Summary of Scientific Studies Conducted on Contamination of Union Carbide Site and Surrounding Areas in Bhopal

S. No	Year	Agency	Study Title	Samples examined	Conclusions
1.	1989	Union Carbide Corporation	Site Rehabilitation Project –Bhopal Plant	Ground water inside factory premises	All samples cause 100% mortality to fish in toxicity assessment studies.
2.	1991	State Research Laboratory, Public Health Engineering Deaprtment, Government of Madhya Pradesh	Report of Chemicals found in Water for Communities around UCIL premises,	Ground water samples from 13 spots in the vicinity of the factory	The samples tested had Chemical Oxygen Demand (C.O.D.) values between 45 mg/l and 98 mg/l whereas the World Health Organization (W.H.O.) has fixed the standard value of C.O.D. for natural water at 6mg/l. The ground water is contaminated with bacteria and heavy chemicals
3.	1992	National Environmental Engineering Research Institute (N.E.E.R.I.)	Process Package for disposal of SEP contents at UCIL, Bhopal	Soil and ground water samples from in and around UC factory	Water quality within an area of radius 1 km met the quality standards. Presence of **Volatiles** and **Semi-volatiles** in tested soil samples. Recommended the need to undertake a detailed investigation.
4.	1996	State Research Laboratory, Public Health Engineering Deaprtment, Government of Madhya Pradesh	Report of Chemicals found in Water for Communities around UCIL premises,	Ground water samples from 13 spots in the vicinity of the factory	The samples tested had Chemical Oxygen Demand (C.O.D.) values between 45 mg/l and 98 mg/l whereas the World Health Organization (W.H.O.) has fixed the standard value of C.O.D. for natural water at 6mg/l. The ground water is contaminated with bacteria and heavy chemicals
5.	1997	NEERI	Assessment of contaminated areas due to past waste disposal practices by EIIL, Bhopal	Samples collected from waste disposal areas, spilled areas and open area. Samples of soil, ground water and dump material from within the factory	The study found high levels of toxins and identified hot spots. Presence of Carbaryl, Temik, Manganes, Lindane, Alpha-napthol etc was reported in the soil samples. 17 samples of ground water and none showed contamination and study noted that soil in & around the plant premises was mainly clayey with permeability rate of 1x10 -8 which would have taken 23 years for contaminants to reach groundwater level.
6.	2003	Madhya Pradesh Pollution Control Board	Summary of ground water samples collected around UCIL premises (April 03 - Jan 04)	Ground water for 13 locations and soil samples from Solar Evaporation Ponds	The analysis of these samples reveals that the parameters viz. Colour, turbidity & chlorides of some samples exceeds the desirable limits of bis-10500 whereas parameters viz. Total hardness, total alkalinity, ds & fluorides exceeds the said limits in most of the samples. Pesticides like - lindane, endosulfan - i, ii, aldrin and b-bhc were detected in some of the