

## **MAJOR CONSULTANCY PROJECTS**

*I. Preparation of National Action Plan on Chemical Disaster Management sponsored by MoEF, Govt. of India and NDMA, New Delhi.....2012.*

### *II. Chemical/Industrial Disaster Management Plans*

- Risk Analysis and Disaster Management Plan of Tata Steel Works, Jamshedpur, .....Contd.
- Disaster Management Plan of Hindustan Zinc Ltd. Dariba, Rajasthan (Vedanta Group), 2011.
- Off-site Emergency Management Plan of Dhenkanal District, Orissa, 2011.
- Disaster Management Plan of Indira Sagar Project, NHDC, Khandwa (M. P.) ...Contd.
- *On-site Emergency Management Plan* of Mangalore Chemicals and Fertilisers Ltd., 2010.
- On-site Emergency Management Plan of Jindal JSW Steel Limited, Karnataka, India (2010).
- *Off-site Emergency Management Plan* of District Bhopal, Madhya Pradesh, ..... Contd.
- *GIS Based Emergency Management Plan* of Hindustan Petroleum Corporation Limited Refinery at Mumbai (2008).
- *On-site Emergency Management Plan* of Rihand National Thermal Power Corporation Limited, India as per Environment (Protection) Act 1986, Govt. of India (2007).
- *Off-site Emergency Management Plan* of Rihand National Thermal Power Corporation Limited, India as per Environment (Protection) Act 1986, Govt. of India (2007).
- *Disaster Management Plan* of Vedanta Alumina Ltd. located at Lanjigarh, Odisha, India (2006).
- *On-site Emergency Management Plans* of the following five industries of National Aluminium Company Ltd. (NALCO) (2006):

- (i) Captive Thermal Power Plant located at Angul, Orissa;
- (ii) Aluminium Smelter Plant located at Angul, Orissa;
- (iii) Alumina Refinery located at Damanjodi, Orissa;
- (iv) Bauxite Mines located at Damanjodi, Orissa;
- (v) Port Facilities (import and Export) located at Visakhapatnam, Andhra Pradesh.

- *Off-site Emergency Management Plans* for six industrialized districts of Punjab, India comprising nearly 50 Major Accident Hazard (MAH) units as per Environment (Protection) Act 1986, Govt. of India (2005).
- *Chemical Disaster Management Plan* of Vindhyachal Super Thermal Station of National Thermal Power Corporation Limited, India as per Environment (Protection) Act 1986, Govt. of India (2005).
- *Off-site Emergency Management Plans* for three districts viz., Bhopal, Dhar and Bhind of Madhya Pradesh (2001).
- *District Disaster Management Plan* for District Khandwa (an earthquake prone district), Madhya Pradesh, India (2000).

### III. Chemical Hazard Analysis: Consequence Analysis, Dispersion Modelling, Risk Assessment and HAZOP Study

- Quantitative Risk Assessment of GAIL Compressor Station at Jhabua, 2010.
- *District-Wise Hazard Analysis* for District Bhind, Madhya Pradesh (2008).
- *District Wise Hazard Analysis* for District Raipur, Chhatisgarh (2008).
- *Qualitative and Quantitative Risk Assessment* of Rihand National Thermal Power Corporation Limited, India (2007).
- *HAZOP study of Gas Collecting Stations of Oil and Natural Gas Corporation (ONGC)* in Assam, India (2007)
- *Risk Assessment Studies of Natural Gas Thermal Power Stations* at Kawas and Jhanor Gandhar, Gujarat (2006)
- *Risk Analysis Study of Gas Collecting Stations of Oil and Natural Gas Corporation (ONGC)* in Karaikal and Kaveri Assets in South India (2006)
- *HAZOP Study using HAZOP-Pro software* of Group Gathering Stations of ONGC located at Kesanapalli in Rajamundry Asset of Andhra Pradesh and at Dahej in Ankleshwar Asset of Gujarat (2005).

