CONTENTS

ANNEXURES

DATA BASE MANAGEMENT FOR ACCIDENTS/DISEASES HAPPENING DUE TO OCCUPATION

&

IMPLEMENTATION OF THE SAME IN THE DEPARTMENT OF ATOMIC ENERGY

1. INTRODUCTION:

Accidents are a part of life & more so of occupational life. Accident is an accident and hence cannot be controlled but its rate of occurance & consequences can be controlled by proper planning & execution right from the design stage. Safety, in fact, has to be built into the system which can be either hardware or software or both. An accident may or may not result in (1) injury to the worker, (2) damage to equipments & plants, (3) loss of property. However, every accident has a possibility of ending in either of these given above. Thus every accident is worth studying as to its cause & effect in a systematic way. The Bureau of Indian Standards has published Standard IS:3786:1983 entitled "Method for Computation of Frequency & Severity Rates for Industrial Injuries & Classification of Industrial Accidnets." It is essential and necessary to create a Computational Data base structure based on this standard as well as on Factories Act, 1948 & Rules made thereunder so that information classification & retrieval becomes uniform & speedy. Computer software based on Database 3+ is developed and is described in the following paragraphs. Before doing that the salient features of IS 3786:1983 and of the Factories Act are described.

2. IS 3786:1983:

.1 General:

The Bureau of Indian Standards -earlier ISI - has Industrial Safety Advisory Committee to formulate standards as regards safety. The committee is chaired by the Director General of Central Labour Institute & Factory Advisory Service (Ministry of Labour). This standard has been evolved with the following main objectives.

- To help in evaluating the relative need for taking accident precaution measures in different departments of an establishment.
- To help in making an appraisal of the programme of an accident prevention campaign and making people safety conscious.

- To provide encouragement when methods used for the prevention of accidents are successful; &

- To enable comparisons to be made.

The standard takes into account the Workmen's Compensation Act, 1923. The standard prescribes basic methods for recording and classifying industrial accidents.In addition it gives details of work injury and the methods for computation of frequency, severity & incidence rate of work injuries in industrial premises.

.2 Glossary of Terms used:

- Accident: An unintended occurrence arising out of and in the course of employment of a person resulting in injury.

- Death: Fatality resulting from an accident. Fatality caused by the occupational disease is also included.

- Disabling injury (Lost Time Injury): An injury causing disablement extending beyond the day of shift on which the accident occurred.

  Really speaking all injuries/exposures to toxic chemicals etc., however slight, are required to be taken into account. In fact at times the consequences are delayed and as such every injury/exposure should be recorded to enable future developments if any.

- Nondisabling injury: An injury which requires medical treatment only without causing any disablement whether of temporary or permanent nature.

- Reportable Disabling Injury (Reportable lost time injury): An injury causing death or disablement to an extent as prescribed by the relevant statute. (Workmen's Compensation Act, 1923)

- Days of Disablement (Lost Time): These are of three catagories as follows:

  In the case of disablement of temporary nature, the number of days for which the injured person was partially disabled as given below under Partial Disablement is to be recorded as days lost.

  In the case of death or disablement of a permanent nature whether it is partial or total disablement of a permanent nature as defined below, percentage loss of earning capacity multiplied by 6000 divided by 100 gives man days lost due to such permanent disability or death as specified in Annexure A.

In all other cases all the calender days (including holidays) on which the injured person was absent excluding the day of injury and the day of joining are included in Lost Time. However, if the injured person is again disabled for any period out of the same injury, the period of such subsequent disablement is also to be included in the mandays lost.

* Partial Disablement: These are of two types as follows.

Disablement of a temporary nature which reduces the earning capacity of the injured person in any employment in which he was engaged at the time of the accident resulting in the disablement.

Disablement of a permanent nature, which reduces the earning capacity of the injured person in every employment which he was capable of undertaking at the time.

* Total Disablement: Disablement, whether of a temporary or permanent nature, which incapacitates a workman for all work which he was capable of performing at the time of the accident resulting in such disablement, provided that permanent total disablement shall be deemed to result from every type of injury specified under Code 1 of Annexure A or from any combination of injuries under Code 2 of Annexure A where the aggregate percentage of loss of earning capacity, as specified under Code 2 against those injuries, amounts to one hundred percent.

* Man hours worked: These are the total number of employee hours worked by all employees working in the industrial premises. It includes managerial, supervisory, professional, technical, clerical & other workers including contractors' labour.

* Scheduled Charge: These are the charges in days of earning capacity lost due to permanent disabilities as given in Annexure A. (computed from percentage loss of earning capacity)

.3 **Calculation of Man-Hours worked:**

The total number of mandays for a period is the sum of the number of men at work each day of the period. The man-hours worked shall be calculated from the pay roll or time clock record including overtime. However, wherever automated time systems are not available the mandays can be calculated by the sum of number of men working each day of the period under report & the Man-hours obtained by multiplying Man days by working hours a day plus overall overtime hours. In case if there is a difference in working hours for each department seperate estimates need be made.

.4 **Classification of Accidents:**

The principal factors related to Causation of accidents are given below with corresponding definitions.

- **Agency** – The object or substance which is most closely associated with the accident causing the injury & with respect to which adoption of safety measure could have prevented the accident.
- **Unsafe mechanical condition** – Unsafe mechanical or physical conditions related to the agency.
- **Unsafe Act** – Deviation from the accepted & laid down safe procedure.
- **Unsafe Personal factor** – Anatomical, physiological or the psychological characteristic which permitted or occassioned the selected unsafe act.
- **Type of Accident** – The manner in which the object or substance causing the injury comes into contact with the injured person or vice versa.
- **Nature of injury** – injury in terms of its principal physical characteristics.
- **Location of injury** – Part of the injured person's body affected directly by the injury.

The details regarding each of these age given in Annexures B1 to B7 along with a corresponding 3-4 digit code.

.5 **Assessment of work injury:**

.5.1 <u>Basis of Assessment:</u> It is essential to have thorough investigation of all factors relating to the occurrence of each reported injury so as to arrive at the decisions regarding work injury. Evidence need be collected regarding, but not necessarily limited to, the following.

- Facts resulting from investigation of the injured employee's work activities & work environment at the time of injury.
- Statements (written or oral) of the injured employee, fellow employees, witnesses & supervisors.
- Medical reports.

- Facts concerning the injured employee's work activity for other employers & other off-the-job activities, injuries & illnesses. The injured person need not necessarily be an employee. He can be a visitor.

.5.2 Assessment of Special Cases: Special cases of injury as given below shall be properly assessed so as to determine the genuineness of work injury before inclusion in the records.

- Inguinal Hernia
- Back Injury
- Aggravation of Pre-existing condition
- Aggravation of Minor Injury
- Cardiovascular Diseases
- Miscellaneous such as purposely inflicted injuries & skylarking.
- Other disabilities arising out of or in the course of employment due to Animal or insect bites, skin irritations & infections, muscular disability, injuries airising from exposure to extreme temperature (hot or cold); and loss of hearing, sight, taste, touch or sense of smell.

In order to have cause-consequence analysis as regards Accidents it is essential to have Standing Committee to enquire into all accidents/disease cases. This will help in correct data generation.

