES had previously, prior to Katrina, performed similar physical modeling studies of the north end of the nearby London Avenue drainage canal, and thus should have already known full well that significant waves would not enter the canals from Lake Pontchartrain; the heads of the canals are deliberately shaped so as to prevent such entry of storm waves.]

During this December 2005 through early February 2006 period, we were “sparring” with the Corps in our attempts to access the key sites in order to perform our own field investigations (drilling, sampling, CPT’s, etc.) Sparring was not our word; we felt that we were collegially attempting to collaborate, and to share data and opinions, etc. The word “sparring” came from Dr. Paul Mlakar of the Corps, and will re-enter this story a bit later.

Our budget was very limited (being a bit less than \$250,000) relative to that of the Corp’s IPET budget (~\$25 million), but like them our funding was also federally sourced. And the Corps had made agreements with us with regard to cross-sharing of field data and lab results. So we reasoned that the most useful thing for us to do would be to review the very large field boring, CPT, and lab testing program already underway by IPET, and then use our more limited resources to “fill in” any gaps, etc., for them. Their efforts were so broad and diffuse, and their manpower so limited for technical oversight purposes, that such “gaps” appeared highly likely. To that end, I formally contacted Dr. Paul Mlakar (again our designated “point of contact” for this) to explain this proposed approach, and to request access to the IPET boring logs, CPT logs, and initial lab data. These were data that the Corps had previously agreed to provide to us. He initially responded that these data would be quickly forthcoming. Then that it would take a bit longer, as they had to be reviewed before it could be released. Then he finally came right out and told me, in no uncertain terms, that we were never going to see those data. (All of those data had already long been posted on a website where it could be accessed by both the IPET, and by the ASCE ERP, so they had already been through the necessary Corps reviews for posting), and some of those data had been leaked to us, but not nearly enough. Some of the data had also been posted on a publicly accessible website for outsourced engineering firms and contractors to use in bidding work on some of the ongoing repairs; when the local Corps District learned that we were able to access that, it was promptly removed from that website.

The need to perform our own relatively extensive field exploration and sampling turned out to be a blessing, as the IPET field work was technically inadequate at a number of key sites, and our own field work turned up data of critical importance that we might otherwise have missed. The clearest example of this was the 17<sup>th</sup> Street canal breach site; arguably the single most important failure site in the overall event. At this site (and at others as well), the IPET investigation contracted to have many of the post-failure borings and sampling performed by firms that had been involved in the pre-design field investigations, and in the original design work (including analyses) for some sections of the main drainage canal levees and I-walls as well; a conflict of interest. [One of those firms has recently received a massive contract reportedly totaling approximately \$100 million for geotechnical works as part of the ongoing post-Katrina repair efforts; something likely to at least be reviewed by the large ongoing joint State/Federal Task Force investigating post-Katrina flood protection system contracting works.] The pre-design field investigations had missed a thin, and well-hidden, sensitive organic stratum passing through the foundation that became the failure surface during the hurricane, and the IPET's post-failure investigations also missed that same stratum (despite putting nearly two dozen borings and CPT's right through it). The presence of that stratum is clearly evident in a number of their CPT logs; they simply missed it. That was a shame, as the presence of that unexpected (and very well-hidden) stratum would have represented a "forgivable" oversight during the original design studies, and thus an "Act of God" with regard to technical liability; whereas instead, by missing that feature in post-failure investigations clouded by apparent conflict of interest (and then by subsequently working to suppress presentation and discussion of our independent and differing findings on this matter) the Corps/IPET (and ASCE at an institutional/HQ level, who appear to have colluded in the suppression and/or denigration of our conflicting findings here) may instead now risk facing potential accusations of lack of technical competence, and lack of integrity.

The need to perform more extensive field investigations was a mixed blessing, however, as our limited budget did not begin to adequately cover the extra expense. IPET's initial budget began at \$12 million, and we are hearing final figures as high as approximately \$25 million. Our own budget was \$230,000 plus additional resources provided by some of the team members' discretionary funds and even personal assets. All monies went to field and lab expenses, meager student salaries, and to reimbursement of travel expenses, etc. The large group of top experts worked pro bono, motivated by the best interests and traditions of the Profession, and the needs of the Public and the Government to have a technically expert "second opinion". We could never possibly have afforded to hire these outstanding experts anyway; but they were all very willing to give up paid time to work for free..... and for all of the right reasons. In the end, we estimate that between \$2 to \$4 million worth of work was performed pro bono by the outstanding and much maligned ILIT team. A remarkable (and deliberately and systematically unnoted by ASCE) milestone in Professional ethics and commitment to public service. Indeed, an unprecedented and historic landmark in that regard. In the best interest and traditions of the Profession.

Once we began to have our own field investigation and lab data, IPET immediately began to want them; they wanted to know what we were finding. Our field work differed from theirs in two important ways. We did not have people with an inherent conflict of interest "investigating" their own organizations' designs; we simply sought the facts. That was an advantage, but even more importantly, we did not have largely unsupervised drill rigs and CPT rigs performing borings, CPT probes, and taking samples in a largely random and haphazard manner. Instead, our field work was carefully and systematically informed by our earlier forensic field investigations, by our studies of the geology of the region, and by our ongoing (parallel) analyses. And the drilling and sampling was directly overseen in the field by top experts (e.g.: Dr. Dave Rogers, Dr. Joe Wartmann, and other senior investigators). As a result, we got far more out of our field work (per dollar) than

IPET, and despite their vastly larger budget one could argue that the match-up between our limited but well-focused field work and the more profuse (but unfocused) IPET efforts was in some regards a miss-match in our team's favor.

In fact IPET so much wanted to know what we were finding that they belatedly became willing at this juncture to begin to share their own boring and CPT logs in order to see ours. Of course, it was too late to save our budget at that point. Moreover, their sharing of field and lab data was, even in the end, still far from complete. Up to the point of our issuing of our Draft Final Report on May 22, 2005, we still did not have sufficiently defined location information as to make use of a number of the IPET boring logs and CPT logs for key cross-sections, and to this day we still have not received most of the requested (and promised) laboratory test data from those borings.

Electing to continue to take the moral high ground, we in turn drafted and passed along to IPET all of our boring logs and CPT logs (both raw electronic logs and processed logs) within only a few weeks (or less) of their being performed. Our field program ran from early February through mid-March, and by March 20 all of our logs had been provided to IPET and to the Corps. We also turned over our corollary lab test results, as quickly as they became available. Usually within a week of our receiving them ourselves. Moreover, a young lady from the Corp's New Orleans District accompanied our rigs continuously in the field, and she quickly became a useful and contributing member of the field team.

As a result of IPET's refusal (or at least Dr. Mlakar's refusal) to provide the field data, we had to change our plans and stretch our very limited budget to perform a fully self-sufficient field investigation on our own at each of the sites that we would analyze in detail. That, it turned out, was a bit of a blessing in disguise, as the IPET field investigation had been somewhat poorly executed, and it had also not been well-coordinated with either their post-event forensic field studies, nor with their geologists. We now strongly disagree with the IPET findings as to the failure mechanisms at three of the "Big Seven" failure sites that, between them, caused a majority of the damages and loss of life. We partially disagree with the IPET findings at two more of these seven key sites. Having been forced to obtain our own field and lab data was very useful here.

Similarly, we offered several times during the period from February through April of 2006 to meet openly with IPET and their geotechnical analysis team to share and discuss ideas and views, but they declined (apparently feeling that the weight and mass of their much-better-funded field studies would give them a clear advantage.) As a result, they now face some difficult decisions regarding whether to concede to our findings at several of these critical sites, or to try to continue to defend their increasingly indefensible alternate views as to the failure mechanisms at some of these sites as data continues to accumulate.

We had some interesting and dismaying difficulties as we sought to access the sites and begin our borings and CPT probes. We had, of course, quickly obtained the necessary permission from the local Levee Board who actually own the sites. We had also performed the necessary underground utility clearances, etc. (Louisiana's "One Call") and obtained the necessary permits. Indeed, obtaining those permissions had required less than 48 hours as the Governor's staff helped to facilitate our requests. We also needed clearance from the Corps, however, as these were active Corps construction sites. The need for Corps permission had nothing to do with any Corps jurisdiction over the sites with regard to engineering issues, it was simply a requirement addressing potential Corps liability (at "active" construction sites) in the event that one of our field team members should become injured while onsite. Our initial point of contact for this was a young fellow within the Corps' Project Hope task force. Ours was a simple and reasonable request, and

he felt that he could get us cleared through within a couple of days at most. Then he let us know that it was apparently a bit more difficult than he had first thought, and that a few more days would be required. Then he sent us a cryptic and very formal E-mail informing us that he would be out of the office, indefinitely, and that from now on the point of contact on this issue would be a new fellow coming in from ERDC just to deal with us. It is highly unlikely that he actually wrote that third E-mail, as neither the grammar nor the style matched his earlier communications.

The new fellow, in turn, took us through several additional iterations and then informed us that accessing the site at the 17<sup>th</sup> Street Canal breach was simply not feasible anyway, as it had just become a crime scene and only the DoD's legal offices (the Army's Office of the Counsel General) could approve access.

At that point, the Attorney General (AG) of the State of Louisiana became involved; Louisiana had an interest in having an accomplished and independent team perform an investigation and render an opinion. He quickly broke through the resistance from the Army's legal offices, and we were then informed that the site was indeed a crime scene, but that it was now under the control of his offices (the AG) in that regard.

But over the course of that next week the Corps had constructed an unusually high chain link fence fully around the site, with a locked gate (chain and padlock). We were now informed by our new point of contact that only Walter Baumy (the New Orleans District's civilian chief engineer) could approve the opening of that gate, and that he was in meetings and could not be reached. Not today, and probably not all week. Walter was roused by the AG's office, and that hurdle was cleared.

Now, we were informed, that all we needed was final clearance from some fellow named Dr. Paul Mlakar.

At this point, the Levee Board offered several dozen of their personnel, armed with pick axe handles and a pair of bolt cutters, to help us to access a site that they legally owned. We had several other colorful offers from other groups as well. We declined, and instead Louisiana's Deputy Attorney General, a gentleman named Burton Guidry, contacted the Corps and informed them that we would be accessing the site the following Monday morning at 0900. His agent accompanied our team, and the two drill rigs, as they approached the site. So did a number of members of the press. The AG's agent was authorized to call for support, and to take possession of the site if necessary. In a worst-case scenario he was authorized to arrest anyone who interfered.

The fellow who met our small caravan at the gate was one of the several Corps personnel apparently tasked with "sparring" with our investigation (we had dealt with him before), and he completely lost his composure and thoroughly disgraced himself when he learned that he would be unable to keep our small crew from entering the site. He was, unfortunately, filmed and recorded by the press (including a camera crew from the Lehrer News Hour) as he melted down. An article the next morning in the New York Times describing his embarrassing performance at the gate drew a sharp retaliatory formal protest from the Corps' Washington offices, but I have been assured by those who were present that the local Corps actually got off very lightly in that article. A final hurdle arose when the local Corps requested our Health and Safety Plan. This is an actual requirement, but the letter requesting same had never been sent to us. Facing the prospect of having formal custody of the site potentially wrested from them, the local Corps representatives elected to let us begin drilling and we quickly drew up and gave them the necessary Health and Safety Plan later that same day.

All of that may sound childish, and it was. It was again, however, the actions of a very few that served to dishonor the Corps. The Corps next assigned a young woman to our drilling team for

the duration of the project, and she was very helpful; we would have gladly taken her on as a full team member if that had been permitted. So again, not all of the Corps behaved dishonorably; only a select few.

That sort of laudable behavior was in contrast to the unfortunate young fellow who had disgraced himself at the gate. He reappeared later in the week to briefly heckle our field team; telling them that they were wasting their time and that IPET “had already found the failure surface at that location.” [That was particularly ironic, as our field team, led by Dr. Dave Rogers, had discovered the actual failure stratum at that location and were actively in the process of carefully tracking it fully across that 17<sup>th</sup> Street Canal breach site with additional borings and CPT. IPET, of course, completely missed that crucial thin stratum.....] That same fellow later reappeared a third time, to help a crew from the Corps to dig out large “block” samples of the peaty marsh deposits at this site for IPET’s centrifuge testing program. They had great difficulty dewatering even their shallow excavation..... clear evidence of the very high lateral permeability of some of those “marsh” deposits (if they had bothered to notice!) They may also have, inadvertently, exhumed some of the actual slide surface (that critical, thin stratum)... but if so it also went unnoticed and was discarded.

