

Date: June 26, 2009

**To: U.S. Senate Committee on Environment and Public Works
Senator Barbara Boxer, Committee Chairman
Washington, D.C.**

**From: Maria E. Garzino, Civil/Mechanical Engineer
Department of Defense (DoD)
U.S. Army Corps of Engineers (USACE)
Los Angeles District (LAD)**

**Subj: Full Committee hearing entitled, “New Orleans Hurricane and Flood
Protection and Coastal Louisiana Restoration: Status and Progress”, Held
Tuesday, June 16, 2009**

Dear Senator Boxer,

My name is Maria Garzino and I am a mechanical and civil engineer working at the USACE, Construction Operations Division, Contract Administration Section, in Los Angeles, California. From March to July 2006 I was deployed to USACE New Orleans District (NOD) to work for Task Force Guardian (TFG) on recovery efforts for hurricane Katrina. I was deployed to serve in the capacity of Mechanical Engineer and was in charge of factory testing of all hydraulic pumps and served as Team Leader of pumping systems installations at all three Orleans East Bank outfall canal closure structures. In summary, I had direct oversight of responsibility regarding the pumping equipment installed at the three outfall canal closure structures.

I am writing to you due to concerns regarding testimony given at the June 16th hearing. I believe it is important I communicate with you about these concerns because as my Senator your able leadership in this matter is important to me because it reflects on all Californians who have stepped forward to assist our fellow citizens affected by our nations worst natural disaster.

I am concerned that testimony given at the June 16th hearing on issues surrounding the outfall canal closure structures with installed pumps presented an inaccurate and misleading account of the situation. I also believe that the testimony offered contained conspicuous omissions and mischaracterizations related to the project as authorized by Congress (P.L. 109-234 – “\$530,000,000 shall be used to modify the 17th Street, Orleans Avenue, and London Avenue drainage canals and install pumps and closure structures at or near the lakefront;”).

These omissions and mischaracterizations can be completely understood and are fully addressed by documentation and recent findings contained in the Office of Special Counsels (OSC) public disclosure files. Specifically, last Friday, June 12, 2009, the OSC concluded an almost two year investigatory effort aimed at determining if USACE and

MWI personnel installed defective pumps in New Orleans and circumvented contract requirements at the expense of public safety and proper contract oversight – OSC concurred with my allegations and concluded the hydraulic pumps remain inadequately untested and vulnerable to failure in the event of a hurricane. Further, OSC’s own independently commissioned follow-on engineering assessment of all the issues I have brought forward for investigation concluded with a validation of all the allegations I have brought forward to date, and, also concluded my allegations have significant merit and should be seriously considered by OSC.

The documentation cited above can be accessed at the following web site:

For Part 1: Go to <http://www.osc.gov>; next, on the left hand side near the bottom hit E-Library <library.htm>; then, from the next menu near the bottom hit Disclosures Public Files; next, hit the .pdf button for 2009 Disclosures Public File; then, scroll to the bottom and choose 6-12-2009 (09-18; DI-07-2724).

There are four Sections with the following documents to choose/open:

1. Letter to the President from the Office of Special Counsel, dated June 12, 2009. [Ltr to Pres]
2. Apariq Final Independent Engineering Opinion, dated 20 May 2009. [Analysis, Part 1 & 2]
3. Response by Maria Garzino to DoDIG Supplementary Report Prepared by Parsons, dated 14 May 2009. [WB CMT]
4. Letter from the DoDIG to the Office of Special Counsel, dated March 20 2009. [Agency Rpt, Part 1]
5. Parsons Independent Engineering Assessment, dated February 27, 2009. [Agency Rpt, Part 2]

For Part 2: go back to the 2008 pdf Section - simply hit the 2008 Disclosure Public File, scroll down to 9/04/08 (08-19; DI-07-2724). There is a similar letter to the President, an OSC Agency Analysis, my Response doc, and DoDIG Report.

The OSC findings in this matter are definitive, and, the documentation and investigation into this matter is extensive and exhaustive.

