ISSN 1364-4106

Chemical Incident Report

Produced by the Chemical Incident Response Service of the Medical Toxicology Unit, Guy's and St Thomas' Hospital Trust

Number 19
January
2001

Editorial

Dr Virginia Murray, Director, Chemical Incident Response Service

The Chemical Incident Response Service (CIRS) targets the following for public health professionals and staff working in accident and emergency departments:

- The chemical incident surveillance data for 2000 by region. Within each Region data is provided by hospitals, regional public health enquiries and other professional enquiries. The total number of incidents reported to CIRS in 2000 was 913. Interestingly public health are notifying us of more incidents which suggests that they are in turn being informed earlier by local agencies.
- IPPC and other legislation will place considerable burdens upon Health Authorities. Pages 15 to 23 concentrate on these issues. In particular a training day on Friday 16 March 2001 will aim to provide an overview of the framework and procedures of Integrated Pollution and Prevention Control so that CsCDC and DsPH involved are aware of their statutory role. Please apply quickly as places are limited. CIRS is very grateful to Professor Rod Griffiths, Regional Director of NHSE West Midlands for his support in agreeing to chair the day.
- Information on CIRS **Training Days** for 2001 is provided along with a list of the other courses planned for 2001. A Training Flyer is also included for Health Authorities Please let us know if you would like more copies.

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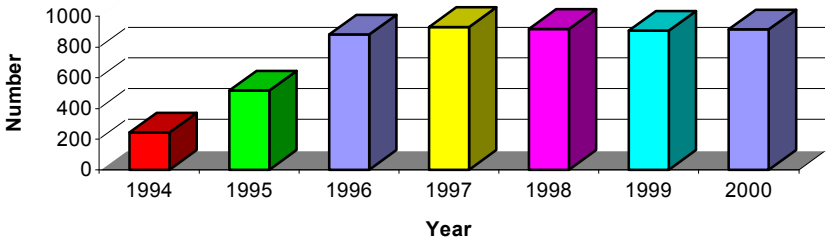
Summary statistics of chemical incidents reported to CIRS, 2000

Rico Euripidou, CIRS Environmental Epidemiologist

Figure 1a: Number of chemical incidents reported to CIRS 1994-2000



These brief summary statistics show that the number of incidents has remained steady at approximately 900 events for the last five years (figure 1a). Most encouragingly more incidents are now being reported to CIRS directly by public health rather than by hospitals or by others (figure 1b). This is particularly apparent in the information in figure 1c where South West and North West Regions informed CIRS before other agencies, facilitating the response.

Figure 1d shows chemical incidents by type. Air releases were reported as the most common cause of a chemical incident at 27% with the next most frequent being leaks 14% (figure 1d). Air releases have increased significantly since 1997 whilst leaks have decreased (figure 1e). Of continued significance is the reduction seen over the last three years of CS incidents.

Figure 1b: CIRS caller type by Region (%), 2000

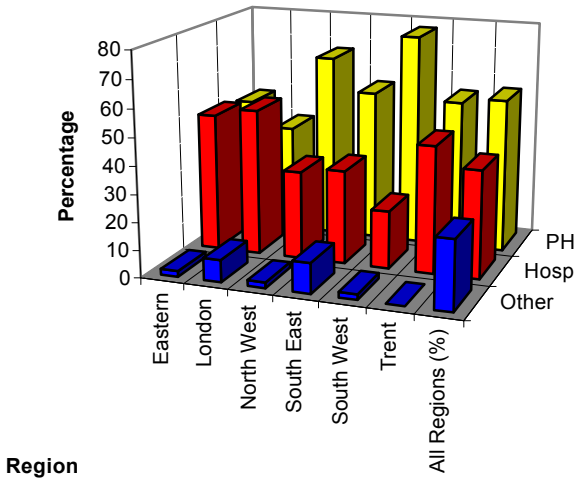


Figure 1c: % Public Health Calls to CIRS by Region 1999 - 2000

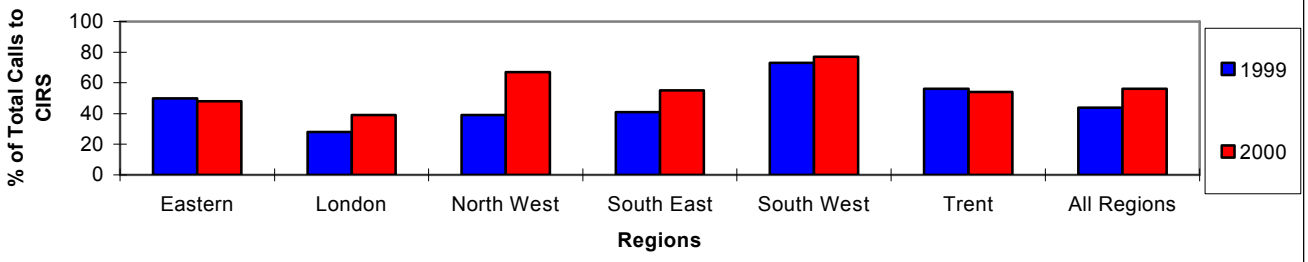
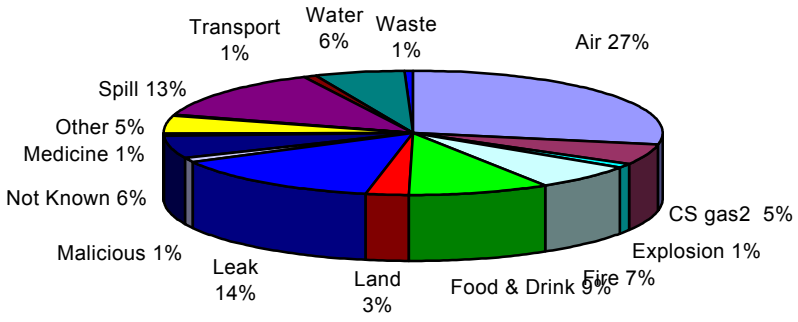