Also at this time (November 2005 through March 2006), things were becoming increasingly difficult for Team Louisiana. Under inappropriate federal pressure, the President of LSU had been induced to shut them down based on the threat that LSU would otherwise never again receive significant federal funding (three of Team Louisiana’s seven main investigators were members of the faculty at LSU), and that LSU would thus be condemned to be forever a “Tier 3” university (the lowest rating on the government’s rating scale). Dr. Ivor Van Heerden, the team’s leader, promptly began actions to sue the President of his own university, and they were promptly “un-shut down” and back in action as a result of that threatened suit.

Then Team Louisiana took a mauling in January with the “pile pull” at the 17<sup>th</sup> Street Canal breach site. Their team had hired a local geophysicist to image sheetpile depths, and he had told them that the sheetpiles at that site were only 17 feet long; well short of the 23 feet called for in the design. The Corps then hired a second geophysicist to make measurements of the sheetpile lengths, and they reported what he had told them: also approximately 17 feet. So it was arranged to excavate and then pull some of these sheetpiles. Quite a show was made of this. Clearly Team Louisiana had been set up; large numbers of press (and the public) were invited to watch. I went myself, largely to watch those who went to watch. It was clear that the Corps personnel present were not the least bit worried about what the results would be, nor the least bit surprised to find that the sheetpiles pulled were each 23 feet 4 inches in length. (And what were the odds that the two different geophysicists would separately both measure precisely the same wrong length?) Team Louisiana learned something tough about playing in the big leagues that day, and their reputations and public credibility took a temporary tumble, but they carried on nonetheless.

That was important, as they were a very motivated group with excellent local connections (including connections not available to the local Corps), and with continuous local access to sites. Time and time again, throughout this process, they have been the first to uncover important new issues and information.

It was also during this period that we learned more than we wanted to know about ASCE’s being expelled from the 9/11 World Trade Center investigation. The ASCE version (from Larry Roth) was that they had been kicked out for leaking information; thus the strong non-disclosure agreements on the liability waiver form. The alternate version that we now have from multiple sources was that they were expelled by the U.S. Congress largely at the behest of the Skyscraper

Safety Organization (SSO), an organization of the families of victims. The SSO consists of a group of a bit less than 2% of the victims' families, and they are a rather unusual and select group. They all declined Federal payments (in their cases reportedly ranging from about \$1 to \$4 million, depending on the age and projected earnings capability of their deceased), and they also signed binding agreements not to seek or accept alternate compensation at a later date.

They did that in order to form the Skyscraper Safety Organization (website at [www.skyscrapersafety.org](http://www.skyscrapersafety.org)), and to endow it with unmatched moral leverage.... to work for enhanced skyscraper safety, and to put an end to what they viewed as a cover-up masquerading as an investigation. The World Trade Center is in the Port, and so is in a special enterprise zone and is not required to conform to the building codes of either of the adjacent cities of New York or New Jersey. The architects and engineers thus had unusual leeway on a number of issues. There were choices made with regard to both the innovative structural system and the fireproofing that were at least interesting (I have met with experts more qualified, who assure me that both sets of choices would likely have come under some scrutiny relative to the conventional code requirements of either adjacent City, though in the end the structural system would probably have passed muster). The engineers responsible for those choices might therefore have been expected to be questioned by the investigating panel. Instead, apparently with ASCE's help, some of them were included as members of the investigating panel.

The two main leaders of the Skyscraper Safety Organization were a very sharp female attorney, and a second woman who had spoken on her cell phone to her husband until his tower collapsed. The last sound she heard was him being crushed. These people had unprecedented moral leverage and access to Congress, and they lobbied successfully to have ASCE tossed out and the investigation re-formed under the direction of NIST. I have met personally with faculty from our Civil Engineering Department here at Berkeley, and also with faculty at the University of Maryland, who had NSF grants for investigations of the World Trade Center disaster and who assure me that this was, at several stages, a very bad business indeed. Even in the re-organized investigation, these "independent" investigators (who had been funded as independent NSF-sponsored investigators, and had worked through the rubble and the smoke of burning bodies in the early days, tested the fire-proofing, examined the steel, etc..... ) were black-listed, despite specific Congressional instruction that they be involved. When Congress learned of that, these investigators were subsequently commissioned to review the investigation's findings with regard to fire and fire-proofing, and its effects on collapse. Their findings, not surprisingly, were not very favorable with regard to the investigation's rigor on those issues, but by then the whole affair had been dragged out long enough that the general public's attention had gone elsewhere; there are a number of unsettling parallels to the Katrina situation here. ASCE's fee for their involvement in that 9/11 investigation had reportedly been \$1.5 million.

And at least one member of our Department's structural engineering faculty feels that the investigation of the 1996 Oklahoma City bombing, which ASCE was involved in (for a reported fee of \$1 million in that case), was less than fully rigorous with regard to both the vulnerability of the Murrah Federal Building to lateral blast forces, and its propensity for collapse if damaged. This is not my area of expertise, so I don't have my own opinion, but he is a recognized expert on blasts and structures. (And there are certainly other "conspiricists" who feel similarly, and even books on this topic.) In his view, it is generally known within the high end of the structural engineering community that the investigation of that event was "a bit of cover-up" (his choice of wording.) I would perhaps not mention this, except that nearly a year ago I learned that Dr. Paul Mlakar (of the Corps) was also much involved in that investigation. (We learned this from the ASCE's announcement of a special session on Hurricane Katrina at the ASCE Engineering Forensics Congress in October of 2006; an issue that will come up again a bit later in this story. Dr. Mlakar's

brief “bio” for that special session mentioned his work in the earlier Oklahoma City investigation, as well as his involvement in the investigations following 9/11.)

So there is at least the risk of the appearance that Dr. Mlakar of the Corps, and Larry Roth of ASCE HQ, both have a mutual history of involvement in as many as three successive major national “investigations” considered at least by some to have been less than fully forthright. And with reported fees of ~\$1 million, ~\$1.5 million and ~\$2 million (respectively) passing from the federal government to ASCE for the Oklahoma City, 9/11, and New Orleans events. It might even be postulated that this might represent a recurring pattern, and an escalating one. And this has not gone unnoticed; members of the press are aware of at least some of this, based on questions that we have been asked recently.

It may, of course, all be just coincidence, in which case there would be little cause for concern. But the New Orleans part, at least, is far from “coincidence”. If there is anything to the rest of it, then the continued performance of ASCE as a viable professional organization might be potentially at risk. The principal asset of ASCE is the considerable moral authority and the conjugate integrity of its large membership. The perception that the moral integrity of the Society might be negotiable would be unacceptable.

Perhaps the most likely scenario is that ASCE may have slid progressively down a slippery slope. The initial cover-up of some of the technical details of the Oklahoma City bombing of the Murrah Federal Building was probably a good thing; numerous other Federal buildings across the Nation were similarly vulnerable to collapse due to lateral blast loading, and this bought the time necessary to remedy that exposure. But ASCE received ~\$1 million, “and a position at the table”. And learned that this type of cover-up can work.

I cannot speak to the need (or not) for any kind of cover-up with regard to the Twin Towers of the World Trade Center during 9/11. But I do know that I would have preferred that ASCE’s response to being ingloriously kicked out of that investigation would have been other than their decision to embed and enforce a binding “non-disclosure” statement within their investigation teams’ liability waiver forms, and thus to attempt to exercise even stricter “corporate-type” control over the data and findings of their own technical investigation teams.

And the escalating series of reported payments, \$1 million for Oklahoma City, \$1.5 million for 9/11, and ~\$2 million for New Orleans, sets up at least the appearance of a grim pattern, and one that does not bode well for the future. Similarly, the unsettling coincidence of Larry Roth’s and Paul Mlakar’s apparent involvement in all three of these affairs is not promising.

There can be major differences between appearances and fact; but ASCE may now have allowed itself to become involved in a situation where those distinctions may not be sufficient to carry the day. At a minimum, ASCE has allowed itself to fall into a position fraught with at least the potential appearance of unacceptable impropriety.

Also during this same period (November 2005 through April 2006) we (the ILIT team) began to be at the receiving end of a concerted campaign to impugn our honor, our judgement, and even our team members’ professional expertise.

Our faculty, our students, our alumni, and our friends and colleagues returned from Geo-Atlanta in the Spring of 2006 shocked by the vehemence of the slanderous campaign being waged to denigrate us. They were even more shocked to note that it appeared to emanate as much from ASCE headquarters as from the Corps. And they knew us better than that, so we were contacted by many to ask us what was up? And so we discussed it with them.

Accordingly, there are few secrets in this world, and many engineers know significant portions of this story. They are generally as shocked, and as dismayed, as we are. These are



honorable people. Students, faculty, alumni, friends and colleagues of the 37 or so members of our team. Loyal ASCE members. Members of the National Academies. Good people and good engineers.

It was at about this time during the late Spring of 2006 that I met privately for several hours with a member of ASCE's Board of Governors (at his invitation) who is not a member of our ILIT team to explain to him my concern that ASCE might be placing its very survival as an organization at risk. The principal asset of ASCE is its moral authority, which comes from the mass of professional integrity of its large membership. Running the risk of appearing to be in collusion with a cover-up, or at least obstruction of independent investigations and their release of findings, and in the wake of ASCE's recent debacle in being kicked out of the World Trade Center investigation for ethical lapses, was an unacceptable risk. And morally unacceptable as well. If ASCE is not the keeper of the flame; of truth, integrity, professional ethics, and service above all, then what is its purpose?

This gentleman was deeply shocked, which was in turn a great surprise to me as Larry Roth had repeatedly assured me over the preceding months that everything that ASCE did in this regard was done with the full knowledge and approval of the Board, and also of the new President (one Dr. Bill Marcuson). This Board member assured me that he and the Board had heard about none of this (which is certainly possible) and that he would return to the Board and look into it.

He did so, and it turns out that several Board members are now concerned, and as a direct result at least one of these Board members has been under pressure to resign this past year. Another Board member has contacted us, expressed his admiration for our courage and commitment to the Profession, and his moral support, but explained that he himself lacks the courage to act without more support from his colleagues on the Board. In simple terms, he is afraid. It would thus appear that the Board of Governors of ASCE may lack the interest or desire or courage to get into this, and to properly resolve it. That would be very dis-heartening, as it might then have to fall to the membership at large to have to dig in and fix this.

Also in this difficult middle period, Dr. Peter Nicholson (under some pressure) sole-authored the paper on the initial New Orleans field investigations of late September and early October that we had agreed to jointly prepare for Geo-Strata, and that was to have been jointly co-authored by all members of the combined ASCE and NSF field teams based on our combined initial field investigation. This was surprising, as even the ASCE Field Team were not co-authors (and they were not officially lepers like the rest of us.) The ASCE Field Team members were listed, and thanked, in the "acknowledgements". But not all of them. A fellow named Prof. Joseph Wartman was omitted from the list of ASCE field team members, and that was despite the fact that Dr. Wartman and Dr. Francisco Silva had been the first pair to arrive and scout for the rest of the teams; theirs was arguably the largest initial field contribution (and they certainly spent the longest time in the field in those difficult early days.) [Remember, several pages back, I warned that Dr. Wartman would re-appear in this sordid tale.] Peter informs me that he had included Dr. Wartman on the list of ASCE Field Team members to be acknowledged in the paper as originally submitted, so Dr. Wartmann's name would then have been deleted after it arrived at ASCE.

When a number of us (from both the ASCE and NSF teams) noted that his name had been omitted, and informed him, Dr. Wartman contacted the Editor to see what was up. No reply.

So at Geo-Atlanta Dr. Wartman finally caught up with the only editor I've ever heard of who absolutely doesn't answer E-mails or phone calls, and confronted him directly. He was told that it would be promptly fixed, and that he should send this Editor an E-mail to remind him, so that

it would be on the editor's computer to serve as a reminder when he got back to his office from the busy conference. Also to include the proper spelling of his name and affiliation.

So Dr. Wartman did.

An edited excerpt from that E-mail from Joe to the editor was subsequently published in Geo-Strata without Joe's authorization or foreknowledge. The excerpt was published as an ostensible "Letter to the Editor". That appears to represent fraud, and it was utterly unacceptable. So now ASCE arguably owes Joe a lot more than just a short published apology and correction. And we must ask ourselves what has become of a once-laudable organization that now stoops so low to "punish" an admirably ethical Member simply for adhering to the Canon of Ethics that they themselves officially espouse?

