Testimony by John Martinez to the US House of Representatives
House Committee on Energy and Commerce
Subcommittee on Energy and Environment

Mr. Chairman and Members of the Committee, I am John Martinez, an independent consultant and advisor to major international and national oil and gas companies. I am honored to come before your Committee to testify in support of your proposed bill to protect health and safety and the environment by applying the oil and gas industries' best practices and technology to well control and drilling/completion of high-risk oil and gas wells. Just as the Piper Alpha platform accident in the North Sea led to numerous industry improvements in piping design and safety devices at platforms, this unfortunate Gulf of Mexico blowout can lead us to improve the blowout preventers and the drilling/casing/cementing designs used in wells.

I have been working for forty two years in oil and gas operations technology, eleven of those years as an employee of a major international operator, and the remaining thirty one years as an independent consultant serving as an advisor, project engineer, and teacher/mentor of young engineers and operators for the large, integrated major oil and gas companies, and for the national companies in various countries. With the expertise gained over these years, I have dedicated my efforts to writing standards and recommended practices within my industry's production technology with the American Petroleum Institute and International Standards Organization.

Drilling and completing a complex high-risk well requires a project plan for the wellbore design, well control safety systems, casing and associated cementing programs, and the

contractor rig and personnel needed to implement the project. We use industry developed best practices based on shared experiences, but the current blowout in the Gulf of Mexico also indicates the need for additional, and mandatory, checks of the plan at various times prior to and during the drilling of the well.

I support a more thorough function and pressure test program of blowout preventers, the safety devices used in well control that are enabled when the drilling mud is compromised and is not able to control the well. I also support redundant shear rams that can completely shut in a blowout preventer when loss of well control is imminent, and the control systems to independently activate these shear rams.

I favor independent third-party certification of blowout preventer function and pressure testing as well as the other certifications proposed in the bill. I expect that many experienced drilling and production people, recently retired and living in oilfield communities, not only are available but also would see this as their duty to serve. Not as a full-time job, necessarily, as these periodic assignments to witness and certify tests or drilling plans would permit these individuals to continue to serve the oil industry while also contributing further to the benefit of the general public.

I am a production specialist in wellbore construction, completions, fluid flow, and artificial lift. Based on my knowledge and experience with the blowout well, I suggest it will be difficult to control when the relief wells intersect its wellbore due to the very high

rate of gas, oil, and water flowing from the reservoir zone. I offer this observation relative to designing a wellbore that is at lower risk of loss of control leading to a blowout.

Section 4 of the proposed bill addresses well design, cementing and casing, and prevention of ignition and explosion.

Well design requires three barriers, which could consist of (1) cement, (2) casing, and (3) casing liner hanger or casing hanger at the surface. The cement will qualify as a barrier if it completely fills the casing-borehole annulus and extends up into the casing-casing annulus above. In addition to increasing safety, the cement will reduce external casing corrosion. The wellhead valves at the surface must be designed to accommodate thermal expansion of liquids trapped in the casing-casing annulus.

Cementing and casing calls for regulations that require “adequate cement volume and cement bond logs”. My prior sentence defines “adequate” as requiring cement fill in the borehole annulus and into the casing-casing annulus above. Also this section or the section above (4.a.1.D) should include a requirement for centralizer design that promotes cement fill of the casing-borehole annulus. Cement bond logs, or newer technology, should be required on the production liner or production casing to insure fill of the casing-borehole annulus.

Prevention of ignition and explosion should mention a diverter just below the rig floor that should be connected to a flare or vent line designed to handle the capacity of gas that could flow from an uncontrolled well, thus minimizing the risk of explosion.

In summary, the industry, of which I have long been a part, has largely been self-regulating on design and safety issues, by reaching consensus among operators and regulators. This approach, for the most part, has served us well, but the more recent deepwater high-risk wells have a complexity and cost to rival that of NASA in relation to space travel. Like NASA, we as an industry must insure safety and quality, and not settle for or take short cuts in an attempt to save some millions of dollars, which could cost lives and billions of dollars in damages instead. We need to have a quality design in the wellbore that will result in improved safety as well as lessen casing corrosion and its associated remedial maintenance cost. We also need to follow proven safety procedures for well control that can prevent a blowout.

Good design, maintenance of all the equipment, and certified testing can greatly reduce our risk of an accident as well as total cost of wells and development projects. Thank you for the privilege of providing these remarks to the Committee.

John Martinez, P.E.