Figure 1d: Chemical Incidents by Type Reported to CIRS, 2000



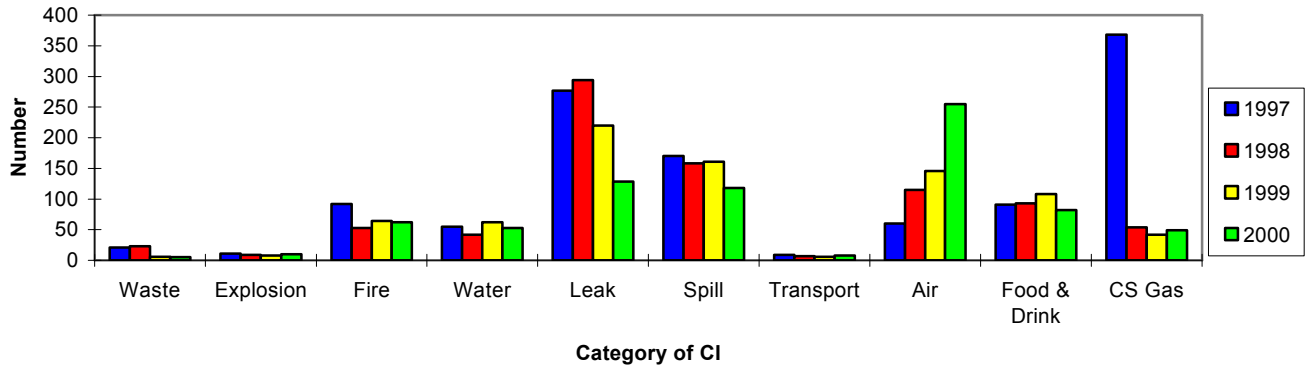
Key for tables 4-14 on following pages

NPIS(L) : National Poisons Information Service, London
NPIS (L) data covers the period January-20 December 1999

PH: Public Health
PAH: Polyaromatic hydorcarbon
Enq: Enquiry
CO: Carbon monoxide exposure
CI: Chemical Incident

[1]: First incident from region in month
[2]: Second incident from region in month etc.

Figure 1e: Comparison of selected categories of CIRS incidents Between 1997 & 2000



The top twelve chemical categories most frequently involved in incidents are listed . (1) unknown chemical incidents 77; (2) carbon monoxide 64; (3) CS 50; (4) smoke 38; (5) mercury 26; (6) ammonia 22; (7) chlorine & chlorine gas 18; (8) asbestos 16; (9) lead 15; (10) kettle descaler 13; (11) sulphuric acid 11; (12) detergents 10. It remains worrying that 77 incidents have no identified chemical. In total 281 chemicals or compounds were recorded in 913 incidents.

Figure 1f: Chemical incidents reported to CIRS by location 2000

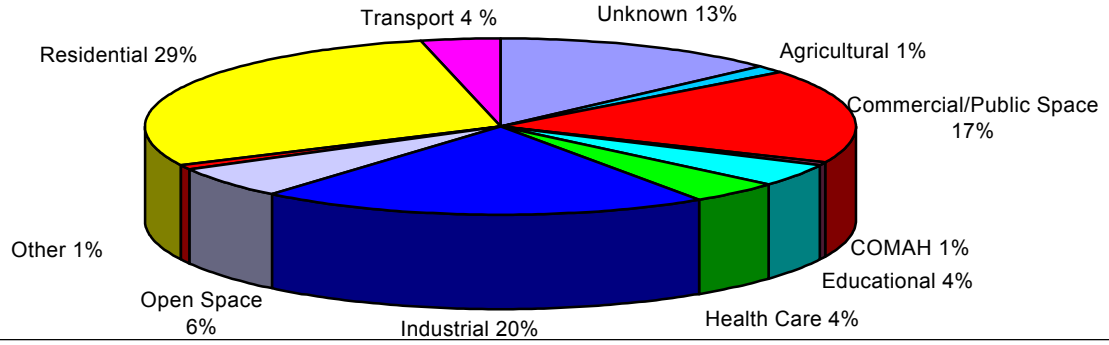
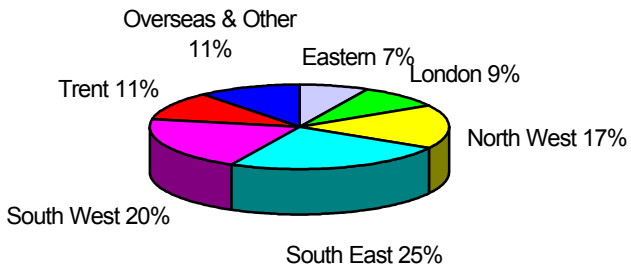


Figure 1f shows chemical incidents reported by location. Residential, industrial and commercial locations are most common locations for chemical incidents, however health care and educational locations account for 8% of the total. Incidents at COMAH sites involving Health Authorities remain negligible. Figure 1g shows that most requests for CIRS information come from the South East & the South West

Figure 1g: Requests for CIRS Information by Region 2000



The future of surveillance:

Chemical incident surveillance provides information to inform health authorities about the incidents occurring within their area. As with all surveillance this type of information can inform decision making to facilitate resource planning and improved response. Recently opinions suggest chemical incident surveillance requires collaboration to make the information more complete than just identifying incidents via public health and other health care professionals. A move towards more active participatory surveillance could be beneficial. Optimally this would include a collaboration between agencies including the Health Authority, Fire Brigade, Ambulance trust, Local Authorities and Environment Agency contributing data. Although not impossible, this undertaking would require all participating agencies to nominate a person dedicated to incident ascertainment and collation. This data could then channelled be up to CIRS for collation. It is however important to note that not all chemical incidents will have a public health impact! Should we be using valuable resources investigating those incidents that do not have a public health impact? Any comments please to rico.euripidou@gstt.sthames.nhs.uk

Table 2: Summary data on Chemical Incidents occurring in the Eastern Region, 2000