.6 Frequency, Severity & Incidence Rates & their Computation: One would like to have quantitative measures for Safety which are the antithesis of Accident. The whole effort is directed towards lowering the possibility of Accident and its possible consequences & lowering the risk to the employee. The measures for these are Frequency Rate, Severity Rate & Incidence Rate & the Computation of the same is described below.

.6.1 Frequency Rate: This is classified into two, namely Lost time injury (FA) & reportable lost time injury (FB)as follows:

$$FA = \frac{\text{Number of lost time injury} \times 1\,000\,000}{\text{Man Hours worked}}$$

$$FB = \frac{\text{Number of reportable lost time injury} \times 1\,000\,000}{\text{Man Hours worked}}$$

Normally FA should be used and FB shall be used only for official purposes. In case of FB the reportable lost time injury is absence from work of more than 48 hours.

.6.2 Severity Rate: Severity rate corresponding to FA & FB are defined below:

$$SA = \frac{\text{Mandays lost due to lost time injury} \times 1\,000\,000}{\text{Man Hours worked}}$$

$$SB = \frac{\text{Mandays lost due to reported lost time injury} \times 1\,000\,000}{\text{Man Hours worked}}$$

SA should be normally used & SB to be followed for official purposes as in the case of FB.

It may be noted here that normally a person works for 250 days in a year & assuming 8 hrs/day working he works for 2000 manhours/yr. The normalising factor of 1 000 000 assumes an industrial enterprise size of 500 employees altogether.

.6.3 Man days Lost-Calculation:

The calculation of Mandays lost shall be based on the following:

- Man-days lost due to temporary total disability;
- Man-days lost according to schedule of charges for death and permanent disabilities as given in Appendix A. In case of multiple injury, the sum of schedule charges shall not be taken to exceed 6000 man-days;
- Days lost due to injury in previous periods, that is, if any accident which occurred in previous period is still causing loss of time in the period under review, such loss of time is also to be included in the period under review against the same accident/disease
- In the case of intermittent loss of time, each period should be included in the severity rate for the period in which the time is lost; and
- If any injury is treated as a lost time injury in one statistical period and subsequently turns out to be a permanent disability, the man-days charged to the injury shall be subtracted from the schedule charge for the injury when permanent disability becomes known.

.6.4 Incidence Rates:

Incidence Rate is defined as the ratio of number of injuries to the number of persons working during the

period under review. It is expressed in terms of 1,000 persons employed.

The incidence rate (IR) is further classified as follows for the lost time (IRL) & reportable lost-time (IRR) injuries.

$$IRL = \frac{\text{Number of lost time injuries} \times 1{,}000}{\text{Average number of persons employed}}$$

$$IRR = \frac{\text{Number of reportable lost time injuries} \times 1{,}000}{\text{Average number of persons employed}}$$

Reportable lost time injury incidence rate should be used only for official purposes.

.7 Statistical Period:

Rates for any period i.e. month, quarter or year shall include injuries which occurred during the period and also the injuries which occurred in the previous 12 months & which have not already been included in earlier calculations.

.7.1 Any injury which occurred in earlier period but did not result in lost time injury at that time but resulted in lost time in the current period shall be included as a lost time injury in the current period.

.7.2 While calculating durations, the time lost for the period shall include time lost in the current period caused by injuries which occurred in previous period.

3. THE FACTORIES ACT, 1948:

The Factories Act, 1948 has been enacted to consolidate & amend the law regulating labour in Factories. The Act underwent major amendment in 1987 as an aftermath of Bhopal Tragedy. The Act as amended has provided for three schedules as follows

.1 The First Schedule gives List of Industries involving Hazardous Processes.

.2 The Second Schedule gives Permissible Levels of Certain chemical substances in work environment.

.3 The Third Schedule gives List of Notifiable Diseases. These schedules indicate that the Act is interested not only in limiting physical injury but also in limiting the diseases caused by exposure to toxic chemicals. The consequence of exposure can be only an absence of an employee or can, in addition, result in a disease which is Notifiable as per the Third Schedule. The Annexure C gives the Third Schedule alongwith the Code.

4. IMPLEMENTATION OF DATA BASE ON ACCIDENTS IN DAE:

The data collected as per IS 3786:1983 in respect of Accidents in Plants can be utilized to generate a Computerised Data structure to evaluate overall Frequency Rate, Severity Rate & Incidence Rate for each period and also to find the same in terms of Agency, unsafe material or physical condition, unsafe act, unsafe personal factor, type of accident, the nature of injury & location of injury for each plant & the organisation as a whole also. This helps in comparing the plants of similar type in respect of safety.

The Labour Bureau of the Ministry of Labour has classified various industries & given them the code. This is given in Annexure D along with the description. As far as DAE units are concerned codes adopted are given in Annexure E.

Three Files named PLANT 1 & 2 and ACCIDENT are created on the computer. The ACCIDENT file has all the records about the accident including the diseases. The PLANT 1 file has records about Plant Name & its Code, Category Code, Address including Phone No., Telex No., telegram, Fax No. & Head of Unit. The PLANT 2 file has Plant Name & Code and, in addition, has periodic data on number of employees, man-hours worked and the period covered.

Blank Input Data forms for PLANT1, PLANT2 & ACCIDENT/DISEASE files are given before the Annexures. Also are given typical filled forms as an example. The '0' indicated in file PLANT2 are because of absence of data. The Name, Type & Width for fields of each file are also given.

.1 PLANT 1 File:

The record on plants in this file has five fields namely Plant, Plant Code, Plant Category, Address & Head. Each of this is described below.

.1.1 Plant:

Plant here means a plant in operation or construction or a unit of DAE. All the plants and units have been allotted generic abbreviations & the same will be used here. e.g. Bhabha Atomic Research Centre will be indicated by BARC. Tarapur Atomic Power Station by TAPS.

.1.2 Plant Code:

Each plant or unit is assigned a code depending on the type of activity in which the plant or unit is engaged.

The main activities prevalent in DAE are Research & Development, Power Production, Chemical plants such as Heavy Water Plants, Metallurgical plants such as NFC, Electrical/Electronics manufacturing like ECIL, Mineral procesing as in IRE & Mining such as in UCIL & administration such as Secretariats & Headquarters of various corporate bodies. Bureau of the Ministry of Labour has assigned two digit codes to various Industries and the same are given in the Annexure D. As far as DAE is concerned the Plant name & Plant codes are given in Annexure E. Each of the unit & plant has subunits which have specific functions. Provision is made for this by having a four digit code.

Example 1. Research & Development: This has code 92. The BARC is an R&D Unit and is divided into various Groups numbering more than ten & certain plants such as CIRUS, APSARA, DHRUVA, PELLETRON, Plutonium Plant, Waste immobilization plant, Uranium Metal Plant, Atomic Fuels Plant,Central Workshops which need be assigned code.In view of this 9201 to 9230 are reserved for BARC.

The rest of the R&D units namely IGCAR, CAT, VEC, BRIT, AMD & aided institutions like TIFR, SINP, IPB have also been allocated codes.

Example 2. Power Generation: This has code 40.