Meanwhile, things continued to darken, from mid-November through March 10; at which point a low spot was arguably reached. On March 10, 2006, IPET and the ASCE External Review Panel (ERP) held a joint press briefing. It was a two-man show, with Dr. Ed Link (the head of IPET) and Dr. Dave Daniel (Chair of the ERP).

Ed spoke first, and what he said that mattered was that IPET, in their study of the 17<sup>th</sup> Street Canal failure, had "discovered" a new failure mechanism; one never seen before and never previously published. This new mechanism consisted of the opening of a gap between the sheetpiles supporting the concrete I-wall and the levee embankment, and then of water entering this gap, increasing the lateral water forces acting against the sheetpiles and the inboard half of the earthen levee embankment, and thus causing lateral stability failure. In addition, IPET had also "discovered" that soil strengths at and beneath the land-side levee toe were much lower than could have been anticipated. Together, it was implied, these two newly discovered mechanisms would serve to exonerate the Corps for the important failures at the 17<sup>th</sup> Street and London Avenue Canals.

Within minutes we were contacted by the press and asked what we thought.

We were shocked. The Corps had of course been deeply involved in the seminal work of Ladd and Foott on the levees in the nearby Atchafalía basin that had so brilliantly pioneered the SHANSEP framework (and that had led to the ASCE Norman Medal, no less!) We never dreamt that "re-discovering" just how soft the clays were beneath the levee toes would come as any surprise to IPET (or to anyone else).

Similarly, the local New Orleans District of the Corps had performed the very well-targeted E-99 Test Section full-scale field test of a sheetpile-supported I-wall on a levee berm (again in the nearby Atchafalía basin) atop foundation soil conditions that bore a remarkably close resemblance to those at the 17<sup>th</sup> Street Canal..... and that test had been performed specifically in preparation for the challenging design and construction of the very same New Orleans drainage canal I-walls in question. That test section, loaded with water contained within a cofferdam, showed the opening of the "water-filled gap"; exactly the failure mode "newly discovered" by IPET. That work had been published in multiple Corps reports, and at least two journal articles. And one of the authors was now a lead analyst with the IPET geotechnical forensic analysis team. We never imagined that IPET would claim to be unaware of that well-targeted previous work by the Corps.

And so we told the press.

That was probably somewhat embarrassing to the ERP, who came to realize very suddenly that they would henceforth have to be far more diligent in checking and reviewing both the information and the findings that they were receiving from IPET. The formal statement that Dave

read at the same press briefing that day was also unfortunate, as it contained a direct attack on our team (probably written with some considerable help and pressure from ASCE HQ; see the next paragraph), and on our team's collective judgment and professionalism, and on our findings. It suggested that we shoot too quickly from the hip, and do not take the time to thoroughly weigh all the alternatives and possibilities before rushing to judgement. And it especially castigated our team for doing so at the 17<sup>th</sup> Street Canal breach site, claiming that we had prematurely concluded, incorrectly, that the failure was in the peats, while IPET found the actual failure surface to be lower down in the underlying soft clays.

Of course, the double irony is that: (1) IPET was wrong about the location of the actual failure surface, which turned out to have been within the upper, peaty marsh deposits, and (2) the statement claiming that we had jumped quickly to incorrect conclusions was also incorrect, but was true of IPET. IPET had, of course, completely missed the (admittedly hard to find) thin layer within the upper marsh deposits ("peats") that was the actual failure plane. Equally disturbing are the other two inaccuracies: (1) We had not, up to that point, ever stated that the failure surface was within either the "peats" or the underlying clays; in our initial field report we had carefully allowed for both possibilities, and left them both open to be resolved by further study [it was IPET that jumped prematurely to the wrong conclusion], and (2) "we" had not authored that initial field report; it was a joint effort (between both the NSF and ASCE Field Teams), and it will be recalled that after Larry Roth twice failed to kill that report, ASCE had worked very hard to take an unwarranted share of the credit for it.

So where did the charges that we "jumped too quickly to conclusions", and that we were "wrong" come from? Those were the same charges that were being spread to smear and sully our team's reputations; and apparently by ASCE HQ. That same day, those same charges were posted very prominently (without poor Dave's name attached) as a statement from ASCE as the cover of the main ASCE National website. That was clearly an inappropriate and gratuitous (even slanderous) use of the ASCE national website cover page to take an unwarranted whack at a "competing" investigation team. And to what end?

And what of poor Dave and the rest of the ERP? He (and the ERP) had been set up, and they had our deepest sympathy. Certainly we bear them no malice for that (though there has, of course been no apology from ASCE HQ on this, as would seem appropriate.)

More than that, he and his ERP team have our deep gratitude and admiration. There is not a mean bone in Dr. Daniel, and the comment as published was no doubt prepared with considerable help (and pressure). Our understanding is that the ASCE's ERP promptly rebelled, and re-wrote their own rules of engagement. Certainly, from March 11 onwards, they suddenly became admirably diligent in reviewing IPET's work and findings, and they also suddenly became far harder on IPET (in both the tone and content of their comments) than we were. Of course, they had a lot of ground to make up, and were working hard to begin to retrieve the lost (or sold) integrity of ASCE.

The determined and diligent efforts of the ERP from March 11, 2006 onwards represented the successful first steps in beginning to reverse the moral morass that ASCE was swirling down into. Astute members of the press have noted that they (the ERP) "doth protest perhaps a bit too much", but they have worked hard and well to serve notice that they were performing their review assignment diligently and independently. As it should be. And as we would all expect from such a distinguished group, once they realized what was really going on.

I spoke in person with Dave after the NRC Panel meeting in New Orleans on May 15, 2006. I was the second to last speaker at that meeting, and Dave followed as the final speaker. He read the ERP's latest interim letter-report, and then fielded questions from the NRC Panel. When asked

what the ERP would do next after the main studies were wrapped up, Dave responded that they would likely disband; it had been a very taxing effort and they all had lives and jobs to get back to.

As luck would have it, my flight home that evening stopped in Dallas, and Dave (who lives there) was on the same flight. It was full, so we could not sit together, but we had a chance to walk and talk briefly at the airport in Dallas. It had only taken him about 5 minutes to read aloud the short interim letter-report by the ERP, and knowing his busy schedule I remarked that I was impressed that he had flown all the way to New Orleans just to make such a brief reading. I also noted that at the previous month's NRC Panel meeting Larry Roth had read the ERP's brief interim report aloud, and that he could have done that again and saved Dave the trip. Dave responded quietly that that would not have been feasible, as Larry is not a member of the ERP. I thanked him for his professionalism and ethics, and felt at that time that he would always be all right in my book.

Another upsetting series of incidents occurred in March and April of 2006. As we began to have our own field and lab data, IPET apparently began to worry about what we might be "finding" with our geo-forensic analyses. That was a valid concern on their part, as ours was an unprecedentedly astute and experienced geo-forensics team. As I mentioned previously, we knew that they were struggling, and so had offered repeatedly to meet, openly, with them during this period. Those offers were declined.

Instead, members of our team now began to receive phone calls out of the blue from one of the IPET team members (the individual who spoke first varied) and we were asked if we had a few minutes to discuss some things. We then found ourselves on a conference call with unknown numbers of individuals (as others would periodically chime in), being "pumped" for information regarding our evolving findings. I received one of these calls myself, and after the first several such calls we managed to contact and warn all members of our team and have them refer any further such calls to myself. Again, our offer to meet openly was repeated, and these calls stopped.

The following week I received a very surprising call from Don Basham (Civilian Chief of the Corps at Headquarters in Washington D.C.), who wanted to know why he was hearing that we felt that our investigation team was being treated poorly by IPET. I explained the situation, and offered two very recent examples. One was the mysterious calls of the previous week, and the other was something that Dr. Paul Mlakar had recently said to several members of the press. He had told them that a significant portion of his assignment was to "spar" with the two independent investigation teams. [That would be our ILIT team, and Team Louisiana.] I explained to Mr. Basham that we found no sport in any of this. Ours was a very small budget, and our team members were making enormous personal sacrifices to perform large amounts of work on a pro bono basis, and even expending their own funds as necessary. "Sparring" or otherwise obstructing the independent investigations was inexcusable behavior in my view. Mr. Basham concurred with this in the strongest of terms, and said that he would immediately contact Dr. Mlakar and put a stop to any such "sparring".

It must be hoped that he was somehow unavoidably delayed in making that call, as only a week later I was contacted by Dr. Rick Fragaszy, the Director of the NSF program that had funded our independent investigation. He was calling to inform me that a Dr. Paul Mlakar from the U.S. Army Corps of Engineers had called that morning to make official inquiries as to the detailed terms and conditions of our funding. That was not the first time that NSF had been pressured with regard to their support of our studies (we would have to discuss that very privately), and I am very proud that NSF continues to be a source of funding for independent investigations of important disasters. And shame on Dr. Mlakar, and those that apparently continued to send him.

### (3) The Initial Culmination

The NRC Panel meeting in downtown New Orleans on May 15<sup>th</sup> of 2006 was another very daunting occasion.

On that date, the IPET were to present their main technical findings to the NRC panel (in preparation for the June 1 scheduled release of their Draft Final Report.) As the assembled crowd milled about before the meeting began, there was a lot of back-slapping and cheerful banter and even some laughter and joking among the IPET team and other Corps personnel present. The sense was that a bullet had been dodged, and that things would now soon get back to normal. That was inappropriate, given the recent loss of approximately 1,500 lives (nearly 1 out of every 300 residents) and the destruction of a major American city, and it was very disconcerting.

I was deeply dismayed by this, and so was my wife (who attended as well.) It was eminently clear that the NRC Panel were also having none of this, and that their intense questioning of the IPET presentations as the day wore on was clearly sending a message that was not being received.

This was all very interesting to watch from my perspective, as I was scheduled to be the last “full” presentation of the day, to be followed only by Dave Daniel’s brief reading of the ASCE ERP’s latest letter-report. All day long the IPET presented their principal technical findings, and were met by tough questions from the clearly unconvinced NRC panel. Then, just before my presentation, Dr. Ivor Van Heerden made a 30-minute presentation on behalf of Team Louisiana (the other “independent” investigation team.) In response to repeated questions from the NRC Panel throughout the day, the Corps/IPET had repeatedly stated unequivocally that there was absolutely no evidence of any erosion on the outboard side of the critical MRGO and GIWW (Lake Borgne) frontage levees that had failed so catastrophically along lengthy and catastrophically eroded stretches; dooming St. Bernard Parish and New Orleans East in the opening stages of the disaster.

Dr. Van Heerden’s second and third slides provided that evidence.

And then it was time for my presentation. I had watched all day as IPET had presented incorrect, and in some cases indefensible, geotechnical analyses of a number of the major failures and breaches. My presentation was a very dry, thorough, and even stilted technical study of the failure and breach just at the 17<sup>th</sup> Street canal. When I finished, all back-slapping and banter had stopped, and one could have heard a pin drop.

There had been something missing throughout all of this, and I did not realize (fully) what that was until that NRC Panel session. What had been missing was a realization by some of the New Orleans District of the Corps, and some of their friends, just exactly what had happened on August 29<sup>th</sup> of 2005 and over the weeks and months that followed. Denial, hubris, spin, obstruction and even dangerous denial are poor substitutes for sorrow, introspection, and earnest efforts to learn from mistakes and to get it right next time... and to make sure that nothing like this ever happens again. Not ever.

And that is still not what appears to be happening; not in all corners. Indeed a coordinated campaign appears to be still underway to partially re-write history and to downplay some of the key issues. And ASCE (at least at the HQ level) appears to be deeply involved in this still ongoing effort.

The flooding and failures in 1965 due to Hurricane Betsy were never properly studied and investigated. As a result, some of those same sites re-breached during Katrina, and the overall flooding during Katrina (produced by more than 50 breaches) was even worse. We cannot afford to cover-up, or down-play, or soft-pedal what happened. We must, instead, study it and learn from it.

And, of course, we would all expect ASCE to lead the charge with regard to hard-nosed, even-handed, technically sound, unbiased study and open and appropriate discussion and disclosure.

Our investigation's Draft Final Report was issued on May 22, 2006 in order to give IPET (and the Corps) ten days to go through it in detail prior to issuing their own Draft Final Report on June 1. (We were aware that IPET had set aside a well-funded sub-team just to review our report.) We felt that it was best to give them time to read and absorb it, and to make a well-informed decision as to the direction that the IPET report would then take.