Table 2a Summary of specific CI in the Eastern Region

Hosp. Name	*Enq. to NPIS (L) (Jan-Sept)*	*CI Jan-Jun*	*CI summary*	*CI Jul-Dec*	*CI summary*
Addenbrookes	441	Apr	[1]CS	Sep	Phenol
		May	CO		
Basildon	1166	Jan	Unknown gas	Aug	CS
		Feb	[1]Plant food; [2]Hydrogen Sulphide	Oct	Bromine leak
		Mar	CO		
		Jun	[1]Hydraulic oil & Tributyl phosphate; [2]Freezer gas		
Bedford	929	Mar	CO	Oct	Pyrometallic fumes
		Apr	CO	Nov	Hydraulic fluid vapour
		Jun	Mercury spill		
Broomfield	861	Jan	[1]Perchloroethylene & Tetrachloroethylene; [2]Ammonia leak	Jul	[1]Arsenic & cyanide in soil; [2]Unknown chemical in air
				Aug	Sulphur dioxide leak
				Dec	CS
Colchester	863			Sep	Peroxide
				Dec	CO
Hemel Hempstead	808	Apr	Hydraulic fluid vapour		
		May	Fire extinguisher powder		
		Jun	Creosote		
Ipswich	453	Feb	Phosphine		
James Paget	687	Jan	CO	Oct	[1]Ammonia; [2]*Amanita Phalloides* fungi
Luton & Dunstable	1273	Mar	Hydraulic fluid vapour & phosphate		
		Apr	2-ethyl3-dimethylpyrazine		
N'folk & Norwich	667	Feb	Nail varnish remover	Jul	Ammonia spill
		Mar	Unknown fumes	Oct	Kerosene spill
		Apr	Glutaraldehyde		
Peterb'ough	630	Feb	Acetic acid inhalation		
		Apr	Mercury		
Princess Alexandra	692			Jul	Potassium permanganate spill
				Dec	Mercuric chloride spill
Queen El'beth	380	Mar	Unknown chemical	Aug	Chlorine, citric acid & sodium hypochlorite exposure
				Dec	Sulphuric acid
West Suffolk	544	Apr	Nitric acid	Oct	Detergents

12464 additional NPIS(L) enquiries were received from hospitals and others in the Region Jan-Sep 2000.

Table 2b Additional CI identified in the Eastern Region

Enquiry Type	*CI Jan-Jun*	*CI summary*	*CI Jun- Dec*	*CI summary*
PH related enquiries	Jan	[1]1,3 Dichloro 5,5 Dimethyl Hydantoin;	Jun	[1]Bromated in drinking water;
		[2]Smoke;		[2]Dioxins;
		[3]Perchloroethylene & tetrachloroethylene spill		[3]Polypropylene polymer
		[1]Petrol leak;	Jul	[1]Betonite;
	Feb	[2]Methyl methacrylate		[2]Chlorine fire;
	Mar	[1]Trace element contamination of food;		[3]Petrol leak;
		[2]Lorry fire-sulphur & magnesium;		[4]Smoke;
		[3]Bromine spill;		[5]Cationic flocculant spill;
		[4]Ammonia		[6]Benzene & toluene;
	Apr	[1]Unknown chemicals in a fire;		[7]Fire
		[2]Nitrogen dioxide;	Aug	[1]Acid spill;
		[3]Fire involving solvents & tyres;		[2]Asbestos;
		[4]Creosol & epichlor-hydrin loss at sea;		[3]Sulphur dioxide;
		[5]Iron & manganese in water		[4]Unknown chemicals;
				[5]Mercury spill
			Oct	[1]Kerosene spill;
				[2]Latex spill

Table 2b contin- Additional CI identified in the Eastern Region

Enquiry Type	*CI Jan-Jun*	*CI summary*	*CI Jun- Dec*	*CI summary*
PH related enquiries	May	[1]Quarry dust in Air; [2]Benzene & Xylene in domestic water following relining of tanks; [3]Pesticide in water; [4]Arsenic & cadmium; [5]Lead; [6]Formaldehyde; [7]Mercury; [8]Epoxy resin & Methyl methacrylate	Nov	[1]Refrigerant gases; [2]Suspected arsenic poisoning; [3]P-amino-azo-benzene sulphonic acid spill; [4]Iron in drinking water; [5]Gluteraldehyde; [6]Fridge gases
			Dec	[1]Petrochemical leak; [2]CO; [3]Unknown chemical in food; [4]Mercury

Table 2b cont Additional CI identified in the Eastern Region

Other professional enquiries (Fire Service, GP's, Dentists, NHS Direct etc.)	Jan	[1]Petrochemical exposure; [2]Smoke inhalation; [3]Ammonia spills; [4]Bleach; [5]CO	Jul	Detergents
	Jun	Tetrafluoroethane		

Table 2c Enquiries for information about chemicals from the Eastern Region

Enquiry Type	*Jan-Jun*	*Information requested*	*Jul-Dec*	*Information requested*
PH related enquiries	Mar	Hydrochloric acid	Oct	Phosphoric pentoxins
	Jun	Cyanide	Dec	Ammonia
Other professional enquiries (Fire Service, GP's, Dentists, NHS Direct etc.)				

Table 3: Summary data on Chemical Incidents occurring in the London Region, 2000

Table 3a Summary of specific CI in the London Region

Hosp. Name	*Enq. to NPIS (L) Jan-Sept*	*CI Jan-Jun*	*CI summary*	*CI Jul-Dec*	*CI summary*
Barnet	1003	May	Plastic	Aug	[1]Chlorine; [2]Pepper spray
		Jun	Plant food		
Bromley	519	Mar	Refrigerant gases	Nov	CO
		May	Mercury spill		
Chase Farm	911	Jan	[1]Calor gas; [2]Bleach in food	Aug	Aniline
		Jun	[1]Chlorine; [2]CS	Nov	[1]CO; [2]Thinners; [3]Unknown chemical in coffee
				Dec	[1]Secondary exposure to mace; [2]Solvent NK
C & W'min	799			Dec	Fire extinguisher powder
Ealing	765	Feb	Fire extinguisher powder	Oct	[1]Arsenic; [2]CS
				Dec	[1]Ammonia leak; [2]CO
Greenwich	1242	Apr	Pepper spray		
		Jun	CS		
Hillingdon	828	Mar	CO		
Homerton	593	Feb	CS		
		Mar	Pepper spray		
King George's	971	Mar	CS gas	Nov	CO
		Apr	Sodium Hydroxide	Dec	[1]CO; [2]CO; [3]CO exposure
		May	[1]Halon; [2]Ammonia		
		Jun	Smoke		
Lewisham	886	Feb	CS	Aug	Battery acid
		Apr	Smoke	Sep	CFC
		Jun	Unknown gas		
Lister	856	Feb	Lead paint	Oct	Pepper spray
Mayday	1299			Aug	CS
N Middlesex	1014	Jan	Plastics fire	Aug	CS
		Feb	CS	Oct	Lead
Northwick Park	837			Oct	Unknown gas

