SAND2018-8495C

Procurement (RFI) Version
Cadmium Self Powered Neutron Detector (SPND)
Minimum Mandatory
Requirements.

(To be released by procurement)

1. Detector Sensitivity:
    a. Target Sensitivity: 6.67E-20 Amps/nv (Larger is permissible)
    b. Minimum Sensitivity: 1.79E-20Amp/nv (Smaller is difficult to accept)
2. The detector should:
    a. Be 20 inches.
    b. Have diameter less than 1 inch.
    c. Not exceed 24 inches
3. N/A
4. N/A
5. N/A
6. N/A
7. N/A
8. The Detector shall be made of high-purity cadmium (99% or better).
9. The SPNDs protective sheath shall extend from the detector location to the pool surface (minimum of 25 feet). (Drawing will be provided).
10. The SPND's emitter shall be insulated from the detector casing
    a. Using mineral insulation material, such as MgO orAL203 (99% or better)
    b. Will have a resistivity of> 1 MegaOhm.
11. The detector will be helium leak checked per a National Consensus Standard, such as ASTM E839.
12. Terminate the detector's mineral insulation cable with a Female BNC connector.
13. Install a BNC shorting cap before shipment.
14. Provide operating procedures, test procedures, test results, Certificate of Conformance, recommended maintenance, material certifications and material safety data sheets.

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Procurement (RFI) Version
Cadmium Self Powered Neutron Detector (SPND) Housing
Minimum Mandatory
Requirements.

(To be released by procurement)

1. N/A
2. N/A
3. The detector housing and cable routing tube to be made of materials compatible to its environment (e.g., water_ location, high radiation, and neutron field). (i.e., aluminum).
4. Detector housing made of a material that will not significantly depress the neutron flux in that region.
5. N/A
6. Detector housing shall be designed to fit in the core grid structure and rest on the lower grid. (Drawing will be provided).
7. The detector cable routing tube shall include a minimum of two turns to prevent radiation streaming. (Drawing will be provided).
8. N/A
9. N/A
10. N/A
11. N/A
12. N/A
13. N/A
14. Provide operating procedures, test procedures, test results, Certificate of Conformance, recommended maintenance, material certifications and material safety data sheets.