That was logistically very difficult for us, and it would also clearly have been more advantageous for us to wait and go second if we had viewed this as some sort of "competition", but it was our view that it would be best for all parties if IPET (the Corps) would honorably face up to their responsibilities and the hard lessons to be learned from the disaster.

And that was, indeed, the direction taken by the June 1 IPET Draft Final Report, or at least by a majority of the initial Volume of that draft report (which was the Executive Summary volume). The content and tone of many portions of that first volume were largely admirable, but were completely unassociated with any of the nine other (larger) "technical" volumes that accompanied that draft summary volume. That first (Executive Summary) volume contrasted particularly strongly with the large volume detailing the geo-forensic analyses of the most important levee failures and breaches. (And, unfortunately, the revised Final IPET Report more recently released this past Spring back-tracked on some of the better content of that initial Draft Final Report.)

And it was remarkably fortuitous how many of the findings detailed in that IPET executive summary volume were congruent with major "overarching" findings from our own study. Almost as if we were all on the same page. So perhaps all's well that end's well?

#### **(4) The Still Dark Present; Ongoing "Spin", Rewards, and Retribution:**

All is not well.

Things continue to go very badly, and on a number of parallel fronts.

One of these is the continuing stream of ASCE publications, presentations and press releases, etc. that appear to represent a logistically overwhelming use of ASCE's institutional might (and publications capacity) to present a biased and incomplete view of what happened in New Orleans during Hurricane Katrina, and of the aftermath.

I understand that you and Larry Roth met with a group of Louisiana engineers and civic leaders in New Orleans at the end of August (including Dr. Gordon Boutwell) to discuss their outrage over this concerted effort to use ASCE's publications and prestige to push forward a very one-sided and optimistic version of IPET's findings, and a similarly select (and arguably misleading) sub-set of the ASCE ERP's otherwise excellent overall review and findings regarding the IPET study. They were particularly outraged by ASCE's press release of June 1, 2007 which announced the release of the ASCE ERP's final report and also presented an inaccurate and misleading summary of that report. My understanding is that you and Larry Roth conceded (privately) at that meeting that the press statement as issued was a mistake, but that you have refused to (publicly) retract it. Instead, it has been quietly deleted from ASCE's website; an act that went literally unnoticed months after the fact and did nothing to reverse the damage done by that misleading press release. I cannot understand why an admitted wrong would not be properly "righted", and as a matter of course.

This continues to fit an apparent pattern; unblinking ASCE (HQ) support for IPET and elements of the Corps, and "spin", that appears to defy both reason and accumulating evidence and data. One major risk, of course, is that this might be perceived by some to be part of a longstanding

arrangement between ASCE and the Corps; an appearance that could be devastating to ASCE's image, and public trust. And unacceptable behavior on the part of an institution that must be fully trustworthy even in the most trying of times.

ASCE had previously issued a one-year anniversary statement (on 8/29/06) that was also very disturbing to many. It was issued as an ostensible "summary statement from the ERP", and had an alarming tendency to repetitively state that the Corps was not principally to blame. The first copy that I downloaded had, inadvertently, been left with the filename "chpt8.doc", and it was an edited version of the eighth and final chapter of the still not issued (at that time) ERP report. A number of engineers called and/or E-mailed me to complain that someone had apparently "gotten" to the ERP, but I pointed out to them that if the repetitive statements exonerating the Corps were deleted (and that was easy, as they were oddly highlighted in red), then the rest of it actually read rather well.

The overall ERP final report, of course, read well too. It is a pretty good report, but was held up until recently. From ASCE's point of view, the longer it waited the less public attention it would garner. And of course, the final IPET report had been held up due to a number of problems (including the risk assessment for current conditions, which is still not issued..... so why the long wait for it on behalf of the ERP's report?) As a result of these long delays, and the still missing "current risk assessment" report from IPET, relatively little public notice was taken when the ERP's report was finally issued.

When the ERP report was finally issued, ASCE further "managed" the issue by issuing their own press statement (and ostensible summary). It is that press release/summary that you discussed with Gordon Boutwell and the others at the end of August in New Orleans.... and I do not envy you. One of the gentlemen (an engineer) who attended that session summarized the situation very nicely. He noted that the ERP report had been a pretty good one, but that it bore no resemblance to what ASCE had issued as a "summary"..... and he then made the seminal statement "They took Dave Daniel's stallion, and edited it down into a gelding". And a false and misleading one at that.

Given the very poor light that it shone upon the (otherwise generally good) report by the ERP, I would be a bit surprised if members of the ERP do not also seek a formal retraction and apology. So this may not be finished yet.

Similarly, I understand that the group at that meeting also sought a formal retraction of numerous public presentations (at least 30 or more) made by Larry Roth over the past year (and had copies of the Powerpoints, and an audio recording for at least one of those presentations) which they felt also put forth a very misleading view of the IPET study and findings. That, too, may not yet be a closed issue, as the locals whose lives depend very directly on the integrity of this overall process are now authentically outraged. And it also raises the question as to what Mr. Roth's assignment and priorities are, and why he appears to spend so much of his time traveling and making such presentations. As a Member myself, I am curious. Who pays his time for that stuff?

And now these past several weeks I have been contacted by a number of colleagues from across the country to tell me that ASCE is now prominently advertising an upcoming article on "Ethics After Katrina" by Dave Daniel. They are deeply concerned at several levels, especially as to whether ASCE has managed to subvert Dave. We will all, of course, have to wait to read the article. And ASCE is also taking the unusual step of scheduling a web simulcast of a session on Ethics After Katrina by a panel of three gentlemen that includes Dr. Dave Daniel (of the ERP) and General Gerry Galloway (of the Corps) at the upcoming ASCE Annual Meeting later this week (and a third gentleman from FHWA who probably does not know about all of this). At a minimum, this would appear timed (by ASCE HQ) as to represent a pre-emptive first strike on the issue of "ethics"

on the part of an organization that has been behaving badly, and that now feels the beginnings of the potential collapse of the house of cards that it has erected in this regard.

The use of ASCE's publications prowess and organizational might to put forth only one side (and a limited and arguably misleading sub-set of that side) of the story also extends to conferences beyond the upcoming Annual Meeting. This past year there were two major conferences dealing with disaster and forensics at which last-minute sessions were hastily scheduled (after the programs had been set) to deal with Katrina. One of those sessions was organized and chaired by Dr. Paul Mlakar, and the other by Larry Roth; once again those same two. As might have been expected, neither of the two independent investigation teams were invited to participate in either session. Although it should go without saying, I will note for emphasis that if either Team Louisiana or our ILIT team had been contacted to organize either session, the first thing we would have done would, of course, have been to invite the participation of the other two teams (IPET and the other). As it should be. One must wonder if the attendees at those conferences will eventually feel cheated to have heard only one side of the story.

In other words, those responsible for all of this, and those with whom they are allied, are still at it. That is more than a bit like closing the barn door long after all the horses have fled. If part of the intent is to suppress the release and circulation of the other (independent) teams' findings, then it is already hopeless. Ditto for a number of both Senate and House Committees and their investigation reports and findings. Far more than 25,000 copies of our own Final Report have now been downloaded electronically (the electronic counter on our website stopped working after about 25,000 copies), in at least 53 countries, and everyone who downloaded our report is likely capable of comparing it to the IPET Final Report and making their own assessments and conclusions.

In addition, our own team has now made more than 75 live presentations to more than 6,000 engineers, and to many additional "others" including politicians and decision-makers as well. I spoke in July as the featured mid-weekend Sunday morning speaker at the Bohemian Grove. (They have two talks each day, and the middle weekend slots are the big ones. The previous afternoon's speaker was George Shultz... a tough act to follow, and I sat two seats over from Henry Kissinger and Colin Powel during Mr. Shultz's presentation... very intimidating.) It is hardly likely that lack of visibility, or access, would limit the eventual penetration of the independent investigation teams' findings with regard to this important event.

Instead, it would appear that open discourse, and even debate as appropriate, would be the best remaining path. But of course that brings us full circle. That is exactly what the ignoble and dishonorable "few" within both the ASCE, and the USACE, appear to have been struggling to prevent from the start. The honorable Members, and the honorable rank and file, of those two organizations deserve better.

There was, of course, one occasion at which both sides of the issue were finally presented. All of the investigation teams (IPET, ILIT and Team Louisiana) made presentations at GeoDenver this past Spring. A significant problem (and one that we took seriously) was the fact that the IPET team declined to submit the multiple papers that were absolutely required in order to be allowed make their multiple plenary presentations at that conference. Both our team, and Team Louisiana, (with our vastly smaller resources) had struggled to get our papers in (as required), but this was simply waived at the end for IPET. Two different sets of rules..... As a result, those attending were unable to read and fully track technical details, or some of the claims made in the course of the IPET presentations. Unpardonable, and on several levels.

It was a bit disturbing to many to see Dave Daniel receive a medal from the Army, and also a flag that had been flown briefly over the Capitol Building, for his efforts as chair of the ERP



(before their work was completed and their report released) at the opening GeoDenver session; an apparent conflict. It was also daunting to see him use 14 of our Powerpoint images in his plenary talk, without mentioning our team or its investigation. He did mention at the start of his talk that the “various” investigation teams were exchanging figures freely amongst themselves, but there is no agreement of that sort that either our team, or Team Louisiana, is aware of. And we do try to be careful to credit IPET and Team Louisiana when we refer to their work. He may likely have been confused, as ASCE and IPET have been making rather free use of our stuff as well.

In the end, however, this was an interesting opportunity for a technically adept audience to see, and compare, the multiple views together, side-by-side, as it should be. Based on the overall reaction of the many people that we spoke with after those sessions, I don’t expect that they will make that mistake again. I had the opportunity to discuss the outcome with a number of key senior members of the profession (even deans of the profession) that had come into GeoDenver without much detailed prior knowledge; they were very surprised at the contrast between the findings of the independent investigation teams and those presented by IPET, at all levels, from “big picture” findings right on down through cross-section details. Comparisons went hard for IPET. One of the elder statesmen of our field was perplexed, noting that if an undergraduate student had come in with some of the cross-sections presented by IPET (with horizontal soil strata rather than geotechnically reasonable stratigraphy, etc.) he would have required that the assignment be re-done rather than simply assigning a grade of “F”.

A second area where things are continuing to go poorly is the ongoing levee reconstruction in New Orleans. There are several sets of problems here. One of the most galling (and disturbing) of these has been a continuing lack of consistent candor on the part of some members of the local Corps District. The knowing installation of unreliable (and some untested) pumps at the north ends of the drainage canals two summers ago (Summer of 2006), and the failure to disclose this to the affected public at risk, was unacceptable. Ditto for the non-disclosure of the use of unsuitable, highly erodeable levee fill materials at several locations along the critical Lake Borgne frontages that were so catastrophically eroded during Katrina. Ditto again for the more recent covering (hiding) of eroded gullies in the sand faces of some of those fragile Lake Borgne frontage levees (caused by just rainfall this past season) with lightweight straw/mulch and planted grass coverings that will simply float off in a storm surge. Etc.

A New Orleans Corps District public relations campaign was waged in January and February of 2006 involving community meetings with citizens of the St. Bernard Parish protected basin to convince them (incorrectly as it turned out) that the critical levees along the Lake Borgne/MRGO frontage which had eroded so catastrophically during Katrina were now being rebuilt using only well-compacted, cohesive clayey soils (not highly erodeable clean sands, as in fact was still occurring) so they could safely move back in and start to rebuild their homes and businesses. That was a very dangerous mistruth, as it encouraged people to put both their families and their assets at risk.

A formal local Corps press release during that difficult period alleged that Prof. Bob Bea (from U.C. Berkeley) was both technically incompetent to tell spoil discard piles from dressed levee embankment faces, and that he was a liar as well. [The gentlemen from the local Corps District that passed the report from the field back to local Headquarters that led to that press release, regarding the placement of erodeable levee embankment materials on the Lake Borgne levee frontage, failed to also tell their superiors that some guy named Ray Seed had accompanied Prof. Bea in the field that day, not saying much but co-logging all of the samples taken, etc. Like Prof. Bea, I know the difference between discard piles and rolled levee embankment slopes.] Moreover, there were other

severe problems at those reconstruction sites as well. And the necessary evidence to resolve this is still in place; one cannot hide long reaches of levees constructed of inappropriate fill forever.