Table 3a (cont) Summary of specific CI in the London Region

Hosp. Name	*Enq. to*	*CI*	*CI summary*	*CI*	*CI summary*
Oldchurch	1326	Mar	CS	Sep	CO
Q Mary's Sidcup	866	Mar	Smoke exposure	Oct	Methane
		Jun	Unknown chemical in food	Nov	[1]CO; [2]CO exposure
Royal Free	5	May	Wood preservative	Dec	CS
		Jun	Organophosphate		
Royal London	883	Feb	Phenyl acetate chloride	Oct	Trichloroethylene
		Mar	Ethylene glycol	Nov	CS
		Jun	Unknown gas		
St Charles'	21			Nov	Ammonia & freon
St Georges'	948	Apr	Glutaraldehyde	Oct	[1]CO; [2]Formaldehyde & vinyl acetate
		May	Ammonia	Nov	[1]CS; [2]CS
				Dec	CS
St Helier	920	Jan	Fire extinguisher powder	Jul	[1]CS; [2]Vinyl acetate
		Mar	Detergents	Sep	CS
				Oct	CS
St Mary's	772			Oct	Kettle descaler
				Nov	[1]Domestic gas; [2]Ammonia & fridge gases
St Thomas'	1205			Jul	Benzoyl chloride
				Sep	Kettle descaler
				Oct	North Sea gas
				Dec	[1]CS gas; [2]Unknown chemical in a drink; [3]CO
UCH	734	Feb	Air conditioning fluid	Jul	Xylene
W Middlesex	775	Mar	Hydrogen sulphide	Aug	[1]CS; [2]CO
		Jun	Cyanide	Sep	CS
				Dec	Methane
Whipps Cross	532	Feb	[1]Detergents, formaldehyde & methanol spill	Oct	CS
Whittington	1048			Aug	Unknown gas
				Nov	CS

27713 additional NPIS(L) enquires were received from hospitals & others in the Region Jan-Sep 2000:

Table 3b Additional CI identified in the London Region

Enquiry Type	*CI Jan-Jun*	*CI summary*	*CI Jun- Dec*	*CI summary*
PH related enquiries	Jan	[1]Unknown fumes; [2]CS; [3]Unknown chemical in food	Jul	[1]Dust; [2]Epoxy resin; [3]Oven cleaner; [4]Isocyanate & xylene; [5]Unknown chemical; [6]Xylene
	Feb	[1]Unknown chemical in food; [2]Caustic soda in drinking water	Aug	Methylocrylocolchloride spill
	Mar	[1]Hydrocarbon spill; Contaminated land (heavy metals & PAH's); [3]Bitumen & tar, [4]CS; [5]Benzene; [6]Asbestos; [7]Solvent	Sep	[1]Damp proof fumes; [2]Hydrocarbons in water [3]Diesel spill; [4]Creosote spill
	Apr	[1]CO; [2]Asbestos; [3]Corrosion inhibitors	Oct	[1]Sodium cyanide leak; [2]Refrigerant gas NK; [3]Ozone; [4]Dioxins; [5]Insecticide spill; [6]Insecticide; [7]Dioxin; [8]Nitrous oxide
	May	[1]Caterpillar toxin; [2]Unknown chemical; [3]Smoke; [4]Unknown gas; [5]Unknown chemical; [6]Asbestos	Nov	[1]Bromine & chlorine; [2]Oven cleaner; [3]Mercury; [4]Mercury; [5]Sewage; [6]Sealant fumes; [7]Helium & CS; [8]Oven cleaner
	Jun	[1]Tetrafluoroethane leak; [2]CS; [3]CO exposure; [4]CO; [5]Unknown pesticide; [6]Hydrogen cyanide & sulphuric acid exposure; [7]Unknown chemical; [8]Hydrocarbon spill; [9]Hydrogen cyanide & sulphuric acid; [10]Isocyanate; [11]Hydrochloric acid	Dec	[1]Heavy metal,,PAH & sewage spill; [2]Mercury spill; [3]Sulphuric acid; [4]Unknown chemical; [5]Kettle descaler NK; [6]Lead; [7]CS; [8]CO; [9]Crotonic acid

Table 3b cont **Additional CI identified in the London Region**

Enquiry Type	*CI Jan-Jun*	*CI summary*	*CI Jun- Dec*	*CI summary*
PH related enquiries	Feb	[1]CO; [2]Dimethyl chloro malonate; [3]Sodium hydroxide	Jul	[1]Freon; [2]Benzoyl chloride spill; [3]Wood preservative; [4]CS; [5]Hydrofluoric acid
	Mar	[1]Mercury; [2]CO; [3]Hydrogen sulphide; [4]Antibacterial cleaning fluid; [5]Propane, propylene & sulphuric acid release; [6]Sodium hypochlorite	Aug	[1]Toluene diisocyanate; [2]Phenol; [3]Azodicarbamide
			Sep	[1]Halon; [2]CS; [3]Mercury; [4]Lead in paint; [5]Sulphuric acid; [6]Ammonia
	Apr	[1]Kettle descaler; [2]Diphenylmethane 4,4; [3]Chlorine gas & phosphoric acid; [4]Explosives NK	Oct	[1]Trichloroethylene; [2]Unknown gas; [3]Chlorine [4]Carbon tetrachloride, chloroform, lithium & silver nitrate exposure
	May	Unknown exposure	Nov	[1]CO; [2]Smoke & CO; [3]Mercury spill; [4]Smoke [5]Oven cleaner; [6]CO; [7]Polypropylene polymer in water; [8]Aflatoxin in food
			Dec	[1]Unknown chemical; [2]PAH's in waste; [3]Hydrochloric acid
Other professional enquiries (Fire Service, GP's, Dentists, NHS Direct etc.)				