To give a very general summary of my concerns regarding testimony given during the hearing: The project that USACE seeks to build (Option 1) is a project that was never intended by Congress to authorize and fund. The attempt here is to reclassify and redefine the original project, that USACE received over ½ billion dollars to build, as only “temporary” (5-7 year life span), and instead, rebuild the same exact project a few hundred yards further downstream - except this time not utilize hydraulic pumps (currently utilized, and defective) but use direct drive pumps. Congress did not authorize and fund USACE for this endeavor, and, this is a blatant attempt by USACE to cover the fact that the current outfall closure structures with installed pumps is mainly comprised of defective hydraulic pumps that if needed during a hurricane event will most likely fail in mass during the very early stages of the hurricane event (not make it through the first eight hours at full operating speeds/pressures). Obviously, my first concerns go to the citizens whose lives are at risk. However, with the findings of the OSC, and concurrence with my assertions from them and their outside engineering expert, this matter is now largely in the hands of the President and Congress. My next concern is with your Committee and your leadership on this Committee. I feel it is imperative your knowledge and actions in this matter reflect the best efforts possible that my fellow

Californians have come to expect from you. Our great State, like so many others, is reeling from the effects of past actions by others and we can ill afford to not hold persons accountable who are not good stewards of the public trust and taxpayer dollars.

Rather than burden you with an extensive review of the above cited documents, in order to understand the assertions made above, what follows is a very brief outline of some of the many existing facts surrounding the outfall canal closure structures with installed pumps project. I hope this will assist in comparison/contrasting the testimony given at the June 16th hearing and existing facts surrounding the outfall canal closure structures with installed pumps.

- The more than ½ billion dollar newly built interim closure structures with installed pumps were authorized and appropriated under P.L. 109-234.
- P.L. 109-234 did not provide for a shortened, 5-7 year, life span for the hydraulic pumps or closure structures (an almost 10 fold reduction in ‘normal and customary’ life span).
- The USACE awarded contracts for the hydraulic pumps and the outfall closure structures did not provide for a shortened, 5-7year, life span. The only expected lifetime definition was provided in the hydraulic pump solicitation specifications (in two areas) with a contract requirement for shaft bearings designed for an L10 life of 50,000 hours (in the industry, this equates to 50+ years of service for emergency operations pumps).
- Public statements/recordings of USACE meetings/etc. by Col. Bedey, Commander of Hurricane Protection Office, up to and including February 2008, describe the more than ½ billion dollar newly built interim closure structures with installed pumps as having a lifespan of 50 years (For example Col. Bedey said: “These have something around a 50-year lifespan. These were designed to be there for 50-years”).
- Public statements/recordings of USACE meetings/formal testimony given by Ms. Karen Durham-Aguilera, Director of Task Force Hope, up to and including April 2007, describe the more than ½ billion dollar newly built interim closure structures with installed pumps as planned for being incorporated into the permanent solution (For example Ms. Durham-Aguilera said: “We have the - what we call the temporary pump stations, and that's the slide that you're looking at right now. That's the pumps and the housing and everything else we're putting in place to be able to provide that pumping capacity for the next few years. But to provide a permanent solution, you know, some of the features that we're installing now will be part of the permanent solution.”.... “as I mentioned earlier, you know, we have to complete the baseline estimate for the hundred year level protection by mid-July, and we're working on that right now”.... “well, first, **the concept is in play right now in the temporary pumps we're putting in place. To make those permanent and to increase that solution, we are working on that now.**”)

- From the period of time during the factory testing of the hydraulic pumps over the next year or so what becomes evident is as the reliability of hydraulic pumps became suspect, the required hydraulic pump lifetime evolved to “temporary” meaning 5-7 years.
- P.L. 110-28 required the USACE to evaluate 3 follow-on project options directing pump use options. The first option involved incorporating the newly built closure structures with installed pumps, as provided by Congress in P.L. 109-234, into the final solution for providing the 100-year level of protection. USACE was tasked to study these follow on project options and report back to Congress in 90 days.
- On August 30, 2007, USACE provided a Report to Congress, cited as complying with P.L. 110-28. In fact however, USACE’s Report to Congress is non-responsive as it does not perform a study of how to incorporate into a final solution the more than ½ billion dollar newly built interim closure structures with installed pumps – it instead discusses building this project, as if it had never been built. This ‘redefined’ project option, known as Option 1, became the USACE recommended project.
- As can be discerned from the plethora of information contained in the cited documents this project morphed into a rebuilding of the same gated closure structure but now with direct drive type pumps in lieu of hydraulic pumps, and, a stones throw away from the already built gated closure structures with installed hydraulic pumps that they now propose to demolish and remove. (for a total cost to the taxpayers of almost 2/3 of a billion dollars).
- On April 27, 2009, USACE published a report: “Permanent Enhancement of the ICS Facilities Final Report”. This Report investigates and reports forward on what modifications are required to extend the life of the already built Interim Control Structures (ICS) at all three outfall canals to a 50 year design life. Amazingly this report recommends all the currently installed direct drive pumps remain and all the currently installed hydraulic pumps and their associated piping with support structures be removed and replaced with direct drive type pumps and associated structures. This Report states problematic operational and maintenance issues surrounding the hydraulic pumps are the main reason for recommending they be removed and replaced. This Report goes on further to recommend improving pumping capacity at all three outfall canals by adding direct drive type pumps to the existing ICS in order to meet the pumping capacity associated with a 100 year storm event. The cost to do this work, including maintenance, is \$430M.
- Rather than pay \$430M to correct the problems associated with the defective hydraulic pumps, USACE is proposing to abandon a \$530M project, pay \$100M+ more to demolish and haul it away, and spend another \$800M+ to rebuild it in kind a stones throw from the original – in all likelihood so they don’t have to

