# CHAPTER 5
# EVIDENCE AND DATA COLLECTION

**5.1** Since the incident involved a massive explosion and fire which resulted in extensive structural damage, it made the task of collecting documentary evidence a very difficult and time consuming exercise. Many of the documents were received after considerable time had lapsed and still some are awaited.

**5.2** Evidence gathering started immediately following the incidence as soon as the investigation committee member could enter the premises.

**5.3** Extensive photographs were taken during the time of fire was razing and subsequently, during inspections of damage in the site.

**5.4** The Investigation Committee has all along been attempting to obtain data/information to understand the manner of loss of containment (immediately prior to the blast) through available recorded data in the control room but was given to understand that all these which were recorded in hard disk had been destroyed. Subsequently, the committee took the initiative of getting a search conducted in the debris of the control room and other buildings destroyed in the blast. The hard disks of the computer and the CCTV recordings which were located in good condition were taken in police custody for forensic investigation. The committee has requested for a copy of the available records but the same is awaited as of now. During subsequent interviews it was revealed as late as 23rd December that though the ERP/TFMS recorded data in the marketing control room has been destroyed in all likelihood, another set of the same data is recorded in the software in the pipeline division control room wherein tank levels are recorded every minute. Thereafter on the instance of the Investigating Committee, the pipeline division was instructed to re-check and to make renewed efforts to locate and retrieve this hard disk. Immediately thereafter on 24th December morning the pipeline division located the hard disk retrieved the same as well as its back up disk, both

of which were immediately taken possession of by the local police. The Chairman, Investigation Committee had immediately requested one of its Members (Principal Secretary, Mines & Minerals, Govt. of Rajasthan) to retrieve the duplicate disk at least for making it available to the investigating committee. This is awaited.

## 5.5 WITNESSES

Interview process of evidence gathering commenced on 2nd November, 2009 and the last interview was held on 11th January, 2010.

**5.6** During the course of the investigation, interviews were conducted with 21 IOCL employees and 9 IOCL contractors' personnel, 1 BPCL employee and 2 BPCL contractors' personnel. Most of the interviews were sound recorded and transcripts from the sound recordings were made.

## 5.7 SOME SIGNIFICANT PRIOR EVENTS

During the course of the investigations, though the committee did not get information from any of the interviews, it did gather through other sources that just about two months ago i.e. in August 2009, there was a case of theft of HSD detected by the CBI from the IOC terminal in collusion with a neighbouring company oil terminal official. Some personnel of the IOC terminal were taken into custody for this.

The committee felt this was relevant information which should have been provided earlier by the concerned officials in Jaipur.

## 5.8 DOCUMENTATION

The committee submitted a list of documents to the concerned IOC officials which the company wishes to pursue during the course of the investigations. These included the following:

The committee was informed that many of these were probably destroyed in the blast since they were normally kept in the control room/site office. However, subsequently after several days, some of these could be reassembled or reconstructed from elsewhere in the Corporation. While interviewing Shri Syal, COM on 18.12.2009 in OISD offices, it emerged that the operating log book had also been located in the rubble of the control room. The committee asked that this be made available to the committee which was done on 18.12.2009.

The committee also asked IOC if the hard disk drives of the pipeline control room which also receives the TFMS data could be retrieved. IOC informed that this was also traceable in the P/L control room rubble, but that it would have to be obtained only after proper procedure and permission from necessary authorities are obtained. The committee has not accessed the data in this hard disk also.

## 5.10 PROCESS MODELING

The Committee has carried out processing modeling studies based on computer programmes PHAST version 6.53 available with EIL. These studies indicate the extent of vapour clouds spread and the boundary of the lower explosivity limit in which any spark could trigger and explosion/detonation. The modeling also indicates the extent of shock waves for different pressure levels and this has been done for different cases of wind direction, wind speed. The weather conditions prevailing at that time has been taken from the website of the Indian Meteorological Department.

A detail analysis of process modeling is discussed in CHAPTER 6.

From the evidence pieced together from interviews, it comes out that the leak of gasoline (MS) continued for about one hour and 20 minutes before

the explosion took place. The computer programme however is based on a maximum time of one hour only and therefore the results of the process modeling study could be a little more conservative than the actual event.

## 5.11 VISIT TO JODHPUR TERMINAL

The committee visited Jodhpur terminal on 13.12.2009 to see the operating practices and facilities. An experiment with water in the tank was conducted to see extent of leakage with Hammer Blind open. This is discussed in detail in Chapter 7.