Table 3c **Enquiries for information about chemicals in the London Region**

Enquiry Type	*Jan-Jun*	*Information requested*	*Jul-Dec*	*Information requested*
PH related enquiries	Feb	Strychnine	Aug	Cyanide
	Mar	Organophosphate	Oct	CS
	May	Manure	Dec	Aspartame
Other professional enquiries				

Table 4: Summary data on Chemical Incidents occurring in the North West Region, 2000

Table 4a **Summary of specific CI in the North West Region**

Hosp. Name	*Enq. to NPIS (L) Jan-Sept*	*CI Jan-Jun*	*CI summary*	*CI Jul-Dec*	*CI summary*
Alder Hey	942	Feb	CO		
Arrowe	498	Mar	Aniline	Oct	[1]Chlorine spill; [2]Chlorine gas leak
				Dec	Alcohol spill
Birch Hill	18			Oct	CO
Blackburn RI	395	Feb	Sulphuric acid fumes		
B'pool Vic	395	Jan	Propylene spill		
Chester RI		Apr	Diesel & Organophosphate		
Devonshire Road		Jun	Organophosphates	Oct	Sodium Cyanide
				Nov	CO
Fazakerley / Aintree	394	Jan	Sulphur dioxide leak		
Furness	476	Feb	Unknown gas leak	Aug	Peracetic acid leak
Halton General	30			Sep	Thermite fire proofing
Macclesfield	42			Sep	CS gas
Man. RI	1124	Jan	Dichlorodifluoromethane	Aug	[1]Plastics factory fire; [2]Isocyanate
		Feb	[1]CO; [2]Unknown gas		
Ormskirk & DGH	214	May	Gypsum plaster	Nov	Asbestos fibres
Rochdale	723			Oct	CO & smoke
				Nov	Formaldehyde spill
R Lancaster	101	Mar	Organophosphate		

Table 4a cont. Summary of specific CI in the North West Region

Hosp. Name	*Enq. to NPIS (L) Jan-Sept*	*CI Jan-Jun*	*CI summary*	*CI Jul-Dec*	*CI summary*
R Liverpool	960	May Jun	Mercury leak Hydrochloric & phosphoric acid spill		
R Oldham	10			Jul	Cyanide fumes & smoke
R Preston	207	Feb	Aviation fuel	Aug Oct	Veterinary chemical Hydrocarbon & hydrogen sulphide spill
Tameside	1122	Apr Jun	Sodium hypochlorite leak [1]Lime; [2]Sulphuric acid & bleach	Nov Dec	Film lubricant CO exposure
Trafford GH	49	Jan	CO		
Warrington	85	Apr	Hydrogen sulphide & methane leak		
Westmoreland	71			Aug	Chlorine
Whiston	305	May	White spirit	Dec	Smoke exposure
Wythenshawe	243	Jan	Tri-isopropyl phosphate	Sep	Freon

12137 additional NPIS(L) enquiries were received from hospitals & others in the Region Jan-Sep 2000.

Table 4b Additional CI identified in the North West Region

Enquiry Type	*CI Jan-Jun*	*CI summary*	*CI Jun- Dec*	*CI summary*
PH related enquiries	Jan	[1]Dibutyltin di-acetate spill; [2]Hexachlorobutadiene; [3]Hypochlorite & sodium hydroxide leak	Jul	[1]Unknown solvent; [2]Cyanide fumes; [3]Lead & zinc
	Feb	[1]Toluene & xylene; [2]Unknown chemical; [3]Hydrocitronella	Aug	[1]Fire in a plastics factory; [2]Octyl phthalate spill; [3]Hydrogen peroxide; [4]Hypochlorite leak; [5]Sodium hydroxide & hypochlorite spill
	Mar	[1]Rodenticide; [2]Phenol exposure; [3]Organophosphate; [4]Hydrochloric acid spill; [5]Arsenic, copper, Nickel, zinc & PAH's; [5]Sodium hyposulphite; [6]Detergents	Sep	[1]Factory fire; [2]PAH spill; [3]Unknown chemical in soft drink
	Apr	[1]Factory fire; [2]Leachate; [3]CO; [4]Carpet factory fire; [5]Xylene; [6]Aniline, napthalene & white spirit in fire	Oct	[1]Methyl ethyl ketone leak; [2]Sulphur dioxide leak; [3]Sulphur fumes; [4]Domestic gas; [5]Chlorine gas; [6]Aluminium
	May	[1]Methylene chloride, toluene & trichloroethylene fire; [2]Unknown carcinogen; [3]Methyl ethyl ketone fumes; [4]Mercuric chloride; [5]Smoke; [6]Bitumen; [7]Acid & asbestos in fire; [8]Napthalene & PAH; [9]Textile factory fire	Nov	[1]Sulphur fumes; [2]Chlorine; [3]CO; [4]Asbestos & lead chromate in fire; [5]Diesel oil spill; [6]Hydrochloric acid release; [7]Asbestos & lead chromate in fire; [8]Magnesium & calcium in water; [9]Fire in a carpet factory; [10]Sodium Hydrosulphide; [11]Mercury spill
	Jun	[1]Potassium iodide; [2]Benzene & tetrachloroethylene; [3]Smoke exposure	Dec	[1]Lead paint; [2]Unknown chemical odours in a school
Other professional enquiries (Fire Service, GP's, Dentists, NHS Direct etc.)	Jan Feb Mar Jun	Sodium chlorate spill [1]Domestic gas; [2]Chlorine Lead paint Napthalene		

Table 4c	Enquiries for information about chemicals in North West Region			
Enquiry Type	Jan-Jun	Information requested	Jul-Dec	Information requested
PH related enquiries	Mar	[1]Organophosphates; [2]Propylene glycol	Nov	[1]Glass; [2]Mercury
	Apr	Mercury		
	Jun	[1]Unknown chemical [2]Caffeine; [3]Toluene; [4]Black widow spider bite		