- *Risk Analysis Study of Hi-Tech (Aditya Birla Group) Carbon, Tamil Nadu (2005).*
- *Qualitative and Quantitative Risk Analysis of Korba National Thermal Power Corporation Limited, India (2004).*
- *Risk Analysis of Staple Fibre Division, Grasim Industries Ltd. (Aditya Birla Group), Nagda (2003)*
- *Risk Analysis of Chemical Division, Grasim Industries Ltd. (Aditya Birla Group), Nagda (2003)*
- *Consequence Modeling of SO<sub>2</sub> & SO<sub>3</sub> Storage and Contour Mapping Gwalior Chemical Industries Limited at Nagda (2003)*
- *Risk Analysis of PEPSI Ltd., Mandideep, Madhya Pradesh (2003)*
- *Risk Analysis of Rajasthan Insecticides and Fertilisers Company Ltd. (2002)*

#### IV. Safety Audit and Environmental Audit as per Indian Standards

- *Safety Audit of National Thermal Power Corporation Limited, Simhadri (2012)*
- *Safety Audit of National Thermal Power Corporation Limited, Korba (2006 - 2011)*
- *Safety Audit of National Thermal Power Corporation Limited (Natural Gas based), Anta (2006 - 2010)*
- *Safety Audit of National Thermal Power Corporation Limited (Coal based), Farakka (2006)*
- *Safety & Environment Audit of Siel Chemical Complex, Ltd., Punjab (2005)*
- *Safety Audit of LPG Bottling Plants of Indian Oil Corporation Ltd. (2004-2008)*

#### **I. Training Courses Conducted/Cordinated/Main Teaching Faculty Member**

(I) For Scientists/Engineers of Pollution Control Boards of Central/State Governments and Directorates of Factories (Sponsored by Ministry of Environment and Forests, Govt. of India)

- Disaster Management for Govt. department of M. P. (2010 – 2012)
- Disaster Management for Engineering students of RGPV and MANIT, Bhopal (2012)

- Hazard Identification and Risk Assessment in Chemical Industries (2000 – 2009: 10 courses)
- Occupational Health and Safety in Hazardous Waste Treatment, Storage and Disposal Facility (2008)
- Environmental Planning in Industries (2007)
- Chemical Accidents: Emergency Planning, Response & Management (2004-2008)
- Incorporation of Spatial Environmental Planning into EIA Studies and Procedures (2003)
- Urban Environmental Assessment and Information System (2003)
- Accident and Emergency Management (2003-2005)
- Spatial Environmental Planning in Emergency Management (2001)
- Management of Chemical Accidents (2001 – 2009: 09 courses).

*(II) Conducted Specialised courses Sponsored by the Industries*

- Application of Risk assessment in Disaster Management Plan at Tata Steel, Jamshedpur, scheduled on February 2 and 3, 2012.
- On-site emergency plan at Hindustan Zinc Ltd., Dariba, Rajasthan, 2011.
- Industrial Disaster Management Planning (06 courses) at NTPC Vindhyachal for Process Engineers and senior managers (above DGMs) (2009, 2010, 2011)
- Quantitative Risk Assessment for GAIL Engineers at GTIL, NOIDA (2009).
- Quantitative Risk Management for Oil and Natural Gas Corporation (ONGC) Engineers (06 courses) (2008)
- Incident/Accident Analysis and Investigation for Oil and Natural Gas Corporation (ONGC) Engineers (2006)
- Chemical Risk Management for Process Engineers of Grasim Industries Ltd (2007)
- Accident Investigation and Root Cause Analysis for Hindustan Petroleum Corporation Ltd. (HPCL) Engineers (2006)

- Disaster and Fire Safety Management for Oil and Natural Gas Corporation (ONGC) Engineers (2005)
- Disaster Management & Emergency Response Planning for Oil and Natural Gas Corporation (ONGC) Engineers (2004)
- Disaster Management for Engineers and Executives from National Fertilizers Ltd., Engineers (2001)

(III) For District Level Officers sponsored by Ministry of Home Affairs, Govt. of India and Govt. of M. P..

- Flood Disaster Management (05 courses)
- Drought Management (06 courses)
- Around 40 lectures (per year) on Industrial Disaster Risk Management for state departments of Police, Home guards, Labour, Revenue, Agriculture, Town and Planning etc.
- Land use planning and Chemical disaster management