All the power plants under operation & construction will have code length of four digits with 40 as the first two digits. All the power stations are coming under Nuclear Power Corporation. As such Codes 4001 to 4019 will be reserved for NPC & each plant or project will have seperate codes.

e.g. TAPS will have code 4021
RAPS will have code 4026
MAPS will have code 4030
NAPS will have code 4036

Similar code structure has been developed for all the units/plants & is given in the Annexure E.

.1.3 Plant Category:

Category here denotes the government unit, public sector, government factory, aided institutions. The codes are as follows:

Government	0
Government factory	2
Public Sector	4
Aided Institution	6

e.g. BARC, CAT, IGC will have Cat. Code	0
BHEL, HWP Plants will have	2
' ' plants, ECIL, UCIL, IRE	4
FR, SINP,TMC	6

.1.4 Address:

The name of the plant & complete postal address including Telephone, Telex/Telegram, FAX, Electronic Mail No. etc. is required to be given.

.1.5 Head:

Under this head the designation of the Head is to be given e.g. Director, Chief Supdt., General Manager etc.

.2 PLANT 2 File:

The record on plant in this file has five fields namely Plant, Plant Code, Number of employees, Man hrs worked, period. Each of this is described below. This file is similar to the File 1. However, the File 1 is more or less static file whereas this file has periodic changing data.

.2.1 PLANT & PLANT CODE have the same meaning as in File 1. Both PLANT & PLANT CODE are included for cross checking purposes. Otherwise one is sufficient.

.2.2 Number of Employees:

The employees will be in three categories namely regular, casual & contractors & will be given under each head seperately. The period envisaged for reporting this data is quarterly. As such average number of employees in each category during this period will be given.

.2.3 Manhours worked:

This will give total number of man hours worked by all employees inclusive of managerial, supervisory, professional, technical, clerical & other workers including contractors' workers working in the unit/plant during the period under report.The man hours will include the overtime hours also. The accuracy of this can be $\pm$10 hours.

It is advisable to have automated computer based Time Keeper System in each of the plants. This gives complete information as regards workers present, hours worked, overtime hours etc. The output of this can be fed to the PC of the safety officer. However, till such time as these systems are installed manhours can be

computed by multiplying mandays by working hours a day plus overall overtime hours.

.2.4 Period:

It has been decided to have quarterly statement on data of file PLANT 2 for the time being. In case it is decided to have monthly input a code of 4 digit is provided for. The first two digits will give year, the third digit will give quarter & the fourth will give month in the quarter.

e.g. January of 1991 will have code 9111
May of 1991 will have code 9122
December of 1991 will have code 9143

.3 Accident/Disease FILE:

This is the most important file and has 21 parameters each having variable field depending on the code of the parameter. Each one of the parameter & its code is described below & with a typical example.

.3.1 Plant Code : This is the same as in File PLANT 1.

.3.2 Plant Status:

It has been decided to seperate the construction & operating phases of the plant in view of the more accidents happening during construction. This status is coded by a single digit field. Operation will be indicated by 0 or no entry & construction will be by 1.

.3.3 Serial Number:

All accidents irrespective of their severity will be recorded and given running serial number. Each plant will have its own running serial number starting from 1st Jan. 1991. It will be better if the previous accidents are also put on the record. The number in this will have negative sign i.e. the last accident record of 1990 will have number -1 & then algebraically decreasing for earlier accidents.

The accident is defined in IS 3786-1983 "an unintended occurrence arising out of and in the course of employment of a person resulting in injury". Injury, however, is not defined. The dictionary (Chambers) meaning of injury is wrong; damage; hurt; impairment; annoyance; insult; offence. In case a single accident leads to multiple fatalities or multiple injuries in case of the same accident the serial number will remain the same for each record.

.3.4 Unique Code of Person:

It has been agreed to give unique code for every employee who has worked for DAE. It will be a running number starting from Dr. H.J. Bhabha as 1. This number will be a cardinal number for an employee and all data as regards his personal & family details, service, residence, medical file etc will be referenced to that. The attempt should be to put all data on employee on the computer so that access is easy & available to only authorised persons.

However, as this will take time this field will be kept blank for the time being.

.3.5 Existing Computer Code of Person:

In the absence of Unique code, existing code assigned by the unit will be used over here. Sufficient field width of 12 is left to this e.g. BARC has Comp. Code e.g. G/302/0001 or NG/302/0025 which can be accommocated in the field.

.3.6 Category of Person:

The person who has been affected by the accident can be either regular employee, casual employee, contractor's employee or a visitor.

The category codes are as follows:

Regular	0
Casual	2
Contract	4
Visitor	6

Now the codification under .3.5 has to be done for each category of person, codes for casual, contract employees who are paid must be existing & the same can be used. The code for visitor will be assigned by security. Visitors such as trainees, visiting scientists & other persons who are issued temporary ID cards will be covered under the same ID number.

.3.7 Accident Date:

The date of accidents will be indicated as follows.

DD/MM/YY i.e. 01/01/91 for 1st Jan. 1991

.3.8 Accident Site:

The units should evolve a grid system to cover the site under their control. The entire map can be put in the computer memory with grid locations.

This is futuristic. However,abbreviated standardised site location will be given by each unit to start with.

.3.9 Machine Days Lost:

The accident resulting from impairment of the machine or resulting in the impairment of the machine ends up in the machine remaining down (not because of operator not available due to accident). The lost days data, if available, can be recorded here upto 9999 days.

.3.10 Mandays Lost:

The accident resulting in the absence of the person in number of days will be given here. The maximum for this is 6000 days per person & minimum is 0 in case no person is involved and less than a day is involved. For reportable accident absence of 2 days is required. The period of absence attributable to the same accident can be at different times & should be recorded in the period when absence has occurred but against the same serial no. of the accident.

.3.11 Property Loss:

This is to be given in Rupees in lakhs. Less than a lakh will be given as decimal fraction upto Rs.10,000 i.e. 0.1 lakh. The figure will be entered after the due enquiry.

.3.12 Disablement Code:

The disablement of a person due to accident is codified in a four digit code against which a compensation is paid as per the Compensation Act, 1923. Tha mandays lost in the case of death or disablement of a permanent nature the mandays lost is given by 6000 x Percentage loss of earning capacity/100. & this figure should be entered into mandays lost. In case of multiple injuries the percentage loss of earning capacity will be summed up. However it will not exceed 100. That is in any case mandays lost per person will not be more than 6000 days.

The Annexure A gives the code, the description of the injury & the percentage loss of earning capacity for various cases of disablement.

Codes for typical injuries in an accident are given below:

	Injury	Code	% Loss of earning capacity
1)	Loss of life	11	100
2)	Absolute deafness	17	100
3)	Amputation through shoulder joint	2110	90
4)	Loss of whole index finger	2411	14

If there is a case of multiple injury involving one eye, one index finger, these will be entered seperately under the next records without change in the other fields i.e. the record will be repeated except disablement code. The total earning capacity loss will be calculated by summing up & limiting to 100%.

.3.13 Agency Code:

Some agency is normally there for any accident. It is possible that exact agency will not be known at the time of accident & one may assign apparent agency. However, after sometime & after thorough investigation one may be able to arrive at the real agency with some degree of confidence & the same should be assigned for permanent record.