Table 5: Summary data on Chemical Incidents occurring in the South East Region, 2000

Table 5a Summary of specific CI in the South East Region

Hosp. Name	*Enq. to NPIS (L) Jan-Sept*	*CI Jan-Jun*	*CI summary*	*CI Jul-Dec*	*CI summary*
Ashford	575	Jun	Formalin spill	Aug	Chlorine
Brighton GH	23	Jan	Unknown chemical	Aug	Unknown fumes
Conquest	287	Feb	Hydrochloric acid spill		
Crawley Hospital	533			Aug	Adhesive fumes
Eastbourne	933	Jan	Glutaraldahyde	Aug	Aviation fuel
		Jun	Iron in water supply	Oct	Sodium hypochlorite
Frimley Park	570			Oct	[1]Trichloroethylene & xylene exposure
Folkestone	42	May	Lead chromate		
Horton	4	Mar	Tar	Aug	Cyanide gas
Kettering	1163	Jan	Soda crystals & bleach	Aug	Asbestos
		Apr	Concrete powder	Oct	Sulphuric acid inhalation
		May	Freon leak		
Kent & Sussex	502	Mar	Bromine		
		Apr	Descaler in food		
King Edward VII	1			Oct	Polystyrene
Maidstone	714	Jan	[1]Dichloromethane; [2]Unknown chemical fumes [3]Sodium hydroxide, sodium sulphate & hydrogen peroxide release	Jul	Sulphuric acid & sodium carbonate spill
		Jun	Glutaraldahyde spill		
Medway	909	Feb	Sodium metasilicate	Sep	CS
		Apr	Plastic fumes		
Milton Keynes	925	Jan	CS	Sep	Organophosphoric acid
		Feb	Chlorine	Nov	[1]Antifreeze; [2]PAH exposure
				Dec	Nitric acid fumes
N'ampton Gen	292	Jan	CO		
Princess Royal	300			Oct	Unknown fumes
Queen Alexandra	195			Oct	Glutaraldehyde spill
Queen Elizabeth	3	Apr	Cyclohexanone & hydroxyl methyl pentone explosion		
Queen Victoria	1			Dec	Detergent
R Berkshire	744	May	Natural gas	Nov	Fluroescent tube
				Dec	Sodium hypochlorite leak
R Hampshire	504	May	Glue	Oct	Unknown chemical in food
Royal Sussex	220	Feb	CO	Jul	CS gas
Southampton	878	Jan	[1]Phenylmanethiol mercaptan & diisocyanate; [2]CS; [3]Diphenyl methane diisocyanate; [3]Phenol	Jul	[1]Diphenyl phenol & ethylene; [2]Kerosene in water
				Aug	Dimethyl dichlorosilane
Victoria, Deal & Walmer	30	May	Unknown chemical in bottled water		
St Barts	20			Oct	Domestic gas

Table 5a cont. Summary of specific CI in the South East Region,

Hosp. Name	*Enq. to NPIS (L) Jan-Sept*	*CI Jan-Jun*	*CI summary*	*CI Jul-Dec*	*CI summary*
St Peter's	888			Jul	Algicide in pool
St Richards's	400	Jan	Fire extinguisher powder		
Stoke Mandeville	195	Mar	Hydrochloric acid spill		
Wexham Park	848	Mar	Unknown chemical	Oct	[1]Unknown chemical; [2]Mercury in water supply ; [3]Bitumen
		May	Formaldehyde spill	Dec	Sulphur dioxide
William Harvey	672			Dec	Trimethylacetyl chloride
Worthing	849	Mar	CS gas		
		May	Strychine		

20732 additional NPIS(L) enquiries were received from hospitals & others in the Region Jan—Sep 2000.

Table 5b Additional CI identified in the South East Region,

Enquiry Type	*CI Jan-Jun*	*CI summary*	*CI Jul- Dec*	*CI summary*
PH related enquiries	Jan	[1]Cadmium; [2]Contaminated land; [3]Acid leak	Jul	[1]Sodium hypochlorite; [2]Hydrocarbon in drinking water; [2]Sulphuric acid & hydrogen sulphide fumes; [3]Arsenic; [4]Mercury spill; [5]Methyl bromide; [6]Alkyl dimethyl benzyl ammonium chloride in a pool;
	Feb	[1]Mercury in food; [2]Kettle descaler; [3]CO; [4]Kerosene spill; [5]Hydrochloric acid leak	Aug	[1]Ammonium nitrate in fire; [2]Weever fish; [3]Petrol spill; [4]Butanoic, palmatic & squalene spill;
	Mar	[1]Teflon in food; [2]Propane explosion; [3]Unknown chemical odour; [4]Unknown petrochemical odour; [5]Butyl lithium in a fire; [6]Natural gas release; [7]Paint; [8]Unknown chemicals	Sep	[1]Fire in paint factory; [2]Dishwasher powder; [3]Smoke; [4]Silver potassium cyanide; [5]Rodenticide in pool; [6]Unknown chemical; [7]Organophosphate; [8]Unknown chemical in water;
	Apr	[1]CO; [2]Unknown chemical exposure; [3]Kettle descaler; [4]Nitric acid & nitrogen dioxide explosion; [5]Unknown chemical	Oct	[1]Permethrin; [2]Tyre recycling depot fire; [3]Hydrocarbons in water; [4]CS in a school; [5]Asbestos; [6]Fire; [7]Gas; [8]Lead; [9]Fluorine release;
	May	[1]Unknown chemical; [2]Laboratory fire; [3]Asbestos in a tyre fire; [4]Ammonia spill; [5]CFC exposure; [6]Factory fire; [7]CO; [8]Glyphosate; [9]Unknown chemical; [10]Unknown chemical in water; [11]Contaminated land; [12]Morphine ingestion; [13]Trihalomethanes, iron & aluminium in water; [14]Aluminium sulphate; [15]Lead exposure; [16]Chlorine gas release; [17]Lead paint	Nov	[1]Chlorine; [2]Ammonia; [3]Chlorine fumes; [4]Carbon dioxide; [5]Thallium; [6]Toluene diisocyanate & xylene; [7]Rifampicin exposure; [8]CO; [9]Mercury; [10]Gas leak; [11]Dioxin & asbestos; [12]CO; [13]Nitrates; [14]Glycol methyl mono butyl ether, methanol, acetone & sulphuric acid spill; [15]Mercury spill; [16]CO
	Jun	[1]Mercury spill; [2]Unknown oil; [3]Methyl bromide exposure; [4]Bleach exposure; [5]Benzene, tolune, ethyl benzene and xylene in drinking water; [6]Detergents in foam; [7]Lead; [8]Chlorine; [9]Lindane in water; [10]Picric acid	Dec	[1]Trichloroethylene spill; [2]Hydrocarbons & sewage in floodwater; [3]Kerosene leak; [4]Domestic gas leak; [5]Nitrates in water; [6]CO; [7]Kettle descaler; [8]CS; [9]Bunker fuel oil