When Carl Strock subsequently learned of all of this, his first reflexive question was “Have we apologized yet?” The answer was No, but that the subsequent heroic efforts undertaken by Col. Lewis Setliff to overhaul that vital levee reconstruction project (on the massively eroded Lake Borgne /MRGO frontage) had been more than enough initial reward for us. That massive (and very impressive) project overhaul was initiated by Col. Setliff, who finally realized that our team, and Team Louisiana, and even a team of Dutch engineers, were all saying that highly erodeable sandy soils were being placed, but his own people were insisting that only clays were being placed. And the “independent” teams (and Dutch engineers) would not let it go. Perhaps we (all) really meant it. So he called in several Geotech’s from the St. Louis District (where he had previously been in command), and sent them out to have a quiet look. That action may have saved the Corps as we know it. The job was promptly shut down, and massively overhauled. This included roughly tripling the workforce, building temporary villages to house the three separate contractor’s teams working along the 11 mile long frontage, bringing in lights for round the clock shifts, and increasing the project’s QA/QC inspectors from 2 to 9 (and training and motivating them properly, so that on our subsequent visit to the site they were able to grab a handful of soil and discuss with us intelligently the local, site-specific soil sub-classification, the apparent water content, and the further handling and drying (etc.) necessary for that soil before it could be placed and rolled) such that our next visit to the site saw only excellent and well-supervised work being performed. [One of the three contractors dryly noted on that subsequent visit that “Nothing that we did was worth a damn until mid-February, but now we’re doing everything right”. He was justifiably proud of the efforts then being made.]

Of course, further work is still needed to mitigate sections that continue to be comprised of erodeable sandy fill materials along these critical frontages. As things are now changing for the better in the New Orleans District, I am cautiously optimistic that this additional work will be performed.

In the MRGO/Lake Borgne frontage reconstruction incident, the local project command (Project Guardian in that case) had been lied to directly by at least one (and likely two) members of their own USACE project team personnel. And there had been an understandable desire, at the local Corps District’s Public Relations level (who had issued the defamatory press release) and at other levels, for the (false) rosier picture to be true. So untrue press releases were issued, and a public relations campaign had been waged, before the truth was outed. And of course those mistruths are now continuing to unravel, as the Corps itself has subsequently performed numerous borings (182 of them) along the “reconstructed” frontage..... and found that large levee sections were reconstructed using highly erodeable sandy soils. (And photos of significant erosion of some of those sandy levee faces, showing closely spaced deeply eroded gullies on the faces of those levees produced by erosion due to just by last Winter’s rainfall, have appeared on the cover of the New York Times this past August.) When one places miles of unsuitable (highly erodeable) sandy material as levee embankment fill, it then stays in place and cannot be hidden forever. Not a lie that could have been sustained over time.

I informed the Corps (back in February and March of 2006) that placement of a relatively thin clay covering/veneer over such “sand” levees would be ineffective in resisting the types of storm surge and waves generated on Lake Borgne during Katrina. (The Corps’ own recent borings show numerous sections of this configuration along this same frontage.) I warned that saturation of the lower portions of the fine sandy levees, coupled with the pounding of the storm waves, would lead to cyclic softening and lateral spreading of the levees. That, in turn, would produce cracking of

the cohesive clay veneer, and storm waves would then rapidly “pluck” and strip away the clay veneer; leaving naked sand levees that would again erode very rapidly.

Centrifuge tests recently performed in Holland (at the behest of the Corps) to evaluate the likely performance of sand levees with relatively thin clay coverings showed that cyclic pounding of waves against the levee faces produced cyclic softening and lateral spreading of the levees. That, in turn, produced cracking of the cohesive clay veneer, and the model storm waves then rapidly “plucked” at the broken up clay veneer and quickly stripped it away; leaving naked sand levees that then eroded very rapidly.

This has been a recurring pattern. Outside technical experts (not just members of our own team) provide suitable notice of apparently unsafe conditions and/or problems, and are not only ignored but actively attacked by elements of the local Corps. (That is called the “shoot the messenger” approach; an organizational mode of operation well-known to commonly presage major disasters.) If they persist, however, the beaten-upon experts can eventually force further study..... and the end results are usually that their concerns are verified and even eventually also addressed and mitigated. But such “experts” all have jobs, and families, and the future safety and adequacy of the New Orleans regional flood protection systems can hardly be left dependent upon the courage and energies of such maligned and unpaid experts.

The above-described saga along the MRGO/Lake Borgne reconstruction section is just one illustrative example. In many cases the issuing of incorrect and/or misleading (untrue) statements does not appear to have been deliberate or malicious; rather it appears to have often reflected an overly optimistic assessment of the actual situation, even to the point of wishful thinking, on the part of most. But there were also some less honorable behaviors on the part of a few in some cases.

There is now a need to reassess the need for open, transparent, and consistently forthright communication between the local Corps and the people of the region. [Just as laid out in one of Carl Strock’s “12 Points” for moving forward.] With a new District commander and staff having recently rotated in, and the appointment of a new civilian Chief, the local New Orleans District (and its new leadership) now have an opportunity to start afresh with regard to public relations and open, honest discourse with the locals that have lost faith. I hope very much that they will make best use of that opportunity.

Failure to date to achieve that level of consistent openness and earned trustworthiness, especially in the New Orleans District’s local domain, is in my view one of the most serious ongoing potential threats to the longevity of the Corps as we know it.

Another area that continues to be problematic is the lack of useful independent technical oversight and review of the flood protection system reconstruction efforts. The initial proposal for mandating effective independent technical oversight (by Sen’s. Collins and Lieberman, co-chairs of the Senate Committee on Homeland Security and Government Affairs) as part of the massive, Federally funded effort was rapidly met with multiple countervailing proposals, some of them very dishonorable. In the end, a “compromise” proposal was enacted by Congress. This watered-down version was then further compromised by local politics; my understanding is that even the Monsignor of the local cathedral was to be allowed to appoint a member to the “independent technical oversight panel”. The local New Orleans Corps District, with its half century-long history of vigorously and successfully resisting meaningful outside technical oversight, has to date had little difficulty in rendering the resulting flawed oversight process largely irrelevant. That, of course, is not the national policy for the Corps. As a very strong and positive counter example: we are well used to very effective independent technical oversight for Corps projects here in Northern California. Indeed, the Corps itself values that process. Why, then, has the New Orleans District continued to be allowed to resist this?

ASCE has argued (correctly) for the importance of authoritative and effective independent oversight, as have we. Indeed, that is one of the strong common findings of our study, and of the ASCE ERP's report. Where is ASCE (HQ) in helping to actually arrange for effective oversight? (And that means independent, not ASCE, oversight.) In New Orleans, as things now stand, nothing could be more important.

One of the ugliest things to happen in the wake of Katrina has been the apparent campaign of retribution now being exacted against those "that crossed the Corps". ASCE has had (to our knowledge) only a very small hand in any of this (to date), as their involvement in such included mainly only the "punishment" of Prof Joe Wartmann, and the campaigns (and inappropriate use of ASCE's main national website and press and publications prowess) to try to attack and undermine our investigation team's character and findings. Those are not things to be proud of, but they are very small sins compared to some of the rest of what continues to transpire. A problem that ASCE may face, however, is the potential appearance of collusion with an overall process in which far worse things are being done by others; in which case much of the rest of what is going on might be interpreted as to reflect poorly on ASCE as well.

One of the darkest examples of apparent retribution has been the effort to terminate the employment of Dr. Ivor Van Heerden and two of his colleagues at the LSU Hurricane Research Center in retaliation for their leading roles in the State of Louisiana's independent investigation (Team Louisiana). Dr. Van Heerden and his colleagues are not tenured faculty; theirs are/were untenured but recurrent positions. As mentioned previously, under extreme Federal pressure the president of LSU attempted to shut down the Team Louisiana investigation in the Fall of 2006, but was successfully resisted by their threat to sue. Now, after the fact, their job descriptions (and contracts) have been re-written in a manner such that it is not reasonably feasible for them to expect to achieve the prescribed performance standards. In other words; they are in the process of being fired. (Two have already left, and Dr. Van Heerden is hanging on by his fingernails. He was also recently "bumped off" of two research projects; one of the project directors told him very honestly that he would lose his own job if he allowed Dr. Van Heerden to remain on the project team.)

This appears to be a case of retribution, and against three gentlemen whose heroic service to the people of the region, to the State of Louisiana, and to the profession deserves reward, not punishment. It is also something that should warrant investigation, either by Congress, by the State (or its Attorney General) and/or by the press. Or by ASCE, in their role as the protector of the ethics and well-being of the Profession. Especially as it is our understanding that the president of the university is also working to establish a new Hurricane Research Center (and simultaneously to phase out their existing Hurricane Research Center, where they work). And especially as the president of the university has also recently reportedly received \$12 million to "help the Corps to prioritize its projects". The argument can be made that this represents payment of \$12 million to do a job that does not exist, and for which LSU would not be qualified anyway. The invitation to critics, or investigators, to perceive that as potential payment for the retaliatory firing of Dr. Van Heerden and his colleagues would then be great indeed.

My own University (U.C. Berkeley) was also approached in an inappropriate manner during that same Winter of 2005-06, but such untoward pressures were simply rebuffed. That, in the end, probably goes right to the heart of what really separates a top-flight university with one of the top Colleges of Engineering in the nation (and the top-rated Department of Civil Engineering in the nation) from a university like LSU.

Another example of ongoing attempts at retaliation was the letter sent from the Louisiana state board of licensure to one of our (ILIT) teams' two local Louisiana members to audit his CEU hours for last year. It is well known that CEU courses in the region were cancelled in the wake of

Katrina, so that few got their CEU's done that year. Such auditing thus appears specious. We do not yet know if Luke Ehrensing was the only engineer audited for that year, but I expect that it will be investigated; so we will probably get to find out. Happily, Mr. Ehrensing had sufficient extra CEU hours from the previous year as to qualify; he is very scrupulous with his CEU's.

And there are other examples of ongoing attempts at retaliation or retribution. As you know, California is now helping to lead the Nation forward with its efforts to address our State's own massive flood risks and water system fragility. (We estimate that California has approximately a quarter of the Nations' unacceptable flood risk, measured in terms of numbers of people at risk and their levels of risk. More than Louisiana and the next several states combined.) I am very proud of California's new programs to begin to address this; something that I have worked my entire life to help foment. The state is facing up squarely to this risk, and has no illusions. California will seek Federal support (matching funding), but is willing to expend its own resources as necessary as we recognize the folly of low-balling "prevention" only to lose (or expend) vastly larger sums in losses, response, cleanup and restoration afterwards. And we are setting important new standards of practice as we proceed; standards that will likely be important across the nation for years to come.

[California's programs are of such scope and scale, in terms of actual engineering investigation, analysis and design, that they are contributing to a major national shortage of Geotechnical engineers. And the scale and pace of these new programs will continue to accelerate significantly in the coming year. We project at least a five-year-plus national shortage of engineers, and corollary continuation of increases in salaries and costs, as we simply cannot make them fast enough. Coupled with the mass of work in New Orleans, this may represent the effective beginnings of the long overdue inception of efforts to begin to address the Nation's massive and long-standing "infrastructure deficit".]

At a recent meeting I made a technical presentation (followed by extensive and detailed interactive discussion) of our investigation team's analyses of some of the important breaches that occurred in New Orleans to teams of California engineers now becoming engaged to perform more rigorous assessments of our own State's levees than had previously been common. After the presentation, one of California's top levee engineers came to speak with me privately about an odd experience that he had recently had in New Orleans. His firm has an office in the New Orleans area, and he and two of his colleagues had been called in by FEMA to advise them on several issues associated with the massive new landfill for debris from Katrina. The three of them had quickly realized that the landfill posed a potential threat to the adjacent levee, and promptly told FEMA so. Apparently that was not what someone had wanted to hear.

Upon their return to California, these engineers received letters from the Louisiana state board of licensure (yes, those same guys again.....) attacking them for "practicing engineering without a license", without ever bothering to inquire as to their licensure status. The one fellow who spoke of this with me has his B.S. in CE, his M.S. and Ph.D. in Geotech., his PE and his GE. Hardly without a license!

Is the Louisiana state board of licensure part of the sovereign State of Louisiana, serving the best interests of the people of that State, or is it now an arm of the local District of the Corps, apparently working to punish "those who cross the Corps"? And does ASCE (or the USACE nationally) want to appear to be closely involved, and perhaps even appear to be in potential collusion, with any of this stuff?

It is not all about retribution. There is also reward.

