Introduction:

Improper storage of hazardous chemicals, lack of inspection of containment materials, and inadequate staff training are some of the leading causes of environmental contamination. Contamination takes various forms, including water, air, soil, noise, and radioactive pollution, which can significantly impact human health and the environment.

This **five-day Eco-Safe Hazardous Waste Management and Prevention Course** is designed to address the growing need for proper hazardous waste management and pollution prevention. Participants will explore various forms of contamination, learn about effective non-hazardous product alternatives, and gain insights into environmentally sound disposal methods for hazardous and non-hazardous wastes. By understanding these key principles, participants can contribute to preventing contamination and promoting a cleaner environment.

Targeted Groups:

- **Health, Safety, and Environmental Professionals**
- **Staff Responsible for Managing Hazardous Wastes**
- **Laboratory Technicians**
- **Staff Addressing Contamination Issues**
- **Emergency Personnel**
- Individuals seeking to reduce risks and liabilities associated with environmental pollution.

Course Objectives:

By the end of the Eco-Safe Hazardous Waste Management and Prevention Course, participants will be able to:

1. Identify various types of contamination and their relevance to the organization.
2. Promote dialogue and develop regional networks to tackle contamination issues.
3. Understand international treaties and environmental regulations related to contamination and pollution.
4. Prioritize contamination problems effectively in waste management efforts.
5. Examine the relationship between human health and environmental contamination.
6. Review current methodologies for cleaning contaminated sites, including soil, water, air, and radioactive waste.

Targeted Competencies:

Upon completing this course, participants will be able to:

- Identify and evaluate **waste streams** within their organization.
- Understand **waste management practices** and the value of waste streams.
- Assess the performance of current **waste contractors** and subcontractors.
- Monitor and improve waste management **performance** using eco-friendly methods.
- Apply the **7 R's in waste management**: Reduce, Reuse, Recycle, Recover, Rethink, Refuse, and Repair.
- Conduct **life cycle audits** of waste and waste products.

Course Content:

Unit 1: Brief History of Contamination and Introduction to Hazardous Wastes

- Definition and impact of **contamination** on the environment and human health.
- Examination of different types of **contamination**: air, water, soil, noise, and radioactive.
- Global environmental issues related to contamination and **international treaties** (e.g., UNEP and the 12 Toxic Chemicals).
- Overview of **hazardous** vs. **non-hazardous** wastes and their effects.
- The significance of **environmental law** in regulating contamination.

Unit 2: Management of Contamination and Hazardous Wastes

- The **relationship between contamination and occupational health and safety**.
- Documentation required in hazardous waste management: **WHMIS** (Workplace Hazardous Materials Information System), **MSDS** (Material Safety Data Sheet), and the **Globally Harmonized System (GHS)**.
- Performing a **contamination audit** and managing waste disposal sites effectively.
- Understanding typical **hazardous waste regulations** and the need for **harmonization**.

Unit 3: Contamination and Pollution Prevention

- **Pollution from exploration production activities** (e.g., oil spills, gas leaks).
- **Case study**: The Gulf of Mexico oil spill in April 2010 and the importance of advancements in **tanker design** to prevent major oil spills.
- Other sources of **oil-related pollution** and their environmental impact.
- The concepts of **Zero Waste (ZW)** and **Zero Liquid Discharge (ZLD)**, along with their constraints.
- Addressing **bird droppings pollution** and technological solutions.

Unit 4: Contamination and Pollution Prevention Planning and Contingency Planning for Major Incidents

- The **life cycle management** of all company materials to reduce contamination.
- Focus on the **5Rs** (Reduce, Reuse, Recycle, Recover, Rethink) and their application to waste management.
- **Storage requirements** for hazardous materials.
- The importance of **continuous training** and regular **emergency plan reviews**.
- **ISO standards**: Updates on **ISO 14001, 18001**, and **9001**.
- Types of **environmental audits** and their significance in maintaining safe practices.

Unit 5: Big Picture Review of Management and Prevention of Contamination and Hazardous Wastes

- Techniques for **hazard identification** (HAZID) and **hazard operability analysis** (HAZOP).
- Understanding **environmental ethics** in the context of waste management.
- **Case studies** from the instructor’s experience, focusing on **environmental ethics** and sustainability.
- **Climate change** and its implications for Gulf Coast countries and global efforts in waste management.