Table 5b cont	Additional CI identified in the South East Region			
Other professional enquiries (Fire Service, GP's, Dentists, NHS Direct etc.)	Jan	[1]Fire in a shopping centre; [2]CO; [3]Isocyanate	Jul	[1]Acetone spill; [2]Photocopy toner; [3]Methane
	Feb	[1]Pyridine & potassium iodide spill; [2]CO	Aug	Unknown agrochemical on food
	Mar	[1]Diesel spill; [2]Natural gas leak	Oct	Zinc
	Apr	[1]Horticulrural chemical, [2]Toilet detergents; [3]Battery acid fumes; [4]Carbon dioxide	Dec	[1]Unknown food contamination; [2]Ammonia in water
	May	[1]Kettle descaler in food; [2]Unknown chemical in plant food; [3]Kettle descaler in drink		
	Jun	[1]Unknown chemical; [2]Kettle descaler		

Table 5c	Enquiries for information about chemicals in the South East Region			
Enquiry Type	***Jan-Jun***	***Information requested***	***Jul-Dec***	***Information requested***
PH related enquiries	Feb	[1]Smoke; [2]Phenol; [3]Arsenic	Nov	Petrol
	Mar	[1]Asbestos; [2]Ammonium nitrite	Dec	[1]Scrombotoxin; [2]Herbal remedy
	Apr	[1]Lindane;		
	May	Asbestos		
	Jun	[1]Dioxins; [2]Dioxins		
Other professional enquiries				

Table 6: Summary data on Chemical Incidents occurring in the South West Region, 2000

Table 6a Summary of specific CI in the South West Region, 2000

Hosp. Name	***Enq. to NPIS (L) Jan-Sept***	***CI Jan-Jun***	***CI summary***	***CI Jul-Dec***	***CI summary***
Bournemouth	8	Jan	CO	Jul	Glutaraldahyde
		Mar	Battery acid fumes	Sep	Car battery explosion
Bridport General		Feb	Glutaraldehyde	Oct	Unknown corrosive chemical
Bristol Royal	232	Mar	[1]Purified air; [2]Chlorine gas	Jul	CS
				Aug	CS
		Apr	Hydrocarbons		
Derriford	57			Nov	Lead in water
Frenchay	133	Jun	CO		
Gloucestershire	153	Mar	Phosphoric acid & chlorine		
N Devon District	45			Jul	CO
Poole General	219			Aug	Chlorine release
Princess Margaret	574			Sep	Sodium hypochlorite; Phosphoros oxychloride
				Nov	Perchloroethylene
Royal Cornwall	228	Feb	Freon		
Royal United	238	Jun	Chlorodifluoromethane		
St Mary's IOW	390	Feb	CS gas		
		Apr	Unknown		
Southmead	164			Sep	Pepper spray
Taunton & Somerset	196			Sep	Petrol contaminated food
Weston Super Mare	190	Jun	Pesticide vapours		

3941 additional NPIS(L) enquiries were received from hospitals and others in the Region Jan –Sep 2000.

Table 6b **Additional CI identified in the South West Region,**

Enquiry Type	*CI Jan-Jun*	*CI summary*	*CI Jun- Dec*	*CI summary*
PH related enquiries	Jan	[1]Bleach & sodium sulphate; [2]Hydrocarbons; [3]Hydraulic oil spill; [4]Unknown	Jul	[1]Butane; [2]Methane; [3]Fungicide; [4]Smoke; [5]White asbestos; [6]Unknown chemical; [7]Petrochemical; [8]Asbestos; [9]Pesticide exposure; [10]Kerosene leak; [11]Chemical recycling works cleanup
	Feb	[1]Gas boiler fumes; [2]Lead in water; [3]Petrol; [4]Battery acid fumes	Aug	[1]Detergents; [2]Pesticide & formaldehyde spill; [3]Chlorine gas leak; [4]Pesticide; [5]Dimethyldichlorosilane spill; [6]Manganese in water; [7]Carbon fibres; [8]Creosote leak; [9]Domestic gas leak; [10]Fire; [11]Ammonia & nitrous oxides
	Mar	[1]Slurry; [2]Herbicide NK; [3]Chlorine (hypochlorite & sodium hydroxide); [4]Chemical odours; [5]Ammonia spill; [6]Insecticide; [7]CO; [8]Domoic acid in shellfish; [9]Epoxy ethanol; [10]Kettle descaler; [11]Formaldehyde; [12]Dioxins	Sep	[1]Chlorine release; [2]Creosote; [3]Manganese in water; [4]Styrene leak; [5]Ethylene glycol & smoke; [6]Asbestos & smoke; [7]Unknown chemical;[8]Asbestos
	Apr	[1]Sulphur fumes; [2]Solvent emissions	Oct	[1]Wood preservative in fire; [2]Picric acid; [3]Organophosphate; [4]Fire; [5]Iron in domestic water; [6]Cadmium fumes; [7]Contaminated livestock; [8]Chlorine gas release; [9]Fire
	May	[1]Gas leak; [2]Disinfectant fumes; [3]Smoke; [4]Lead; [5]Pesticide in drinking water; [6]Nitrates; [7]Chemical odours	Nov	[1]Fertilizer in fire; [2]CO: [3]Unknown chemical in water; [4]Solvent food contamination; [5]Unknown chemical odours; [6]Fire; [7]Ethylene tetrachloride spill; [8]Burnt rubber; [9]Ammonia
	Jun	[1]Unknown chemical; [2]Xylene; [3]Unknown chemical; [4]Pesticide; [5]Sodium hydroxide spill; [6]Pesticide; [7]Asbestos; [8]Smoke;	Dec	[1]Fire at a chemical recycling plant; [2]Heating oil spill; [3]Detergent spill; [4]Methyl bromide; [5]Leachate in homes; [6]Unknown chemical odours; [7]Copper in water; [8]Kerosene spill; [9]Uranium in water; [10]CO leak.
Other professional enquiries (Fire Service, GP's, Dentists, NHS Direct etc.)	Jan	[1]Methylated spirits; [2]Mercury; [3]Liquid nitrogen;	Jul	Acetone spill