The Agencies & corresponding Codes are given in Apprndix B1. Below are given some typical agencies causing the accident and the corresponding codes.

Agency	Code
Transmission shafts	2021
Lathes	2032
Drilling & boring machines including augurs in mining	2061
Cranes	2111
Pressurised piping	2213
Dusts	2321
Ionising radiations	2341
Weather	2411

If one finds that more than one agency is involved in the accident e.g. work environment as well as machines were agencies. The direct agency involved i.e. machine will be given & the accident description will give the details & sequence of events.

.3.14 Disease Code:

A person remains absent because of disease which is notifiable as per the third schedule of the Factories Act, 1948. In this case the corresponding code will be given as per Annexure C.

Example- If the disease is patholigical manifestations due to radium or radioactive substances or X-rays code will be 14. Presently only Codes for 29 diseases are given. However, the medical officer may add the disease after obtaining suitable code for the same.

.3.15 Unsafe material or Physical conditions:

The conditions & corresponding codes are given in Annexure B2. This is a two digit code & presently only 7 conditions are listed. This can be augmented depending on the experience.

If the accident has happened due to machine agency which was not properly guarded, then the Code is 10. If the machine itseld was defective the code will be 20. If the machine was alright but there was unsafe dress or apparel then the code is 50.

.3.16 Unsafe Act:

The Acts & the corresponding codes are given in Annexure B3. This is a two digit code & presently only 7 acts are listed. This can be augmented depending on the experience.

If the accident agency is boiler and the accident resulted by act of making safety devices inoperative the code will be 30 under the unsafe act.

.3.17 Unsafe Personal Factor:

The accident can be caused by the condition or nontraining of the person. Only three factors are assigned presently. The factors and corresponding codes are given in Annexure B4.

If the person employed was unskilled or not trained the code will be 20.

.3.18 Type of Accident:

Type of accident are codified in Annexure B5. The types are fall of persons, fall of objects, stepping or striking against etc. Four digit code is assigned.

In case the accident has happened due to person stepping on objects the code is 121. If the accident

has happened due to overexertion in lifting objects the code is 141. If the accident is due to cave in or fall of roof the code is 1111.

.3.19 Nature of Injury:

A three digit code is assigned to it and is given in Annexure B6. If the injury has resulted in fractures the code is 310 & if it has resulted in Asphyxia the code is 381. In case the nature of injury is multiple the major one will be coded here & the rest described in the description.

.3.20 Location of Injury:

The injury affects some or all parts of body and in some cases general systems like nervous, circulatory etc. The three digit location code covers this & is given in Annexure B7.

If the cranium region (skull, hair, scalp) is affected the code is 411; if pelvis is affected the code is 434; if multiple parts of the body such as head & trunk, head & one or more limbs is affected the code is 461 and if nervous system in general is affected the code is 474.

.3.21 Description:

This is the last field & is memo field and it is expected that the accident is described here under the following heads in not more than 200 words.

1) General
2) Situation before the accident
3) Situation after the accident
4) Sequence of events from 2 to 3 above
5) The way accident was handled
6) Similarity with any previous accident
7) Lessons learnt

5. DATABASE MANAGEMENT:

The data structure described in the previous section and the use of dbase 3+ software allows one to study the correlation between the person, the accident, the events & the work environment. It is possible to evaluate the normal indices of plant safety namely Frequency Rate, Severity Rate & Incidence Rate for each period and also to find the same in terms of Agency, unsafe material or physical condition and other factors. It is also possible to sort out & grade the accidents on the basis of mandays lost, machine days lost & property loss to decide the severity of the accident. It is also possible to find out whether some

persons or some machines or some procedures are more prone to accident. This will help in correcting the situtation. Moreover the adoption of National Standard will help in comparing safety performance of DAE units with similar units in the country.

The entire utility of the Database depends on the reliability of the data as regards the content as well as the code. Whenever a person is involved in the accident as an injured person or when the personal factor or act looks to be the cause of the accident a medical officer comes into picture. Moreover a medical officer's critical view is required in special cases such as inguinal hernia, back injury, aggravation of pre-existing condition or minor injury, cardiovascular diseases, inflicted injuries, snake or animal bites to assess the genuineness of work injury. In view of the engineering, medical & safety aspects of the accident the Plant Safety Committee with co-option of the medical officer should ensure the reliability of the data.

The Database management requires a computer in each plant. The computer can be a PC-XT at the minimum with additional hardware facilities like printer, plotter, scanner & suitable software depending on the other works. Most of our plants are big and it will be advisable to have a centralised computer with Local Area Network system with PC as a terminal. This will help in all management functions and will also go a long way towards development of paperless office.

6. CONCLUSIONS:

Each plant will have its database i.e. the DAE database will be a distirbuted structure with a selective access provided to Head Quarters, AERB, IS(FA) depending on the requirements. In fact it will be advisable to connect all the plants & units by a Data Network for easy access to information. However this is possible only when the standardized formats are used by all units. As far as Accident Data Base is concerned the standardized procedure given in this document will be useful. Till such time as network is not existing the data exchange can take place with exchange of floppies.

The Database structure & computer-based management will go a long way in establishing cause-consequence relationship in Accidents. It is expected that every unit, industrial or otherwise, will follow this program and develop Database culture.

REFERENCES:

1. Indian Standard IS-3786-1983, Bureau of Indian Standards, New Delhi.

2. Factories Act, 1948
(as amended by Act No. 20 of 1987) Government of India.

3. Indian Labour Year Book, 1987, Labour Bureau, Ministry of Labour, Government of India.

DVP/mrp
2411991

Input Data Forms
&
Typical Filled Forms

PLANT 1

S.No.	Plant	Plant Code	Plant Category	Address	Telephone	Telex/Telegram	Fax.	E.Mail	Head

PLANT 2

PLANT	PLANT CODE	NO. OF REGULAR EMPLOYEES	NO.OF CASUAL EMPLOYEES	NO.OF CONTRA-CTORS EMPLOYEES	TOTAL NO. OF EMPLOYEES	MAN-HRS. WORKED	PERIOD

ACCIDENT/DISEASE

Plant Code	Plant Status	Serial No.	Unique Code of person	Existing Comp.Code of person	Category	Accident Date	Accident Site	Machine days lost	Mandays lost	Property loss Rs. (in lacs)	Disablement Code	Agency Code	Disease Code	Unsafe Material or Physical Condition	Unsafe Act	Unsafe Personal Factor	Type of Accident	Nature of Injury	Location of injury	Description of event

PLANT 1

S.No.	Plant	Plant Code	Plant Category	Address	Telephone	Telex/Telegram	Fax.	E.Mail	Head
1.	NAPP	4036	4	Narora Atomic Power Station, P.O. Narora, Dist-Bulandshaher, U.P. 202397	24660	031-3435			Chief Superintendent
2.	RAPS	4026	4	Rajasthan Atomic Power Staion, P.O. Anushakti, via Kota, Rajasthan 323303	24412	0305-240 RAPP IN			Chief Superintendent
3.	TAPS	4021	4	Tarapur Atomic Power Station, P.O.TAPP, Dist-Thane, Maharashtra 402504	237	0132-209 TAPP IN			Chief Superintendent
4.	MAPS	4030	4	Madras Atomic Power Station, P.O. Kalpakkam, Dist-Chinglepet, Tamil Nadu 603102	331	041-6724 MAPP IN			Chief Superintendent
5.	KAPP	4051	4	Kakrapar Atomic Power Project, P.O. Anumala Vyara, Dist-Surat, Gujarat 394651	345642	0188-396 KAPP IN			Chief Project Engineer
6.	Kaiga APP	4056	4	Kaiga Atomic Power Project, 977, Ramakrupa Ashram Road,Karwar, Karnataka 581306	6936	0860-2201 KAIGA IN			Chief Project Engineer