publically state the currently installed hydraulic pumps are defective and will not adequately protect New Orleans.

- Last, but most important, the hydraulic pumping equipment installed at all three outfall closure structures is defective and cannot adequately protect New Orleans should it be needed during a future hurricane event. I would think this fact should take lead of all current efforts – expedient measures are needed to rectify this preeminent problem.

In order to provide some basic understanding as to the assertions the installed hydraulic pumps are defective, without having to read in entirety the above cited documents, I will provide a very brief listing of just a few of the failure issues surrounding the defective hydraulic pumps and the defective hydraulic system design:

- The Durst pump drive is too small and over torqued. The output torques from the Caterpillar diesel engine grossly exceeds the maximum input torque allowed by the Durst pump drive. In addition, running the Caterpillar diesel engine at reduced speeds (a current practice) will further **increase** the torque into the Durst pump drive. [if difficult to understand, for our purposes somewhat akin to trying to put a Nascar motor into a gocart – nothing good can come from it]
- The Rineer hydraulic motor is not designed for the thrust of the MWI hydraulic system thrust and horse power. The Rineer motor used in the MWI hydraulic pump is not shown to be capable of handling the 735HP, as well as ensuring the combined axial and radial thrust does not exceed limits (the ‘rebuilt’ Rineer motor using the Code 62 model is rated up to 400HP continuous). [I hope this is self explanatory...]
- The Rineer motor bearings are underrated - are not designed for more than 3,000 L10 hours of use. The contract requirement is for bearing life of 50,000 L10 hours of use. [somewhat akin to the quality of a 3,000 mile warranty automotive tire as opposed to the quality of a 50,000 warranty tire – I think we all know which one we want to put on our car, and which one we want no part of, especially if the car we drive is an ambulance and we are EMT’s...]
- The unbalanced non-uniform flow rate, from the factory test conducted in December 2006 by USACE Engineer Dr. Maynord, demonstrates an imbalance in dynamic pressure and could potentially cause axial forces on the pump bearings to cause them to fail prematurely – the bearings should be inspected for damage and the pump impeller inspected for cavitation damage.
- The hydraulic pumping equipment has experienced voluminous instances where the hydraulic oil has exceeded 250 F as evidenced by the voluminous number of hydraulic hose failures (in the testing facility and in the field). Such high temperatures will result in damage to internal components.

- The temperature sensor for the hydraulic oil temperature is located upstream of the discharge of the Denison hydraulic motor. The hydraulic oil temperature seen at the Rineer motor is significantly higher than the location of the temperature sensor (hydraulic oil reservoir). A temperature sensor cut-off level of 180 F will result in an excessive hydraulic oil temperature inside the Rineer motor and adversely affect seal life (cause failure) and accelerate oxidation and fluid break down.
- While trying to meet the contractually required testing requirements the hydraulic pumping equipment experienced voluminous severe hydraulic system component failures – caused by poor component selection, improper system design, overheating of hydraulic causing failure of seals, and excessive system pressures.

If all of the MWI hydraulic pump systems is tasked to operate at full rated speed and pressure for many days without failure to adequately protect the City of New Orleans against a 100-year storm event, then failure of any combination of the sub-systems (CAT diesel engine, Durst pump drive, Denison hydraulic pump, hydraulic hoses/piping/cooler/hydraulic oil, Rineer motor, and water pump), will reduce the required capacity, and the City of New Orleans would not be adequately protected.

My sincere hope is there is some chance light can be shown on this matter which has languished in the dark for 3+ years now. Accountability and transparency has yet to make its mark on this project. My reason for pursuing this matter, for such a lengthy period of time, and at great expense to my career, is I am deeply disturbed by the willingness of my Agency to abandon the prime directive it is charged with upholding – to protect and serve the citizens of this country – our actions as engineers cannot bring harm to those we serve.

Thank you for the opportunity to provide this information to your office. I look forward to learning how you and the other members of the Committee choose to proceed on this important issue.

Very Respectfully,

Maria E. Garzino
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