It has not escaped the attention of many that unseemly numbers of medals and awards appear to be being awarded among and between ASCE and the Corps. That includes, for example, Dr. Reed Mosher, whose geo-forensic analyses appear to be so badly flawed, received a medal from the Army for leading the geotechnical analysis team within IPET, and long before IPET's final analyses were completed and issued. Dr. Dave Daniel received both an Army medal and a flag that had been briefly flown above the Capitol Building in Washington for his service as Chair of ASCE's ERP within the IPET investigation, and long before the ERP's final report was issued. And of course, Ed Link was the ASCE ENR's Man of the Year for his leading of the IPET investigation; and long before IPET's Final Report was issued (and before it was reviewed.....) This has been noticed even by the (non-engineering) locals in New Orleans, and I understand that a short movie is being produced to caricature this highly unusual spate of award and medal giving.

This has at least the appearance of gilding the lily. With the world's largest class action lawsuits now looming, the profusion of awards might also invite questions as to timing and motivation. In my own view, there is certainly nothing to celebrate about New Orleans or Hurricane Katrina. It should not be the cause for celebration and large numbers of prizes; people died and lives were ruined.

And the IPET investigation was technically flawed (the geo-forensics were very poor), it spent exorbitant (and unwarranted) resources on pointless centrifuge testing (and against the direct advice of the NRC Panel) and on large-scale modeling efforts to show that storm waves entered the 17<sup>th</sup> Street drainage canal (they did not), and it is more than a year late in delivering its most important (and most sought after) product; the risk assessment for current conditions that locals urgently needed in order to have a reasonable basis for deciding whether to re-invest their lives in rebuilding in New Orleans, or to permanently relocate elsewhere. There were also some very good elements of the IPET report, but it is hard to see that the overall effort represents anything approaching a purely positive milestone.

At a purely objective technical level, the IPET study is a failure at two of its most important tasks: (1) it failed to correctly determine the causes of failures (and breaches) at five of the seven main failure sites (that, together, caused a majority of the damages and loss of life), and (2) it failed to deliver the promised comprehensive assessment of risk for "current" conditions by August of 2006 that was needed so that individuals and businesses could make informed decisions as to whether or not to re-invest their lives and their assets in rebuilding, or move permanently elsewhere.

We had expected elegant debates and nuanced arguments with the very highly qualified geo-forensic analysis team assembled by IPET regarding some of the details of the failure studies, but that never happened. IPET "segmented" the forensic efforts, and the institutional walls of separation between the field forensics team, the field drilling and sampling, the lab work, the geology team, and the actual analysts were such that vital information never reached the analysts. They never had a proper chance. They were not informed of critical (post-failure) field details, they did not receive necessary field investigation information regarding stratigraphy as a result of very poorly focused and largely unsupervised field borings, and they did not receive other vital information (e.g. longstanding neighborhood problems with "seeps" and wet spots, etc.)

Similarly, the comprehensive risk assessment for "current" conditions was a high priority, and was originally due on August 1 of 2006. It was actually prepared for initial submittal in August of 2006, but was quickly withdrawn in part because it was judged to be unconnected to reality (a phrase not of my own construction that we could discuss further in private). It is now more than a full year late, and re-building in New Orleans is not progressing well. Industry, in particular, is not returning and unemployment is high for even the roughly half of the original population that have attempted to return. And there continue to be some technical problems with these risk assessments.

I am not in favor of the ongoing massive litigation in New Orleans, including two of the world's largest civil suits, and I am studiously uninvolved in those actions. Those suits are having the unfortunate effect of locking organizations, and individuals, into positions and statements that I hope and believe that they might otherwise reconsider. This includes not just flawed geoforensics regarding apparent failure mechanics during Katrina; it also includes motivated estimates of things like the fraction of damages (and loss of life) that would have occurred "anyway", even in the absence of levee failures. And insupportably low estimates of overall losses as well. The fact that such statements may have been "motivated" does not excuse them. And the fact that ASCE has repeated and supported many of these statements, and formally presented major awards for them, and prior to their even having been properly discussed and reviewed, is unacceptable. And especially so for a professional Society that should stand above the fray (not take sides) and that is supposed to serve as a guardian for the ethics and integrity of the profession. These types of miss-statements (and the efforts at obstruction and suppression of independent investigations that would provide important second opinions) will likely cost IPET (and the Corps) heavily in terms of trust and credibility for some period of time to come. That is their business, and their decision. The involvement of ASCE in supporting and fomenting such is our business, and it is unacceptable.

Our own (ILIT) investigation was not limited in scope as was that of IPET; we also studied "organizational" issues. In that regard, the IPET study itself was closely monitored as part of our investigation. It represented a real-time test of the ability of the Corps, after three decades of inexcusable congressional budget cuts and inappropriate and very damaging congressional restrictions on the Corps' operational flexibility (including research programs, etc.), to muster the necessary technical resources and to suitably perform these studies. It was, along with the also-challenging concurrent efforts to begin to re-build the New Orleans regional flood protection systems, a test of the Corps' ability (armed with adequate project-specific financial resources of ~\$25 million, and with the ability to hire all the consultants that they chose) to perform urgent, complex and challenging technical studies of broad scope. And also, in times of unprecedented duress, to keep technical issues, public safety, and truth ahead of politics and more narrowly institutionally self-focused priorities.

Unfortunately, as an inappropriate relationship rapidly developed between elements of the Corps and at least elements of ASCE Headquarters, it also became a very serious test of ASCE as an institution.

ASCE failed that test.

IPET has now updated its first-year Draft Final Report geoforensic analyses, and the IPET Final Report's analyses of some of the most important levee failures are now heading to the ASCE Journal of Geotechnical and Geoenvironmental Engineering, where they will meet alternate hypotheses (unless our team's conflicting findings are suppressed). It appears unusual, at least, that major awards (including ASCE's ENR Man of the Year, etc.) would be given to a study that hadn't even been completed nor presented at the time of the awards. Nor had it been reviewed and discussed/debated within the profession. (The ERP has now produced a review that correctly presents some very significant "discussion". And the NRC panel's even higher level review is still not yet available. And debate within the Journal has not yet occurred.....) Perhaps major awards to IPET should have awaited the consummation of that process of open technical discussion and debate? (As usually occurs.) Was there a hurry that I am unaware of to make major awards to IPET? And awards for what; this was not a technically impressive effort. Again, there is the risk of perception of a pattern here.

And awards/rewards come in other flavors too. It would be a shame if a Federally funded Center of Excellence (research center) was next to be created for levee-related research at the University of Texas at Dallas. That has not yet happened (as far as I know), and it might be hoped that it would not. Selection of UT Dallas, the University of which the ASCE ERP's Chair (from the IPET process) is the President, would raise a number of difficult and troubling questions regarding the appearance of conflict of interest. Dave Daniel himself is one of the Nation's top Geotechnical engineers, but he is the university's president and is not part of the Geotechnical faculty. The Geotechnical faculty and program at UT Dallas cannot possibly merit such a center; especially as the nearby competing university of UT Austin is one of the top five Geotechnical programs in the Nation, and there is also a second arguably stronger Geotechnical program nearby at Texas A&M as well. I hope that Dave and his university would not to be saddled with such a Center, as it would look very bad.... and might end up being cross-associated with the large sums being directed to LSU that look so bad. The work of Dr. Daniel, and of the ASCE ERP, was generally first rate and should stand above question. It should not be sullied by potential (or even apparent) conflict of interest.

And that would make any suggestion of similar potential plans for a second such levee Center at Georgia Tech (where the Chair of the NRC Panel for the IPET Investigation is the University's President) similarly problematic by extrapolation. There has never been any question as to the ethics and rigor of the NRC Panels' excellent work, and Georgia Tech is another of the Nation's top five Geotechnical programs and so is fully deserving of consideration for such a center. And Wayne Clough is another absolutely top-flight geotechnical engineer whose integrity is beyond reproach. It is a shame that things have now come to a point where some might be tempted to try to connect the dots from LSU, through UT Dallas, and then on to GA Tech as part of some larger overall conspiracy. (And why would both centers be located in the deep South, and at the two universities whose Presidents chaired the two critical IPET review panels?) We must raise ourselves up out of this swamp. We have reached a point where even the potential appearance of things has now become a loaded issue. That needs to stop.

So now we all face some difficult decisions. We can "walk away", as Civil Engineers so often do, and cede the field to those who would attempt to use the organs of power to literally try to re-write elements of history in terms more favorable to their agendas. Or we can challenge them, and assert the right of the Civil Engineering profession to be led by leaders, and organizations, of good ethics who are dedicated to public service, and to public safety and the welfare of the environment. And to the best interests of the Profession. And to honesty and fairness. And in the light of day.

We are talking about nothing less than the ethical well-being, and indeed the very soul, of a vitally important Profession that every day holds the lives and well-being of hundreds of millions of Americans in the palm of its hand. The degradation and fraying of that moral fabric, the notion that the ethics of the profession might potentially be bought and sold, either for "\$2 million and a position at the table" or for 30 pieces of silver, and even the idea that the entertaining of such questions might come to be standard fodder in the future, is unacceptable.

So something must be done.

## **(5) ASCE**

So what of ASCE?

ASCE must be the keepers of the flame. It must be the one organization, above all others, that safeguards the public's safety and welfare, and that of the environment, above all else. It must



be the one major institution that can be counted on to be honest, square, and to speak hard truths in simple and straightforward terms, no matter what.

If the government can coerce it, either with promises of large fees and “a place at the table” from which to influence decisions and policy, or by means of threats, then it has nothing. It must have the full trust of the government, and its respect as well; the government must know that it will speak the truth even when the government might wish otherwise.

And the people of the Nation, and of the World, must have that same confidence.

And so must the engineers.

Some jaded people would charge that this is a naïve and unattainable standard. I am no longer particularly naïve; I have looked into the eyes of men, and into the analyses and designs of men and women, whom I view to have committed murder. And I have been told by powerful politicians in third-world countries to go home or be killed myself; that they have no intent to make their people safe, nor to interrupt the graft and corruption that enriches themselves and their extended families while the lives of many tens of thousands (and more) of their poor are placed at unconscionable risk. So I know “how things often work”.

But not here. Not ASCE.

There are three things that may happen next.

The first, and best option, would be for the elected officers of ASCE to right the ship, and to take the difficult steps necessary to ensure that nothing like this ever happens again. That ASCE will, from this point forward, serve as the guardians of the profession’s ethics and will admirably hew to (and even exemplify) the laudable ASCE Cannon of Ethics that it officially espouses. No matter what.

In my own opinion, that would appear to include, at a minimum, the following:

1. ASCE should return the ~\$2 million that it has reportedly been paid for its involvement in the IPET investigation process. That would require replacing the money with a one-time assessment of a bit less than \$15 from each of the Members. I have not yet discussed this with any single Member who would not gladly pay such an amount to begin to buy back the integrity of the Society.
2. An investigation should be undertaken to determine how this came to pass, and who within ASCE was responsible (unless this is already known). Those responsible should be fired, or removed from office.
3. The Bylaws of ASCE, and its operating principles, should be changed to foment closer and more direct oversight by the elected Board of important national investigations and similar. This should be arranged so that there is no possibility of something similar ever happening again.
4. ASCE should publish an apology to the people of the New Orleans region, to the Nation, and to the Profession. This should include a summary of the actions taken in remedy, and a pledge from the elected leadership that ASCE intends to ensure from this point onward that the Society can be counted on to perform as laudable and worthy guardians of the profession’s ethics and well-being.
5. The editor of the ASCE GeoStrata has already rotated out of that position, but the magazine should publish a correction and an apology to Dr. Wartmann.
6. The ASCE press release of June 1, 2007 ostensibly “summarizing” the ERP’s final report in review of IPET’s work should be formally retracted.

7. Apologies are also due to the two independent investigation teams: Team Louisiana and ILIT. It would also be appropriate to offer them space in ASCE publications to partially offset both the slanderous attacks they have suffered, and the large wave of ASCE publications used to promote one-sided views of the New Orleans disaster, and of the post-event studies and lessons as well.
8. A review of the ASCE awards process should be undertaken, and any awards that are found to have been inappropriately motivated should be rescinded.

All of that would be uncharacteristically painful and public; not the way that ASCE has addressed other internal ethical lapses in the past. And that has been a problem. In the past, when forced to confront difficult internal ethical lapses, ASCE has taken action quietly, behind closed doors, in order to preserve the “image” of the profession.

I was involved myself in such an effort to repair ethical lapses within the ASCE Geotechnical Journal review process earlier in my career; I now deeply regret not having more forcefully argued for a more public process than the one which was undertaken in that case. My failure to do so was a disservice. Image without substance is a sham; this sort of thing should be faced squarely and handled adequately directly as to leave no doubt but that ASCE can be fully trusted in the future.