PLANT 2

PLANT	PLANT CODE	NO. OF REGULAR EMPLOYEES	NO.OF CASUAL EMPLOYEES	NO.OF CONTRA-CTORS EMPLOYEES	TOTAL NO. OF EMPLOYEES	MAN-HRS. WORKED	PERIOD
NAPP	4036	0	0	0	0	0	9001
RAPS	4026	0	0	0	0	3156736	9001
TAPS	4021	0	0	0	0	675792	9001
MAPS	4031	0	0	0	0	636672	9001
KAPP	4051	0	0	0	0	0	9001
Kaiga APP	4056	0	0	0	0	294184	9001

ACCIDENT/DISEASE

Plant Code	Plant Status	Serial No.	Unique Code of person	Existing Comp.Code of person	Category	Accident Date	Accident Site	Machine days lost	Mandays lost	Property loss Rs. (in lacs)	Disablement Code	Agency Code	Disease Code	Unsafe Material or Physical Condition	Unsafe Act	Unsafe Personal Factor	Type of Accident	Nature of Injury	Location of injury	Description of event
4036	1	1	300			05/02/90		0	6000	0	11	224		70	70	20	101	382	45	
4026		1	720			03/01/90		0	3	0		211		70	40	20	132	350	447	
4026		2	720			12/02/90		0	7	0				70	60	20	101	350	445	
4021		1	1039			09/01/90		0	3	0		233		30	50	20	116	350	439	
4031		1	3250			03/01/90		0	20	0		2262		70	50	20	116	310	457	
4031		2	3371			03/01/90		0	1	0		2215		20	70	20	124	350	455	
4031		3	4155			02/03/90		0	7	0		2034		30	70	20	123	341	447	
4051	1	1	100		4	19/01/90		0	4	0		2119		30	50	20	132	341	447	
4051		2	200		4	22/01/90		0	7	0		242		30	70	20	122	341	416	
4051		3	300		4	24/01/90		0	7	0		2131		70	40	20	131	341	447	
4051		4	400		4	31/01/90		0	7	0		239		30	50	20	112	341	456	
4051		5	6340			04/02/90		0	6000	0	11	2425		10	70	10	101	310	411	
4051	1	6	620		4	07/02/90		0	10	0		2022		30	50	20	132	355	446	
3841		1	99			18/06/89		0	6000	0	11	2419		30	60		101	341	41	
3821		1	200			08/05/89		0	80	0		2119		30	60		116	310	454	
3116		1	345			05/06/84		0	91	0		2213		30	60		171	350	412	
3116		2	420			11/04/89		0	0	0		2428		30	70					
3111		1	10350			07/07/89		0	84	0	2220	2022		30	20		133	341	49	
3111		2	10470			22/07/83		0	90	0		2323		30	20		171	350	412	
3111		3	10520			10/06/89		0	90	0		2243		30	40		16	360	444	
3111		4	10615			08/03/88		0	0	0		2428		20	20		153	360	461	
9201		1	910			01/04/89		0	120	0		2214		30	40	20	122	325	445	
9201		2	930			05/07/89		0	6000	0	11	425		30	60		101	355	41	
9201		3	940		6	22/12/89		0	0	0		2324		30	50	20	153			
9201		4	950			03/03/89		0	0	0		2223		30	50		171	381	472	
9201		5	970			15/06/89		0	6	0		2223		30	20		101	325	454	
3400		1	11340			19/09/89		0	60	0	232	2037		20	40	20	133	340	447	
3400		2	11495			21/12/89		0	60	0	2411	2031		70	40	20	132	355	446	
9251		1	840		2	02/09/89		0	0	0		2428		30	40	20				
9251		2	930			31/12/89		0	58	0		229		20	50	30	116	310	454	
9201		6	1250	6/302/09		17/07/90	S-64	0	60	0			14							
*** Total ***								0	24895	0										

Structure for database: C:plant1.dbf
Number of data records: 6
Date of last update : 01/31/91

Field	Field Name	Type	Width	Dec
1	S_NO	Character	3	
2	PLANT	Character	10	
3	PLANT_CODE	Character	4	
4	PLANT_CAT	Character	1	
5	ADDRESS	Character	100	
6	TELEPHONE	Character	10	
7	TELEX_GRAM	Character	40	
8	FAX	Character	20	
9	E_MAIL	Character	20	
10	HEAD	Character	30	
** Total **			239	

Structure for database: C:plant2.dbf
Number of data records: 6
Date of last update : 01/31/91

Field	Field Name	Type	Width	Dec
1	S_NO	Character	2	
2	PLANT	Character	10	
3	PLANT_CODE	Character	4	
4	EMPLOYEE_R	Numeric	6	
5	EMPLY_ECL	Numeric	6	
6	EMPLY_ECN	Numeric	6	
7	MANHRSWRKD	Character	10	
8	PERIOD	Character	10	
** Total **			55	

Structure for database: C:accident.dbf
Number of data records: 31
Date of last update : 01/31/91

Field	Field Name	Type	Width	Dec
1	PLANT_CODE	Character	4	
2	STATUS_PLT	Character	1	
3	SERIAL_NO	Character	4	
4	COMP_CODE1	Character	10	
5	COMP_CODE2	Character	12	
6	CATEGORY	Character	1	
7	ACC_DATE	Date	8	
8	ACC_SITE	Character	12	
9	LOSS_MACH	Numeric	3	
10	LOSS_MANDA	Numeric	4	
11	LOSS_PROPT	Numeric	5	
12	DISABL_COD	Character	4	
13	AGENCY_COD	Character	4	
14	DISESE_COD	Character	2	
15	UNSAF_MAT	Character	2	
16	UNSAF_ACT	Character	2	

Press any key to continue...

