

IMS Systems, Inc.'s Application dated April 3, 2013  
Information Needed for  
Registration of Cold Mill Thickness Gauge  
(IS Gauge – XX Series, Models IS 1150 – 11, IS 1150 – 21, and IS 1150 – 31)

IMS Systems, Inc.'s application dated April 3, 2013, contained insufficient information as required by 10 CFR 32.210 and described in the relevant guidance document NUREG-1556 Vol. 3 titled "Applications for Sealed Source and Device Evaluation and Registration." Specific deficiencies include:

1. Description/Construction

- 1.1 Please specify the materials for the major components (excluding the fasteners and magnet) shown on drawing #5121-62, Sheets 2 and 3.
- 1.2 Please describe the operation of the component "encoder" (Page 3/9, Paragraph 2) and provide drawing/s which shows the mode of operation.
- 1.3 Please provide drawing/s which shows the location of the on/off flags and the signal lamp on the device (Page 3/9, Paragraph 4).
- 1.4 Confirm that the aluminum name plates will not be affected by the environmental conditions and potential corrosion between differing materials of other components.
- 1.5 Please provide the manufacturers' model designation for the sources supplied by Eckert & Ziegler and QSA Global. The application referred to the special form certificates for these sources; a more specific source designation is needed for the NRC registration. Please clarify whether the sources are registered in sealed source and device registration certificates?
- 1.6 Provide the following specific information for the shutter spider spring: (a) provide the shutter spider spring stiffness information at the ambient temperature and on the occurrence of a fire, addressing the adequacy for such differing temperatures; (b) describe how the spring was tested to ensure its functionality during a fire event when gauge is located in the measuring and maintenance position on the c-frame.
- 1.7 Provide further information on the air purge system (Page 3/9, Paragraph 3) regarding (a) operation of the source housing, and (b) whether the air purge system affects the radiation protection features of the source housing and the c-frame.

2. Labeling

- 2.1 For Attachment 28, please specify where the gauge label as well as the source housing label are mounted.

- 2.2 Provide actual images of the labels, and provide dimensions for each label. Please note that we need the final copy of the labels (not an example or enlarged text) and please ensure that the label content listing on Page 5/9 matches the final copy of the actual labels.

### 3. Conditions of Use

- 3.1 Please state the normal device operating conditions in quantifiable terms for vibrations which the device will likely encounter in a mill environment.
- 3.2 Please address the applicability of the cycling test of the shutter (Section 6.3, Test Report) in view of differing materials used (e.g. steel shaft/brass mounting) in humid and corrosive environments.

### 4. Prototype testing

- 4.1 “Test Report TIAM 547 to IEC 62598” referred to similarities between the Model 547 and Model 562 source holders. Please describe (a) the differences between the models in detail (table format preferred), and (b) address how prototype test results of the Model 547 are applicable to the Model 562.
- 4.2 Please state which registered devices or inactivated registered devices the TIAM 547 source housing is used in.
- 4.3 The text of the label in the application showed that the device achieved a classification of 32-232-775-R3 in accordance with the ANSI N538 standard. Please clarify which item in the classification was the result of actual testing and which item was derived (e.g., Section 4.3)? The Test Report does not appear to support the classification in terms of the actual tests.
- 4.4 The text of the label in the application also showed, for the source housing, a classification of ANSI 32-SSS-454-R3. Please describe this classification in terms of the relevant ANSI standard.
- 4.5 The Test Report shows a source activity of 37 GBq at several places (e.g., Section 6.1.1, Section 6.3.1). We presume this to be a typographic error since the maximum activity in the device is to be 37 TBq. Please state the correct value.
- 4.6 The Test Report (Section 6.4) stated that the resistance of the shutter mechanism was not tested in a corrosive environment because the components are made of non-corrosive materials or have appropriate surface treatment. Please address the issue of corrosion potential of differing materials in view of Question 3.2 above.
- 4.7 The Test Report (Section 8) refers to accompanying documentation in terms of an instruction handbook. There was no instruction handbook attached to the application. Please provide a copy of the handbook; see also Question 6 below regarding such a handbook or manual.

5. Radiation Profiles

- 5.1 Please provide the model number and calibration information for the Babyline meter used for the survey (described on Page 7/9).
- 5.2 Please specify the exact location of the radiation values, which are shown on Page 7/9, in relation to the geometry of the device or the C-frame. Please provide a drawing which illustrates the locations for these values. Please also delineate which of the values on Page 7/9 were measured and which were calculated.
- 5.3 Drawing #6150 I2 shows a number of discrepancies. Please clarify each:
  - 5.3.1 A dose measurement of 2.5 microSv/hr is listed in a 'controlled area.' However, the controlled area is not designated on the drawing.
  - 5.3.2 The measurements are taken with a source activity of 37-44 GBq; please clarify if it was 37 or 44 GBq.
  - 5.3.3 Please also clarify how the 'GBq' activity is related to the designated maximum source activity of 37 TBq for this device.
  - 5.3.4 The drawing refers to a shielding for a TIAM source holder without listing the TIAM model number; please clarify.

6. Installation/Operation, Maintenance Manual, Accompanying Documentation, and Servicing

- 6.1 Please provide the final copy of accompanying documentation, including the operation manual.
- 6.2 Please provide servicing information (e.g. on installation, relocation, maintenance, repair, source exchange, calibration, and training).
- 6.3 Provide maintenance instructions or procedures to be used to ensure radiological safety for the maintenance staff.