

Mr. John M. Buckman, General Manager
IMS Systems, Inc.
10521 Perry Highway
Suite 310, Third Floor
Wexford, PA 15090

September 21, 2000

Subject: IMS Systems, Inc., Registration Request of A New Site Specific Multi-Channel
Profile Thickness Gauge Model No. 5245-02.

Dear Mr. Buckman:

We have reviewed your application dated August 22, 2000, requesting the registration of a new,
site specific Multi-channel Profile Thickness Gauge, Model No. 5245-02, to be installed at
Nucore Steel Plate Mill, Hertford County, North Carolina. In reviewing the application
information, we find the application is lacking significant amounts of information for us to reach
a decision. Therefore, we request that you address the issues outlined in the attached
Enclosure.

Please respond within 30 days of the date of this letter and be certain to address all the areas
of concern cited herein. If you would like to discuss any of the issues identified in this letter or
have any questions, please contact me at (301) 415-7894.

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Sincerely,

R/A

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Ujagar S. Bhachu, PEng., CEng., F.I. Mech. E.,
Materials Safety and Inspection Branch,
Division of Industrial and
Medical Nuclear Safety
Office of Nuclear Material Safety
and Safeguards.

Enclosure: As stated
cc. w/encl: S. Kimberly, LFARB

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IMS Systems Inc. (Model 5245-02)

Enclosure

As discussed with you during our telephone conversation of September 18, 2000, we have some questions, clarifications and need the following information to complete our review, evaluation and registration of your site specific new three source deployment Model 5245-02.

1. Profile Thickness Gauge Construction

- 1.1 Please describe construction aspects of the product including components of the product, materials of construction, dimensions, assembly methods, source containment and shielding, and operations of the product and its safety features. This should include a brief written description and the summary of construction aspects as well as specific, detailed descriptive data such as engineering drawings and product specifications.

In addition to the identification of components of the product and safety features you should include a description of each's purpose, function, and operation. An overall drawing of the product identifying primary components and safety features and indicating overall dimensions is useful as a complement to the written description of the product and for providing an understanding of the operation of the product.

Detailed design and construction data should be sufficient to allow the reviewer to fully understand the construction and operations of the product and its components and safety features and to evaluate the product's safety and integrity. This should include complete annotated engineering drawings of all safety critical components, specifications, materials lists, and/or detailed written description. In particular, mounting and integrity of the radioactive material or sealed sources in the product must be described in detail. Drawings of safety critical parts and components should be fully dimensioned with tolerances, include identifications of the safety critical parts, indicate the materials of construction or refer to materials specification sheet of list, indicate fabrication methods, and include a drawing number.

Parts critical to safety include those parts or components that provide primary containment, safety, and shielding of the radioactive material and sealed source. In addition, drawings and descriptions of non-safety critical components and parts that contribute to safety and/or integrity of the product should be provided.

All special design features that protect the product from abuse, control of hazard from direct or scattered radiation, and discourage unauthorized access to the source need to be adequately described. In addition, accessibility of the radiation beam during use, including the size of the opening of the air gap that could allow any part of the human body to enter the radiation beam, and any additional protective measures, additional guards, barriers, or installation requirements designed to prevent accessibility of the radiation beam during, storage, installation, commissioning, maintenance, temporary removal and re-installation of these gauges on other sites.

IMS Systems Inc. (Model 5245-02)

2. Use

- 2.1 Please describe the nature and intended purpose, use, location, environment and type of facilities where these gauges have been or may be installed and used.
- 2.2 Please provide general criteria for the selection of mounting of a gauge system. State the number of rails to be used, the weight, overall dimensions of the C-frame configuration for the Model 5245-02. Your application did not include all the design details for the C-frame units you intend to use for the Model 5245-02. Please submit test data or comparative analysis, showing that the new gauge system is as structurally and functionally sound as the current registered Model 5245-01.
- 2.3 The physical properties of the metal, the site specific rolling process will normally determine the environmental and ambient conditions to which the gauges will be subjected to. (i.e steel may be hot rolled at a much higher temperature than aluminum) Please describe the normal and likely accidental conditions the gauge will experience and provide a copy of your analysis. Full consideration should be given to the prolonged shutdown of the facility due to loss of power during summer and winter months.
- 2.4 Part of your request is to allow O- frame gauges in 5245 series. Please identify specifically the model or models you intend to use with this configuration. Please also provide retraction, removal and parking details for this configuration.
- 2.5 Please describe the source of corrosive vapors and how these vapors are different for Aluminum and steel rolling?
- 2.6 Please explain the significance of the large air gap? How many cobbling incidents have been reported to IMS in the last five years?
- 2.7 Please clearly indicate the locations of wipe testing and the associated testing and shipping procedures?

3. Operations

- 3.1 Please describe all operations during assembly, installation, commissioning, calibration, standardization, retraction, removal, parking and maintenance of the Model 5245-02. Please describe the mode of monitoring for each operation. (Manual, computerized at local or remote location).

4. Method of Securing The Source In the Shielding

- 4.1 How is the source secured in the housing? How is the access controlled to the source?

IMS Systems Inc. (Model 5245-02)

5. Operations Of On-Off mechanism

- 5.1 Please describe in detail how the device is powered on and off locally and its linkage to the remote owners main electrical breaker. Please describe in detail the powered and manual operations, the air supply reliability and quality control, that opens and closes the source shutter.

6. On-Off indicators

- 6.1 Please submit your criteria and rational for deciding the location of the indicators to the workers. For maximum effectiveness the Indicators should be visible form all directions, locally and from distance to the maximum number of workers.

7. Controls

- 7.1 This valve apparently depressurizes the compressed airlines supplying the shutter actuator when it is closed. Please provide the estimated time for closing the valve and the depressurization of the air supply lines for facility in question. Please provide valve actuation details.
- 7.2 Do the indicator warning lights come on the initiation of the shutter operations or when the shutter is fully open or closed?
- 7.3 Please provide an outline of the gauge layout and central station. Please confirm that IMS will ensure that the Central Station and Gauge Operator Station are clearly outside the 0.25 mrem/hr controlled access area.
- 7.4 Please describe the access control procedures, the mechanism and time durations for automatic shutter operations when the process material is run out, after cobbling, or absent of material during warm up.
- 7.5 Please provide operational details of pneumatic and cooling systems. Is the instrumentation and cooling air supply supplied from the same source?
- 7.6 Please provide analysis to justify the suitability of source shutter springs for this facility.
- 7.7 How does the computer ensure and operator is made aware that the source shutter is closed when the gauge is moved out into parked position or is knocked down by cobbling or snapping of a plate being rolled?
- 7.8 Please describe the details of the cooling system and operations of the Carry-over table.

IMS Systems Inc. (Model 5245-02)

8. Labeling

- 8.1 Please provide a sample of labels to be attached to the sources, source housing and the device.

9. General

- 9.1 Section 1-4 of our application makes a reference to AEG Corporation Integrated Services. Please outline the relationship of AEG to IMS Systems, Inc. Are there any other third parties that might repair, maintain or dispose off sources for IMS.
- 9.2 An updated statement concerning disposal of the sources is needed. See Section 7 of the application.
- 9.3 Please review the statement under Section 5 page 7 of your application. It is not applicable to Model 5245-02.
- 9.4 Please note that section numbering system for 10 CFR has changed. Please ensure that the references made to 10 CFR are correct.
- 9.5 Please state the role, responsibilities of any third parties involved in the fabrication, installation, operations, maintenance and disposal of the sources, source housing and the gauge electronics and superstructure.