17	UNSAF_PERF	Character	2	
18	TYP_ACDENT	Character	4	
19	NATRE_INJU	Character	3	
20	LOCAT_INJU	Character	3	
21	DESCRPTION	Memo	10	
** Total **			101	

Annexures

ANNEXURE A

SCHEDULED CHARGES FOR DISABILITIES

CODE	DESCRIPTION OF INJURY	PERCENTAGE LOSS OF EARNING CAPACITY
1	Total Disablement	
11	Death	100
12	Loss of both hands or amputation at higher sites	100
13	Loss of a hand and a foot	100
14	Double amputation through leg or thigh, or amputation through leg or thigh on one side and loss of other foot	100
15	Loss of sight to such an extent as to render the claimant unable to perform any work for which eyesight is essential	100
16	Very severe facial disfigurement	100
17	Absolute deafness	100
2	Partial Disablement	
21	Amputation Cases-Upper Limbs (Either Arm)	
2110	Amputation through shoulder joint	90
2111	Amputation below shoulder with stump less than 205 mm from tip acromion	80
2112	Amputation from 205 mm from tip of acromion to less than 115 mm below tip of olecranon	70

CODE	DESCRIPTION OF INJURY	PERCENTAGE LOSS OF EARNING CAPACITY
2113	Loss of a hand or thumb and four fingers of one hand or amputation from 115 mm below tip of olecranon	60
2114	Loss of thumb	30
2115	Loss of thumb and its metacarpal bone	40
2116	Loss of four fingers of one hand	50
2117	Loss of three fingers of one hand	30
2118	Loss of two fingers of one hand	20
2119	Loss of terminal phalanx of thumb	20
22	Amputation Cases-Lower Limbs	
2210	Amputation of both feet resulting in end-bearing stumps	90
2211	Amputation through both feet proximal to the metatarsophalangeal joint	80
2212	Loss of all toes of both feet through the metatarsophalangeal joint	40
2213	Loss of all toes of both feet proximal inter-phalangeal joint	30
2214	Loss of all toes of both feet distal to the proximal inter-phalangeal joint	20
2215	Amputation at hip	90
2216	Amputation below hip with stump not exceeding 125 mm in length measured from tip of great trochanter	80

CODE	DESCRIPTION OF INJURY	PERCENTAGE LOSS OF EARNING CAPACITY
2217	Amputation below hip with stump exceeding 125 mm in length measured from tip of great trochanter but not beyond middle thigh	70
2218	Amputation below middle thigh to 90 mm below knee	60
2219	Amputation below knee with stump exceeding 90 mm but not exceeding 125 mm	50
2220	Amputation below knee with stump exceeding 125 mm	40
2221	Amputation of one foot resulting in end-bearing stumps	30
2222	Amputation through one foot proximal to the metatarsophalangeal joint	30
2223	Loss of all toes of one foot through the metatarsophalangeal joint	20
23	Other injuries	
231	Loss of one eye, without complications the other being normal	40
232	Loss of vision of one eye, without complications or disfigurement of eye-ball, the other being normal	30
24	Loss of Fingers of Right or Left Hand	
241	Index fingers	
2411	whole	14
2412	Two phalanges	11
2413	One phalanx	9

CODE	DESCRIPTION OF INJURY	PERCENTAGE LOSS OF EARNING CAPACITY
2414	Guillotine amputation of tip without loss of bone	5
242	Middle finger	
2421	Whole	12
2422	Two phalanges	9
2423	One phalanx	7
2424	Guillotine amputation of tip without loss of bone	4
243	Ring or little finger	
2431	Whole	7
2432	Two phalanges	6
2433	One phalanx	5
2434	Guillotine amputation of tip without loss of bone	2
25	Loss of Toes of Right or Left Foot	
251	Great toe	
2511	Through metatarsophalangeal joint	14
2512	Part, with some loss of bone	3
252	Any other toe	
2521	Through metatarsophalangeal joint	3
2522	Part, with some loss of bone	1
253	Two toes of one foot excluding great toe	
2531	Through metatarsophalangeal joint	5
2532	Part, with some loss of bone	2

CODE	DESCRIPTION OF INJURY	PERCENTAGE LOSS OF EARNING CAPACITY
254	Three toes of one foot, excluding great toe	
2541	Through metatarsophalangeal joint	6
2542	Part, with some loss of bone	3
255	Four toes of one foot, excluding great toe	
2551	Through metatarsophalangeal joint	9
2552	Part, with some loss of bone	3

ANNEXURE B1

CLASSIFICATION OF INDUSTRIAL ACCIDENTS ACCORDING TO AGENCY

CODE	AGENCY
20	**Machines**
201	Prime-movers, except electrical motors
2011	Steam engines
2012	Internal combustion engines
2012	Others
202	Transmission Machinery
2021	Transmission shafts
2022	Transmission belts, cable pulleys, pinions, chains, gears
2029	Others
203	Metal Working Machines
2031	Power presses
2032	Lathes
2033	Milling machines
2034	Abrasive wheels
2035	Mecahnical shears
2036	Forging machines
2037	Rolling mills
2039	Others
204	Wood and Associated Machines
2041	Circular saws
2042	Other saws
2043	Moulding machines
2044	Overhand planes

CODE	AGENCY
2049	Others
205	Agricultural Machines
2051	Reapers (including combined reapers)
2052	Threshers
2059	Others
206	Mining Machinery
2061	Drilling and boring machine including augurs
2062	Cutting machine
2063	Loading machine including scrapers
2064	Cutter-loaders including other continuous miners
2069	Others
209	Other Machines Not Elsewhere Classified
2091	Earth-moving machines
2092	Spinning, weaving and other textile machines
2093	Machines for the manufacture of foodstuffs and beverages
2094	Machines for the manufacture of paper and leather
2095	Printing machines
2099	Others
21	Means of Transportation and Moving Equipment
211	Lifting Machines and Appliances
2111	Cranes
2112	Lifts and elevators

CODE	AGENCY
2113	Winches
2114	Pulley blocks
2119	Others
212	Means of Rail Transportation
2121	Inter-urban railways
2122	Rail transportation in mines, tunnels, quarries, industrial establishments, docks, etc.
2129	Others
213	Other Wheeled Means of Transportation, Excluding Rail Transportation
2131	Tractors
2132	Lorries
2133	Trucks
2134	Motor vehicles, not elsewhere classified
2135	Animal-drawn vehicles
2139	Others
214	Means of Air Transportation
215	Means of Water Transportation
2151	Motorised means of water transportation
2152	Non-motorised means of water transportation
219	Other Means of Transport
2191	Cable cars
2192	Mechanical conveyors, except cable-cars
2199	Others

CODE	AGENCY
22	Other Equipment
221	Pressure Vessels
2211	Boilers
2212	Pressurised containers
2213	Pressurised piping and accessories
2214	Gas cylinders
2215	Vacuum vessels
2219	Others
222	Furnaces, Ovens, Kilns
2221	Blast furnaces
2222	Refining furnaces
2223	Other furnaces
2224	Kilns
2225	Ovens
223	Refrigerating Plants
224	Electrical Installations, Including Electric Motors but excluding Electric Hand Tools
2241	Rotating machines
2242	Conductors
2243	Control apparatus
2249	Others
225	Electric Hand Tools
226	Tools, Implements and Appliances Except Electric Hand Tools
2261	Power-driven hand tools, except electric hand tools
2262	Hand tools,not power-driven

CODE	AGENCY
2289	Others
227	Ladders, Mobile Ramps
228	Scaffolding
229	Other Equipment not Elsewhere Classified
23	Materials, Substances and Radiations
231	Explosives
232	Dusts, Gases, Liquids and Chemicals, Excluding Explosives
2321	Dusts
2322	Gases, vapours, fumes
2323	Liquids
2324	Chemicals not elsewhere classified
2329	Others
233	Flying Objects Other than Due to Explosion
234	Radiations
2341	Ionising radiations
2349	Others
239	Other Materials and Substances not Elsewhere Classified
24	Working Environment
241	Outdoor
2411	Weather
2412	Traffic and working surfaces
2413	Water
2414	Fire