In that particular case, the issue involved malfeasance that had resulted in subverting of the review process for the (then) ASCE Journal of the Geotechnical Engineering Division (JGED). I was part of a team of new Editors that took over the JGED, both to re-establish the ethics and appropriateness of the review process and to foment more useful and practically-oriented content. The existing editorial board were replaced en masse, but there was only one single individual that was responsible for the malfeasance that underlay the need for all of this (the others were blameless). The Canadian Geotechnical Journal was established in direct response to this overall situation. It was founded by a group who were damned if they were ever again going to submit another paper to the ASCE JGED and its obviously broken review process; instead they would establish their own journal, with its own technically and ethically appropriate review process, and make it a better journal. They were partly successful in that; the Canadian Geotechnical Journal is now a worthy journal in its own right. The individual responsible for all of this was quietly (even graciously and honorifically) eased out of his position of responsibility by ASCE “to preserve the image of the profession”. In hindsight, that was a mistake. The subtlety of his removal was such that few, if any, noticed anything untoward. As a result, no appropriate message was sent and we now find ourselves facing dark behaviors within ASCE yet again.

You were yourself involved in that process and will likely well recall some of the more sordid details (from the book and civil trial) not exposed in detail here. Things that I considered to be so shocking (at the time), that they did not appear likely to ever be repeated in Geotechnical Engineering..... so that the gracious, deft and subtle “handling” of that situation did not appear unwarranted to me at that time. Now I know better. Gracious, deft and subtle “handling” of such deliberate and overt malfeasance was a disservice to ASCE and to the profession. Those types of issues must be faced squarely, and resolved openly. To prevent any chance of recurrence; not just by the original perpetrators, but by others as well. Trust and integrity must be paramount virtues for a professional Society with ASCE’s charge and responsibilities.

There are many ASCE members who have been paying attention, and who know large portions of this sad saga, and who are now waiting to see what happens next. And this number is likely to continue to grow as those ripples will continue to spread.

The admirable behavior of the ASCE’s ERP from March 11, 2006 onwards has bought a pause, but it is a pregnant and expectant pause. Increasing numbers of people are awaiting ASCE’s

efforts at beginning the reclamation of their ethics and stature, and with each passing week the risk of even more public exposure of all of this increases. It is asking a lot of the discretion of many to remain publicly silent on all of this. Especially as the miss-behavior appears to be continuing unabated, and the resulting ramifications (including ongoing public danger in New Orleans) are very real as well. Engineers, in fact, have an obligation to speak out. The upcoming stacked session on “Ethics After Katrina” will likely only add further fuel to the fire. Sooner or later, this will surely blow up in a more public forum. It could be “daylighted” by the investigative press (who are hot on the trail), by Congressional “8/29” hearings or similar, by one or more of the looming lawsuits, by the local New Orleans civic groups who are now so outraged, or by others. Like the re-built sand levees along the MRGO frontage, it cannot be expected to stay buried forever. So something should be done soon. Current signs are that the whole thing is already beginning to unravel, and on multiple fronts. Eventually it must be expected to come crashing down like a house of cards. Whether or not that collapse effectively buries ASCE as an institution probably depends on whether ASCE HQ continues stubbornly on the current path, or begins to reverse course and to work to begin to repair and reclaim the ethics of the Society.

If ASCE’s current elected leaders are unable to do this, or something close to it, then Option #2 would appear to be a full and open airing of these issues within the Society, discussion and debate as appropriate, and then a decision by the membership-at-large as to just how they want their Society to behave, and what they want it to be. It is, after all, their Society. That would, in the near-term, be a very damaging exercise in terms of broad public perception of ASCE, and it might also result in the internal fracturing of the Society itself. But even that type of damaging exercise would be infinitely preferable to having ASCE continue to operate in an unacceptable manner that is strongly counter to its own stated Canon of Ethics.

The third thing that might happen next would be for all of this to be taken out of our hands as a result of more public exposure. That process appears to be already underway, and the press, Congress, the State of Louisiana, civic groups in southern Louisiana, and the litigants of the massive lawsuits, all appear to be either already heading in that direction, or likely to do so.... and with unpredictable timing. So Options #1 or #2 above should be undertaken with all possible urgency, while ASCE is still in control of its own fate. [Similarly, it would seem to be prudent to assume that anything that any of us have done or said or written over at least the past two years, and perhaps more, is potentially vulnerable to the harsh exposure to more light of day that most of us are used to. People involved in any aspect of this, however nominal, might therefore be well advised to begin to adjust ongoing behaviors accordingly.] Torpedoes may already be in the water, and I cannot understand the apparent intention of ASCE to try to dig in and defend all of this rather than beginning to turn the ship.

There will be an understandable desire within ASCE’s elected leadership to look at “the big picture” and to note that now, in the end, the IPET and ASCE overarching “big picture” lessons from Katrina are for the most part well drawn, and that many of them are in very close alignment with our own. And thus to opine that “all’s well that ends well.”

But that is not so.

The process involved in getting to this point, and the abrogation of ethics and the still ongoing obstruction and obfuscation, cannot be allowed to stand as precedents for the future. ASCE should be in the business of preventing all of that.

Similarly, away from the overarching “big picture” lessons there are “medium and small picture” lessons and findings that are of great importance in their own right. One good example is

the IPET investigation's findings as to the causes of the two large failures (and breaches) at the west end of the Lower Ninth Ward. They attribute one to overtopping and scour, and the other to deep-seated rotational failure through soft clays in the foundation. Our team found that underseepage was the most likely cause of both of these failures, but we allow that overtopping was at least a plausible alternate hypothesis for the large southern breach.

These differences are not of simply academic importance; they are hugely important for the entire re-building effort for the region's flood protection systems currently underway. Based directly on the IPET team's analyses, the local New Orleans Corps District has refused (to date) to consider underseepage risk along this frontage. And they are also refusing to perform a suitably comprehensive system-wide review of potential underseepage risk at other locations. Our investigation found that underseepage risk is high along this frontage, and that the use of unacceptably short sheetpiles (either because they were designed simply as cantilever supports for I-walls, or at other locations because the underseepage cutoffs were designed based on overly optimistic assessments of foundation permeability conditions and poorly hand-drawn flownets) appears to be endemic throughout significant portions of the roughly 350 miles of the regional flood protection systems. Facing up to this would be very expensive: this single issue alone could easily add vast sums to current projected costs (the already ever increasing costs) for bringing the regional protection levels up to the minimum 100-year FEMA standard. So incentive to downplay (and ignore) this underseepage issue is high. A decision was made at some level to defend the analyses as performed, and so far that has been that. [There is room here for differences of professional opinion between the various investigation teams. But there is no room for suppression of discussion, and if the underseepage risk cannot be conclusively disproved, then it should at least be thoroughly examined, and addressed if necessary.] Again, there are no "minor" issues, and there is no acceptable excuse for suppression of authentic technical discussion and even debate among experts..... not when public safety is so clearly at risk.

And there are those few within the local Corps who have clearly taken heart (hopefully wrongfully so) in the notion that ASCE and the Corps have banded together to provide them with protection and cover. Neither of these two organizations, at the National level, could possibly condone such a view. But it is easy to see how dysfunctional individuals/engineers could misperceive the actions of the Corps, IPET and ASCE over the past two years as representing the banding together of the two most powerful institutions within Civil Engineering to provide "cover" for their actions. And again, the massive ongoing civil suits (litigation) further complicate and exacerbate this situation.

And others could make that same error in perception as well.

All is not well. And these issues cannot be allowed to go unaddressed.

## **(6) And What of the USACE?**

It is not directly our position or charge to decide what next becomes of the Corps, nor what the Corps chooses next to make of itself. We are all, however, more than casually interested parties with regard to the outcome of this process. The Corps is the single most important civil engineering organization on the planet (excepting professional societies); it is responsible for numerous critical dams, and levees/flood protection systems, throughout the nation. The lives of many depend on its capability and judgment. And it also exercises undue influence within ASCE.

The eventual fate of the Corps is not solely in its own hands. Without suitable support from Congress (certainly far greater support than it has had to try to make do with over the past three decades), there would be little hope that it can re-assert the engineering excellence needed for its vital mission.

Other issues are within the Corps' own control, but they are difficult ones. The ethics and public service professionalism of the Corps, like ASCE, must be above reproach; some difficult work will be required here. And it must wrestle with the massively difficult task of attempting to rehabilitate the very large New Orleans District, which Sen. Collins and her committee so accurately described as suffering from a deeply embedded culture of dysfunction. And it must do so while looking down the barrel of the World's largest class action lawsuits.

And at the same time, it must continue its efforts to overhaul its national policies, standards, and procedures both for levees and flood protection systems as well as for dams and other important (and potentially high risk) infrastructure. And to revitalize its staffing and its technical prowess, and at a time when it faces an upcoming demographic "retirement bulge" that will further trim its numbers and eliminate a distressing number of its remaining top (senior) technical experts over the next 7 years.

All in all, a massive set of challenges.

There is an understandable reflexive desire on the part of some (especially in southern Louisiana) to seek to punish the Corps for Katrina and its aftermath. That must be resisted at all levels. The Nation needs a strong and technically expert Corps, capable of safely executing its vital and very challenging mission with regard to the Nation's major civil works. If the Nation is not willing commit to bearing the costs of that, then we are all in trouble.

And it is my opinion that a number of people within the Corps, and some of their "friends", are missing the point.

The current lack of funding, personnel, resources, operational flexibility and capability is not the fault of the Corps itself; it is the result of three-plus decades of Congressionally-imposed unconscionable budget cuts, systematic and deliberate "attrition", and lack of allowed appropriate operational flexibility. In simple terms, the Corps has not been allowed the support and resources that it needs. It is hardly their fault, and it needs to be fixed.

What would be a bad thing would be to obstruct, cover up, or otherwise try to pretend that everything is just fine. Help and revitalization are needed. And better funding and resources. To fail to be honest, and to seek that, would be a disservice. And very dangerous too.

At this point, there continues to a still-ongoing battle for full restoration of the necessary levels of laudable ethics and public service professionalism within some elements of the largest and most important civil engineering agency in North America. Current signs are very encouraging here; the Corps appears to be earnestly engaged in doing the difficult things necessary to win this battle; as we would all have hoped and expected. This is a battle that must be won.

## **(7) The Bottom Line**

The bottom line is that ASCE has allowed itself to fall into a very difficult position. That is not, by any means, due entirely (or even primarily) to poor behavior and malfeasance by ASCE; it is in fact due in large part to poor behavior and malfeasance by others, and often others operating well beyond ASCE's formal control. But ASCE has done enough, and allowed itself to be seen to be clearly aligned with some of these others, that it now suffers from the appearance of collusion with and/or support of a much larger and darker situation than I expect was ever imagined.

ASCE is directly culpable for initial efforts at interference with the dissemination of our joint teams' field reports and findings, for direct threats to our two teams' initial field investigations,

for attacks on the credibility of the independent investigation teams (on the cover page of their national website, and in press statements), for punishment of at least one Member (including fabrication of an unauthorized published letter) for adhering to the Society's own Cannon of Ethics, for failure (at least) to be careful with regard to attribution of findings originally developed by others, and for continued (ongoing) use of the Society's reputation, publications prowess and awards processes to polish up and present a massively one-sided (and arguably misleading) view of important events and findings. And to defend all of that. None of that is OK, and none of it is acceptable.

They are not, however, heavily involved in the main bulk of the lies and obstruction of the past two years fomented by others, nor for the main bulk of the ongoing campaign of retribution now in progress. Those more heinous acts are, however, the work of others with whom ASCE has allowed at least the appearance of being in collusion with. And that's not OK either.

And neither is ASCE's continuing failure to address and attempt to put a stop to some of the worst of this. Especially as it continues to be an important basis for actively undermining public safety, and the ethics of the Profession. It is precisely ASCE's job, and responsibility, to serve as a watchdog and to help to prevent this type of thing. No matter who is doing it.

ASCE has slid down a slippery slope, and probably never intended to find themselves here. Now that they are here (and they certainly bear culpability for their current situation) they need to face up to the situation as it is, and take action to repair it. Not just for their own sake, but for the sake of the Profession and for the sake of the nation as well.

