

Nuclear Industry Ignores Safety of Tesla Pumping Technology

“Safety of Adding to Nuclear Plants’ Capacity is Questioned”

From the New York Times; January 26, 2004:

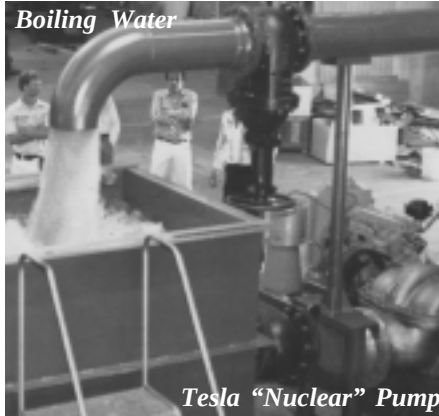
“Safety experts are questioning an effort by the nation’s nuclear industry to expand its output by the equivalent of three large reactors without building a single new plant.

“In the last two decades, nuclear plants have won permits to uprate, meaning add capacity to reactors, with almost no opposition. With these upgrades, plus expanded working hours and 20-year extensions on operating licenses, the nuclear industry has expanded its electrical output to a point that safety experts say could be dangerous...

“At Vermont Yankee, there are questions about the risk that the emergency cooling water will boil into steam.

“At the current maximum allowable power level, the emergency water could be heated to 183 degrees, well short of the boiling point at normal atmospheric pressure, 212 degrees. After 20 percent uprate, that could rise to 194 degrees.

“During an accident the emergency pumps suck in huge volumes of water, lowering the pressure inside the pump. That could allow bubbles of steam to develop.”



Ed: The Tesla Pump is the ONLY type Proven not destroyed by this effect: See Photo!

“Reactor owners argue that an accident would probably involve a leak, and that would create steam in the reactor building, keep the water pressurized in the pump and prevent it from boiling...

“Until the last few years, the commission would not allow such assumptions to guide its rulings. In the 1990’s, two reactors in New England were identified by the commission as having a risk of boiling at atmospheric pressure. The owners shut the reactors rather than fix this and other problems...”

See TEBA News #19 for more information. ☉

PATENTS FOR ENGINES & PROPULSION

by Jim Glenn

With the exception of his patented electric railway system (No. 514,972), Tesla’s contributions to the field of propulsion are complete departures from electrical thinking — exhibiting range and versatility often neglected in later accounts of his work.

Of course no one, least of all in the Patent Office, was exactly bowled over in 1893 by yet another reciprocating steam engine (No. 514,169; No. 517,900). Tesla had only dabbled in this workaday technology as a means to obtain more wieldy and regular oscillating machines, chiefly to power electrical generators. The vibratory frequencies he obtained were stable enough, as he demonstrated, to run motors as the time keeping element in clocks. His designs, with typical elegance, reduce moving parts and eliminate heavy dampers, like flywheels, in favor of air springs, or dash pots. (*Ed. The most efficient type of Piston steam engine ever produced.*)

His mechanisms for fluid propulsion (No. 1,061,142; No. 1,061,206) introduced to the world a flat-disc, vaneless turbine. And for the most part, the world was puzzled. The notion of “surface drag” coupling a fluid stream to stacks of critically spaced, smooth plates — minimizing energy lost in turbulence — simply lacked a wide engineering acquaintance. Its advantages should have been clear, but few were sold, and those mostly under license in Europe.

Although such turbines provide higher efficiency and simpler manufacture than other types, they have only

recently been developed and used in a serious way. To be sure, these turbines could reach operational speeds (30,000 rpm) (*Ed. using 6" runner*) that overwhelmed the best materials available in his day. Tesla himself built successful models of up to 200 hp (*Ed. 18" version @ 9,000 rpm, 200 hp continuous, 330 hp peak — Tesla claimed 5,000 hp his largest prototype*) and adapted the idea to several improved rate-measuring devices.

Straitened circumstances and a deteriorating state of mind interrupted and eventually halted his patent applications. Of the last eight filed, in 1922, but abandoned in process, six pertained to fluid mechanics and technical enlargements of his turbine systems.

(Ed: These Patents were issued in Britain, including the basic Patent for today’s highly efficient "Combined Cycle" commercial power plants. These "Lost" turbine Patents have all previously been republished by TEBA.)

He spoke also of turbine-powered autos; what he eventually drew up, however, were plans for the world’s first VTOL — vertical take-off and landing — craft (Nos. 1,655,113-114). He thought of it as an affordable, very democratic, aerial runabout. Whether this design, powered by two Tesla turbines, could fly is an open question. Tesla, hard-pressed and in his seventies, constructed no prototype. (*Ed: Successful turbo-prop flight has been achieved but in military aircraft*) From: The Complete (Ed: Only U.S.) Patents of Nikola Tesla; 1994 Barnes & Noble ☉