CODE	AGENCY
2419	Others
242	Indoor
2421	Floors
2422	Confined quarters
2423	Stairs
2424	Other traffic and working surfaces
2425	Floor openings and wall openings
2426	Environmental factors (Lighting, ventilation, temperature, noise, etc)
2427	Water
2428	Fire
2429	Others
25	Other Agencies - Mining and Tunneling
251	Underground Mining and Tunneling
2511	Roof
2512	Side and face
2513	Floor
2514	Mine shaft
2515	Water
2516	Fire
2517	Others
252	Opencast Mining (including Quarrying)
2521	Overhand
2522	Side face

CODE	AGENCY
2523	Ground
2524	Water
2525	Fire
2529	Others
26	Other Agencies, not Elsewhere Classified
261	Animals
2611	Live Animals
2612	Animal products
262	Other Agencies Not Elsewhere Classified
27	Natural Events
271	Earth quakes
272	Floods
273	Cyclones
274	Tides
28	Other Agencies

ANNEXURE B2

CLASSIFICATION OF ACCIDENTS ACCORDING TO UNSAFE MATERIAL OR PHYSICAL CONDITIONS

CODE	MATERIAL OR PHYSICAL CONDITIONS
10	Improperly guarded agency
20	Defects in agency
30	Hazardous arrangement, procedure, etc in, on, or apparel
40	Improper illumination
50	Unsafe dress or apparel
60	Improper ventilation
70	Others

ANNEXURE B3

CLASSICIATION OF ACCIDENTS ACCORDING TO THE UNSAFE ACT

CODE	ACT
10	Operating without authority, failure to secure or warn
20	Operating at unsafe speed
30	Making safety devices inoperative
40	Using unsafe equipment, hand instead of equipment, or equipment unsafely
50	Unsafe loading, placing, mixing, combining, etc.
60	Taking unsafe position or posture
70	Others

ANNEXURE B4

CLASSIFICATION OF ACCIDENTS ACCORDING TO UNSAFE PERSONAL FACTOR

CODE	PERSONAL FACTOR
10	Unsuitable anatomical, physiological, or psychological characteristics
20	Lack of knowledge or skill
30	Unsuitable mechanical or physical conditions, social environment, etc.

ANNEXURE B5

CLASSIFICATION OF ACCIDENTS ACCORDING TO TYPE OF ACCIDENTS

CODE	TYPE
10	**Falls of Persons**
101	Falls of Persons from heights (trees, buildings, mine trenches, scaffolds, ladders, machines, vehicles) and into depths (wells, ditches, excavations, shafts, holes in the ground)
102	Falls of persons on the same level
11	**Fall of Objects**
111	Cave-ins (earth, rocks, stone)
1111	Cave-in or fall of roof
1112	Cave-in or fall of side and face
1113	Cave-in or collapse of shaft
1114	Premature collapse of ground
1115	Bumps and rock-bursts
112	Slides (earth, rock, stone, snow)
113	Subsidence of ground
114	Collapse of buildings, walls, scaffolds, ladders, piles of goods, etc.
115	Fall of objects during handling
12	Stepping on, Striking Against or Struck by Object Excluding Falling Objects
121	Stepping on objects

CODE	TYPE
122	Striking against stationary objects (except impacts due to previous fall)
123	Striking against moving objects
124	Struck by moving objects (including flying fragments and particles) excluding falling objects
13	Caught In or Between Objects
131	Caught in an object
132	Caught between a stationary object andmoving object
133	Caught between moving objects (except flying or falling objects)
14	Over-exertion or Wrong Movement
141	Over-exertion in lifting object
142	Over-exertion in pushing or pulling objects
143	Over-exertion in handling or throwing objects
144	Wrong movements
15	Exposure to or Contact With Extreme Temperature
151	Exposure to or contact with heat (atmosphere or environment)
152	Exposure to or contact with cold (atmosphere or envrionment)
153	Contact with fire, hot substances or objects
154	Contact with very cold substances or objects

CODE	TYPE
16	Exposure to or Contact with Electric Current
17	Exposure to or Contact with Harmful Substances, including Radiations
171	Contact by inhalation, ingestion or absorption of harmful substances including gases
172	Exposure to ionising radiations
173	Exposure to radiations other than ionising radiations
18	Explosions
181	Explosion
182	Gas explosion
183	Dust explosion
184	Others
19	Others
191	Inundations and eruption
192	Exposure to high noise
193	Bursting and rupture of vessels

ANNEXURE B6

CLASSIFICATION OF ACCIDENTS ACCORDING TO NATURE OF THE INJURY

CODE	NATURE
310	Fractures
320	Dislocations
325	Sprains and Strains
330	Concussions and Other Internals Injuries
340	Amputations and Enucleations
341	Other Wounds
350	Superficial Injuries
355	Contusions and Crushings
360	Burns
370	Acute Poisonings
380	Effects of Weather, Exposure and Related Conditions
381	Asphyxia
382	Effects of Electric Currents
383	Effects of Radiations
390	Multiple Injuries of Different Nature
399	Others and Unspecified Injuries

ANNEXURE B7

CLASSIFICATION OF ACCIDENTS ACCORDING TO THE LOCATION OF THE INJURY

CODE	LOCATION
41	Head
411	Cranium region (skull brain, scalp)
412	Eye (including orbit and optic nerve)
413	Ear
414	Mouth (including lips, teeth and tongue)
415	Nose
416	Face, locations not classified elsewhere
417	Head, multiple locations
418	Head, unspecified location
42	Neck (including Throat and Cervical Vertebrae)
43	Trunk
431	Back (spinal column and adjoining muscles, spinal cord)
432	Chest (ribs, sternum, internal organs of the chest)
433	Abdomen (including internal organs)
434	Pelvis
438	Trunk, multiple locations
439	Trunk, unspecified location
44	Upper Limb
441	Shoulder (including clavicle and shoulder blade)

CODE	LOCATION
442	Upper limb
443	Elbow
444	Forearm
445	Wrist
446	Hand (except fingers alone)
447	Fingers
448	Upper limb,multiple locations
449	Upper limb, unspecified location
45	Lower Limb
451	Hip
452	Thigh (upper leg)
453	Knee
454	Leg (lower leg)
455	Ankle
456	Foot (except toes alone)
457	Toes
458	Lower Limb, multiple locations
459	Lower limb, unspecified location
46	Multiple Locations
461	Head and trunk, head and one or more limbs
462	Trunk and one or more limbs
463	One upper limb and one lower limb or more than two limbs
464	Other multiple locations
465	Multiple locations, unspecified

CODE	LOCATION
47	General injuries
471	Circulatory system in general
472	Respirato y system in general
473	Digestive system in general
474	Nervous system in general
475	Other general injuries
476	General injuries, unspecified
49	Unspecified Location of Injury

ANNEXURE C

LIST OF NOTIFIABLE DISEASES

CODE	DISEASE
1	Lead poisoning, including poisoning by any preparation or compound of lead or their sequelae.
2	Lead tetra-ethyl poisoning.
3	Phosphorous poisoning or its sequelae
4	Mercury poisoning or its sequelae
5	Manganese poisoning or its sequelae
6	Arsenic poisoning or its sequelae
7	Poisoning by nitrous fumes
8	Carbon bisulphide poisoning
9	Benzene poisoning, including poisoning by any of its homologues, their nitro or amido derivatives or its sequelae
10	Chrome ulceration or its sequelae
11	Anthrax
12	Silicosis
13	Poisoning by halogens or halogen derivatives of the hydrocarbons or the aliphatic series.
14	Pathological manifestations due to - (a) Radium or other radio-active substances (b) X-rays.
15	Primary epitheliomatous cancer of the skin.

