Institute of Environmental Sciences and Technology

IEST-RP-NANO200.1

Contamination Control Division, Nanotechnology Committee
Recommended Practice 200.1

Planning of Nanoscale Science and Technology Facilities: Guidelines for Design, Construction, and Start-up

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This Recommended Practice was prepared by and is under the jurisdiction of Working Group 200 of the IEST Contamination Control Division Standards & Practices Committee on Nanotechnology.

First printing, July 2013

ISBN 978-1-937280-00-0

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1 SCOPE AND LIMITATIONS

1.1 Scope

This Recommended Practice (RP) is an overview of factors involved in the design, start-up, and operation of facilities in the field of nanotechnology.

The overview focuses on the unique considerations related to planning, design, construction, and start-up that typically confront owners, designers, and users of the advanced-technology facilities supporting research or production at the nanometer scale.

Intended as an executive-level summary, this document provides guidance in the planning and decision-making processes required for establishing facilities involved in nanoscale research and production as well as subcellular-scale biological research.

Specifications for ranges and criteria recommended within this RP form a framework intended to stimulate further discussion between the owner and the design team.

A series of supplementary RPs will cover specific topics in expanded detail. These RPs will provide recommendations on the following subjects as they relate to nanotechnology facilities:

- Planning
- Design
- Construction
- Start-up
- Operations

In addition, technical RPs will expand upon more complex topics that cross the above subjects, such as:

- Safety
- Quantitative aspects of environmental definition and evaluation, including vibration, acoustics, electromagnetic interference (EMI), and temperature

1.2 Limitations

Although this RP provides guidance for establishing performance criteria for operations at nanoscale levels, specific topics or details are not necessarily universally applicable to all nanotechnology facilities. Each facility is unique, and the general approach of the RP should be tailored to meet the operational needs of the facility of interest.

This RP does not specify environmental conditions in detail, as these conditions are driven by the requirements of research and process equipment and instrumentation unique to each facility.

This RP does not address laboratory animals or small-animal facilities.

This RP does not impose requirements that would supersede existing standards or requirements established by recognized regulatory bodies at any level.

Issues of safety (toxicity) of nanoscale materials lack consensus. It is beyond the scope of this document to define limits or provide recommendations with regard to toxicity and design of nanotechnology facilities. The most current information available at the time of the design should be taken into consideration.