## **(8) Looking Forward**

And there are issues now rolling forward that also tie into this overall situation. Based on our discussions at the Sacramento levee conference in late July (you, Larry and I), and our subsequent E-mails, I understand that ASCE is now moving to establish an unprecedented new type of "overarching" committee that will operate, jointly, with all of the ASCE's Institutes (rather than within just one of them). This will be a "levees" committee, and the intent will be in part to leverage California's current (and admirable) massive new levee programs and attempt to begin to translate that towards the generation of a more fully national effort. I was very daunted to learn that you had not had time to follow or to become appraised of the details of this, and that I had to be referred to Larry Roth to learn them. This will be a very important effort, and in the wake of all that has occurred these past two years, it will also be a potentially very sensitive effort for ASCE as well.

Especially as I understand that Larry has selected Steve Wright to lead this committee. I was as daunted to learn that the new chair of the Embankments, Dams and Slopes Committee (Dr. Joe Wartmann) knew nothing about any of this as I was to learn that you were largely unaware of any of the details. As chair of EDS, surely Joe (and his committee) should be kept informed of such an important effort in an area that has long been the domain of their committee? I have only the highest respect for Steve's technical prowess as a leading expert on limit equilibrium methods and slope stability. Indeed, we still continue to teach our students in the Geotechnical program here at Berkeley to revere him in that regard. I would suggest, however, that his involvement with IPET would disqualify him for the first chairmanship of this important new committee.

ASCE should not assign anyone to the (first) chairmanship of this important committee who has any apparent bias or affiliation with regard to the matters discussed in this letter. No one associated with IPET, nor with the other two investigation teams (ILIT and Team Louisiana), should serve as the first chair of this new committee. That will pose some hardship, as the three teams between them comprise some considerable fraction of the Nation's top levee experts, but

there are enough highly respected “neutral” experts left as to provide suitable candidates. Similarly, I assume in forming such a committee that care will be taken to assemble a committee of truly national stature, and with well-distributed geographic representation. Something else to be checked.

In addition, given the now very loaded nature of all of this, it would appear inadvisable for ASCE to bypass “regular” channels and regular oversight in the creation and operation of this proposed new super-committee. Levees have always been the purview of the Embankments, Dams and Slopes Committee (EDS), and that committee has a long and admirable record of active and positive contribution. I understand that this is a “special opportunity”, and also that the SEI, COPRI, and Environmental and other groups all have scope for meaningful contribution (and so I do support the idea of an overarching committee inclusive of all); I am just suggesting that to bypass the EDS committee rather than to have them significantly involved would be inappropriate and might be viewed very darkly in the current circumstances. Who will have oversight charge of this committee when it is up and running, and how will this be structured? ASCE’s “regular” technical committees have long benefited from well-established institutional oversight and review. Appropriate institutional oversight within ASCE for this important new venture will be a very important issue, as events of the past two years clearly indicate.

Finally, I would like to observe that this proposed committee (and effort) does have the potential to be massively useful. It can provide a second means of cross-communication between government bodies (local, State and Federal) and others whose relationships are currently strained, it can usefully help to facilitate and coordinate currently disparate efforts in different regions and at different levels, and it can likely help to foment a more comprehensive national effort on this critical “levee and flood protection infrastructure” issue. But only if it is a square deal, and if the effort is motivated first and foremost by a desire to be of service (rather than by any narrower, more self serving motives on behalf of the Society or others).

It can also help to foment important “healing” of current rifts within the fabric of the profession, by enrolling members (and supporters) of the various disparate investigation teams that participated in post-Katrina studies and their aftermath, and giving them the opportunity now to work together for positive cause. That, too, would be of great value. Involvement of engineers from all of the teams should be encouraged, but none of them should serve as the first chair.

## **(9) A Difficult Position**

So now you are in a very difficult position.

After an admirable lifetime well spent in service to the Profession, and to both the Corps and ASCE, you are now at risk of being remembered mainly for how you next deal with all of this.

At a minimum, this has all the ingredients for a very interesting (and likely popular) multi-week case history module for upper division undergraduate courses across the nation on Engineering Ethics. The topicality, the obvious importance, the massive Katrina disaster as a backdrop, and the intriguing questions that would naturally arise for discussion would make it an instant hit in that context. And it increasingly involves a select number of top figures within the profession. What is still missing, of course, is how the story ends.

Yours is now the unique opportunity to impress everyone, and to rise up and set an example of positive (and pro-active) professional ethics that would stand for ages. And against the considerable weight of forces and pressures currently arrayed against the doing of just exactly that. Few men get such an opportunity. And few would appear to be better qualified. It would not be much fun, nor easy, but it would be admirable. And it would make for quite an epitaph.

I do not envy you the choices that you now face.

And the stakes appear to be going up. ASCE has undergone a notable transition over the past decade. This has been a gradual transition, and there was never any one day when something suddenly changed; it was an incremental process. And not a good one in my opinion.

ASCE has gradually adopted an increasingly “corporate” approach to things over the past ten to twelve years. This includes handling of finances (sometimes outraging to the many volunteers who work so many hours without thought of pay to get things done, sometimes upsetting to the various Institutes, etc.) and it also includes operations, governmental relations in Washington D.C., and governance of the Society itself. I used to know (at least in passing) who most of the Board members were. Now the Board is increasingly populated with CEO’s and VP’s of very large firms whom I do not know. And of course we now have the Institutes; separate entities that chafe under loose central HQ command (and that appear to successfully retain far more of the positive flavor of the “old” ASCE).

I am sure that all of this has served to put ASCE’s finances in better order (as the “old” ASCE constantly struggled with that), and it may also appear that ASCE is doing better in terms of garnering power and influence in Washington, but I wonder if it was a good trade overall: “corporate ethics” seems to me to be an oxymoron when used in conjunction with a professional engineering society of the stature and importance of ASCE. And “a position at the table” in Washington is not attractive in my view if ASCE holds that position without also having the respect of the others at that table.

And now I see ASCE trying to get into the professional licensure business, with obvious self-seeking goals in terms of both revenue and “clout”. I wonder if that’s something that we would want ASCE to do, or if it represents an unacceptable conflict of interest that should be avoided.

And I wonder if we are off our path?

There is going to be a changing of the guard at ASCE over the years ahead.

If we cannot get the current ASCE leadership to address and repair the damage done to the profession, and to the ethics of its flagship society, immediately then we can perhaps at least serve notice, and create a pool of informed engineers of substance and stature that can serve as watchdogs on behalf of the profession until such change can eventually be accomplished. Perhaps that will deter further misbehavior and further fraying of the ethics of the profession? In the end, the future belongs to those still on their way..... and they will have plenty of time, and more chances, to put things eventually back in order if we fail to fulfill our generation’s responsibility in this regard.

And history will belong to those who write it.

## **(10) Other Tough Choices**

You are not the only one facing tough personal choices. Many engineers will now have to wrestle with their consciences, and their sense of personal and professional ethics, and then make difficult choices accordingly.

I have spent my life working to inspire young people to enter this field (that I consider so wondrous), and trying to provide them with the knowledge and tools to perform well in this exciting profession. I thought that was enough, but I was mistaken. I did not realize that they also needed the opportunity to work in a field of good ethics. I took that for granted, as most civil engineers work at something that they love, and are generally underpaid for the level of effort and expertise that they bring to bear; a recipe for attracting unusually moral and ethical individuals.... one of the great joys of the profession.

I cannot now imagine willingly passing along to the next generation a profession in which the ethics and morals of the field are under attack, and in part by the very same professional Society



that is charged with protection of these. To do so would clearly be an abrogation of our responsibility.

It is interesting to note that one of the core groups of top graduate students and faculty performing many of the detailed analyses of failure sections in New Orleans had a number of large blackboards in the “situation room” upon which initial geotechnical cross-sections were developed and iterated with colored chalk, and with walls upon which analysis results were masking-taped and posted and summarized. On one of the boards there was a section upon which notes and observations were posted, and it was on this board that an important comment was written that came to serve in part as a motto for some fraction of our team’s efforts. It was something originally said by Edmund Burke, and what he said was “*The only thing necessary for the triumph of evil is that good men do nothing*”.

That came to be increasingly important as time passed, and now we all face the dilemma of good men (and women); we can turn our backs and do nothing, or we can take the very difficult (and for engineers very distasteful) steps necessary to address all of this, and to fix it. I have made my decision. There is no way that I can simply do nothing, and allow the worst of the actions of the past two years to pass, and appear to be condoned at the highest of levels within two of the most important civil engineering institutions in the world. Nor to run the risk that such will become standard operating procedure in the future.

Not on our watch.

So now we all face our own tests. God bless us all.

## **(11) Closure**

In the Fall of 2006, a gentleman (and Corps “Lifer”) that I have known and respected all of my life told me very pointedly that doctors do not investigate each other, and implied rather strongly that engineers should not investigate each other either. Because of my long-term respect for this individual, that rattled me a bit.

So I checked.

It turns out that doctors do indeed investigate each other. Not only that, but when a doctor is unsafe, the other doctors gang up to have that doctor’s license revoked. They do this for the sake of public safety, and for the good of the profession.

In our graduate program here at U.C. Berkeley, I begin each year by asking the new graduate students what the main difference is between doctors and engineers. The answer is that doctors can only kill people one at a time, and after the first several at most someone usually stops them. Engineers, on the other hand, can leave unsafe projects scattered throughout the world, only to be revealed when extreme loads eventually occur... potentially killing many all at once. The point is that this is far more than an intellectual exercise; and it is not a game. People depend on engineers to get it right, and nothing less than full effort, and dedication to public safety above all else, is acceptable.

Diligence. Dedication. Service. Ethics. None of these can be negotiable. Not for the two most important civil engineering organizations on the planet.

The People of the Nation, and their elected leaders, must know with full assurance that the American Society of Civil Engineers can be counted upon to render well-developed technical opinions on behalf of the Profession, without bias or ulterior motivation, to speak clearly and simply, and to tell only the unvarnished truth. Even in the most trying of circumstances.

There can be no alternative.

And what happens next, both with ASCE and the Corps, is likely to be important for many years to come.

Respectfully yours,



Raymond B. Seed,  
Professor of Civil and Environmental Engineering

Cc: Mr. D. Wayne Klotz; President-Elect, ASCE  
Pat Natale; Executive Director, ASCE  
Dr. Gordon Boutwell; Member, ASCE Field Investigation Team, and Member, ILIT  
Prof. Joseph Wartman; Chair, ASCE Committee on Embankments, Dams and  
Slopes, and Member, ASCE Field Investigation Team, and Member, ILIT  
Prof. Jean Louis Briaud; Member, ASCE Board of Governors; and Member, ILIT  
Prof. Dave Daniel; Chair, ASCE External Review Panel for IPET  
Prof. G. Wayne Clough; Chair, NRC Review Panel for IPET  
Prof. Tom O-Rourke; NRC Review Panel for IPET  
Dr. John Christian; NRC Review Panel for IPET  
Prof. Andrew Whittle; NRC Review Panel for IPET  
Dr. John Anderson; President, ASCE Geo-Institute  
Prof. Jon Stewart; Editor, ASCE Journal of Geotechnical and Geoenvironmental Eng'g.  
Dr. Richard Fragasz; National Science Foundation  
Prof. J. David Rogers; Member, ILIT  
Prof. Robert Bea; Member, ILIT

P.S. - The select group of individuals receiving copies of this have been chosen for my confidence in their tact and discretion, for my respect for their sustained contributions to the Profession and thus their right and responsibility to be aware of this and to be involved, and for my confidence in their abilities to follow their own consciences and judgment with regard to whatever may come next. Also, in most cases, they already know much of this stuff. In some cases they know additional significant pieces of this saga that are not addressed in this letter.

They are also, to the best of my knowledge, all members of ASCE. Certainly they have all made significant contributions to the Society and to the profession. A number of them have been specifically recognized for outstanding service to the Society. Without question, they have all earned their spurs.

P.S.S. - Early on in the Fall of 2005 we were advised by a pair of former Federal prosecutors, working with a Congressional investigation committee, with regard to the protection of our team members, our families, and our firms and institutions. Their best advice was not to lay all of our cards on the table at any one time, and to cross-share the very most critical and volatile information and data both across several members within the team, and also with select people outside the team that would be difficult to track down. And to let it be known that we had done so. So that if anything untoward happened to anyone, the response could be expected to be unstoppable and to outweigh any temporary benefit that might be achieved by untoward acts. We were fairly diligent in doing that. I note this not because I have any doubts about you; we have known each other for too many years for me to have any doubts on that count. Instead, I note this because of the possibility that portions of this letter may, eventually, find their way into other and less trustworthy hands. In other words, there is unfortunately more to this. And I note, parenthetically, that this is not how we should have to live.