Flash X-ray Source Specifications

The Naval Research Laboratory in Washington, DC requires a flash x-ray source with the following specifications:

1) One each; MV flash x-ray source, including cabinet mounted controls, a variable delay trigger system, a pulser with high-energy modules, and an x-ray tube.

The minimum required specifications for this source are:

1-Megavolt peak output voltage
9000-Amp peak output current
75-Rad dose at 1 meter
5-Rad dose at 1 meter through 40 mm of steel
25-nanosecond exposure time
5-millimeter effective spot size
2-meter maximum length

The source shall provide the option of remote head operation, with remote heads connected by at least 5 meters of cable. The source shall be configurable to drive up to two heads simultaneously. It is expected that in this mode the radiation will be less than that in the specs for (1) above. The source shall include all hardware needed for fixed head, single-remote-head, and double-remote-head operation.

2) One set, dual remote tubeheads, including a dual output adapter, two remote tubeheads with 6M (20 ft.) tubehead cables, a remote x-ray tube and one resistive load.

The source shall also provide a demountable head for further field optimization. The demountable head system shall include hardware designed for a 3-mm effective sopt size and shall include a separate vacuum system comprising a turbo-pump, a backing pump and all needed ancillary components:

3) One each; Megavolt demountable tube (with 3-mm-spot hardware), a vacuum connector, adapter plate, hardware, and O-ring.

4) One each 42 liter/second vacuum pumping Station w/integrated console and controller, including controls, turbo-pump, backing pump, oil mist eliminator, cold cathode gauge, thermocouple gauge, gauge controller and all required vacuum hardware and cabling.

The source shall also include a 50-kV, 10-nsec trigger generator.

5) One each 50-kilovolt, 10-nanosecond trigger generator

DOCUMENTATION: The contractor shall provide standard commercial technical, operational and maintenance manuals and documentation. All applicable software for effective operation of the system shall also be provided.

WARRANTY: The contractor shall provide a standard commercial warranty.

DELVIERY: Delivery shall be to the Naval Research Laboratory, Washington D.C, 20375 within 120 days after award of contract.

COMPATIBILITY: All hardware shall be compatible with an existing NRL unit manufactured by Titan Pulsed Sciences, model 43710A.