CODE	DISEASE
16	Toxic anaemia
17	Toxic jaundice due to poisonous substances
18	Oil acne or dermatitis due to mineral oils and compounds containing mineral oil base
19	Byssionosis
20	Asbestosis
21	Occupational or contact dermatitis caused by direct contact with chemicals and paints. These are of two types, that is, primary irritants and allergic sensitizers.
22	Noise induced hearing loss (exposure to high noise levels)
23	Berryllium poisoning
24	Carbon monoxide
25	Coal miners' pnoumoconiosis
26	Phosgene poisoning
27	Occupational cancer
28	Isocyanates poisoning
29	Toxic nephritis

ANNEXURE D

CODES FOR INDUSTRIES
(Labour Bureau, Ministry of Labour, Govt. of India)

CODE	INDUSTRY AND ITS DESCRIPTION
00	Agricultural Production
20-21	Manufacture of Food
22	Manufacture of Beverages, Tobacco & Tobacco Products
23	Manufacture of Cotton Textiles
24	Manufacture of Wool, Silk & Synthetic Fibre Textiles
25	Manufacture of Jute, Hemp and Mesta Textiles
26	Manufacture of Textile Products (including Wearing Apparel other than Footwear)
27	Manufacture of Wood & Wood Products, Furniture and Fixtures
28	Manufacture of Paper and Paper Products & Printing, Publishing and allied industries
29	Manufacture of Leather and Leather and Fur Products (except repair)
30	Manufacture of Rubber, Plastic, Petroleum and Coal Products
31	Manufacture of Chemicals & Chemical Products (except Products of Petroleum and coal)
32	Manufacture of Non-Metallic Products
33	Basic Metal and Alloys Inustries

CODE	INDUSTRY AND ITS DESCRIPTION
34	Manufacture of Metal Products and Parts except Machinery and Transport Equipment
35	Manufacture of Machinery, Machine Tools and Parts except Electrical Machinery
36	Manufacture of Electrical Machinery Apparatus, Appliances and Supplies and Parts.
37	Manufacture of Transport Equipment and Parts
38	Other Manufacturing Industries
40	Electricity
41	Gas and Steam
42	Water Works and Supply
51	Activities Allied to construction
61	Wholesale Trade in Fuel, Light, Perfumery, Ceramics and Glass
62	Whole sale Trade in Wood, Paper, Other Fabrics, Hide and Skin and inedible Oils
68	Retail Trade in Others
70	Land Transport
71	Water Transport
72	Air Transport
73	Services Incidental to Transport
74	Storage and Warehousing
82	Real Estate and Business Services
91	Sanitary Services

CODE	INDUSTRY AND ITS DESCRIPTION
92	Education, Scientific and Research Services
93	Medical and Health Services
94	Community Services
95	Recreational & Cultural Services
96	Personal Services
97	Repair Services
98	International and Other Extra Territorial Bodies Services
99	Services not elsewhere classified

ANNEXURE E

CODES FOR DAE UNITS

Plant/Unit Name	Abbreviation Plant/Unit	Code
1. Research & Development		92
Bhabha Atomic Research Centre	BARC	9201 to 9230
Indira Gandhi Centre for Atomic Research	IGCAR	9231 to 9240
Centre for Advance Technology	CAT	9241 to 9250
Tata Institute of Fundamental Research	TIFR	9251 to 9260
Saha Institute of Nuclear Physics	SINP	9261 to 9265
Institute of Physics, Bhuvaneshwar	IPB	9266 to 9270
Board of Radio Isotope & Technology	BRIT	9271 to 9275
Atomic Minerals Division	AMD	9276 to 9285
2. Power Generation:		40
Nuclear Power Corporation	NPC	4001 to 4099
Nuclear Power Corporation	HQ	4001 to 4020
Tarapur Atomic Power Station	TAPS	4021 to 4025
Rajasthan Atomic Power Station	RAPS	4026 to 4030
Madras Atomic Power Station	MAPS	4031 to 4035
Narora Atomic Power Station	NAPS	4036 to 4040
Rajasthan Atomic Power Project	RAPP 3 & 4	4041 to 4045
Rajasthan Atomic Power Project	RAPP 5,6,7 & 8	4046 to 4050
Kakrapar Atomic Power Project	KAPP	4051 to 4055
Kaiga Atomic Power Project		4056 to 4060
Tarapur Atomic Power Project 3&4		4061 to 4065
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Sub : Clarification on Computation of Accident Statistics

This is with reference to Safety Manual No. AERB/SM/IS-1 of AERB on 'Manual on Data Base Management for Accidents/Diseases Happening due to Occupation and Implementation of the Same in the Department of Atomic Energy', issued in February 1991. While discussing the said manual with Heads of various Plants/Units of DAE, it was realized that the basic purpose of the Data Base Management of Accidents is towards accident prevention programme. In view of this objective, the accidents, which are beyond the control of Plant Management, should not be included for computation of accident statistics. The following additional guidelines should be followed besides those given in the Safety Manual AERB/SM/IS-1 for consideration of injuries for computation of accident statistics.

1. All injuries which occur inside the establishment premises should be taken into account.

2. These injuries which take place outside the establishment premises should not be taken into account when it is found that the establishment has no reasonable means for controlling such accidents. Three typical examples are given below :

   (a) An auto mechanic of a plant went to hand over departmental vehicle for servicing at a garage located outside the plant premises. He delivered the vehicle for servicing and was coming back to plant on foot. On the way, he was passing near the premises of a gas agency. Few oxygen gas cylinders were being unloaded at the premises of the gas agency. One of the valves of

gas cylinders gave way and compressed oxygen was released. The compressed gas blew away some grit etc. and the auto mechanic was hit on his leg. He was sent to hospital and was advised rest for four days. He joined his duty after getting fitness certificate from plant medical authority.

The accident has happened well outside the plant premises at a public place. The accident was caused solely due to the working of the personnel of private agency and the Plant Management did not have any control over their working and hence this accident is not to be considered for safety statistics.

(b) A departmental bus (even if it is on contract) is involved in an accident outside the establishment premises and has caused injuries to staff or to the members of public. This is not to be accounted in safety statistics, if it is found that the accident was due to neglect on part of someone else other than departmental bus driver or due to some other reason over which department has no control.

(c) The accident mentioned in (b) above irrespective of reason is to be accounted in safety statistics, if this takes place within establishment premises or even within department's residential colonies.

This issues with the approval of Chairman, AERB.

(M.S.R. Sarma)
Chairman
19.9.91

Distribution

To Officers who have been supplied with the copy of Report AERB/SM/ IS-1.