Table 6c **Enquiries for information about chemicals in the South West Region**

Enquiry Type	*Jan-Jun*	*Information requested*	*Jul-Dec*	*Information requested*
PH related enquiries	Jan	Radioactive material	Dec	Petrol
	Feb	Solid landfill site		
	Mar	[1]Old chemical works; [2]Solvents; [3]Silica, aluminium, sodium nitrate and quartz		
	Apr	[1]Organophosphate; [2]*Arconite*		
	May	[1]Solvent emissions; [2]Pollen		
	Jun	Petrol		
Other professional enquiries				

Table 7: Summary data on Chemical Incidents occurring in the Trent Region, 2000

Table 7a **Summary of specific CI in the Trent Region**

Hosp. Name	*Enq. to NPIS (L) Jan-Sept*	*CI Jan-Jun*	*CI summary*	*CI Jul-Dec*	*CI summary*
Barnsley	1296	Mar	Sulphuric acid spill	Oct	Ammonia fumes
Buxton	56			Sep	Hydrocarbons & solvents

Table 7a cont. **Summary of specific CI in the Trent Region**

Hosp. Name	*Enq. to NPIS (L) Jan-Sept*	*CI Jan-Jun*	*CI summary*	*CI Jul-Dec*	*CI summary*
Chesterfield	1			Aug	PAH exposure
Derbyshire RI	292	May	Chlorine	Oct	Nitric acid exposure
				Dec	Chlorine (Bleach & descaler)
Doncaster RI	664			Oct	Sulphuric acid spill
Grantham	372	Mar	Wood preservative fumes	Oct	Lead in paint
				Nov	Hydraulic oil fumes
Leicester General	17			Jul	Acrylonitrile & cleaning fluid mixture
				Sep	Aromatic hydrocarbon fumes
Leicester RI	1807	Feb	Pepper spray	Dec	Cyanide
		Apr	CS gas		
Lincoln General	82	Mar	CO		
Northern Gen	404	Mar	Pesticide	Oct	Leaking gas mains
				Nov	CO
Pilgrim	136			Dec	CO
Queens Nott	428	Jan	Tetrachloroethylene	Jul	Helium
		Apr	[1]Plastics' smoke; [2]Unknown chemical odour		
Scunthorpe	348	Mar	Ammonia hydroxide inhaled		
		May	Bleach in drink		
Sheffield Children's	332	Jan	CS gas	Dec	Ethylene glycol
		Apr	CO		
Skegness	49			Aug	Hydraulic oil

7422 additional NPIS(L) enquiries were received from hospitals & others in the Region Jan-Sep 2000.

Table 7b **Additional CI identified in Trent**

Enquiry Type	*CI Jan-Jun*	*CI summary*	*CI Jun- Dec*	*CI summary*
PH related enquiries	Jan	[1]Barium waste; [2]Formic acid leak	Jul	[1]CO; [2]Hydrogen peroxide & peracetic acid spill; [3]Pesticide in fire
	Feb	[1]Lime; [2]Ammonia anhydryde release; [3]Bleach	Aug	Petrol spill
			Oct	[1]Fire; [2]Arsenic & cyanide exposure;
	Mar	[1]Chloroacetyl chloride; [2]Acetic anhydride; [3]Aluminium, iron & manganese in water; [4]CO; [5]Aviation fuel	Nov	[1]Mains gas leak; [2]Plastics fire; [3]Chlorine release; [4]Iron & manganese in drinking water; [5]Ferric ferrocyanide
	Apr	[1]Lead; [2]Epichlorhydrin & cresol; [3]Petrol spill; [4]Chlorinated phenol odours; [5]Fire; [6]Petrol leak	Dec	[1]Dioxins in floodwater; [2]Mercaptan leak; [3]Heavy metals in former sewage works;
	May	[1]Phenol & chlorine; [2]Plastics' fire; [3]Solvent leak; [4]Arsenic; [5]Contaminated toys		
	Jun	[1]Unidentified gas; [2]Hydraulic oil; [3]CO; [4]Xylene & copper; [5]Lead in water; [6]Fire		
Other professional enquiries (Fire Service, GP's, Dentists, NHS Direct etc.)	Jan	[1]Unknown chemical odours; [2]Formic acid fumes		
	Feb	Mercury spill		

Table 7c **Enquiries for information about chemicals in the Trent Region**

Enquiry Type				
PH enquiries	Jan	Sulphuric acid	Jul	CS
	Mar	Rubber	Aug	[1]4,4, diphenyl methane diisocyanate; [2]Mercury
			Nov	Ethyl methyl acetate
Other professional enquiries	Jun	Detergent		

Table 8. Additional Chemical Incidents identified within the UK where Region is unspecified, 2000

Enquiry Type	*CI Jan-Jun*	*CI summary*	*CI Jun- Dec*	*CI summary*
	Jan	CS	Nov	[1]Chlorine; [2]Arsenic, selenium & hydrogen sulphide
	Mar	[1]Cement powder; [2]Unknown chemical; [3]CO		
	Apr	[1]Smoke; [2]Diesel		
	May	[1]Petrol in drinking water; [2]Unidentified gas; [3]Domestic gas; [4]Lead paint		
	Jun	Chlorine in fire		

Most of these enquiries were from General Practitioners whose postcode data were not available at the time of enquiry

Table 9. Additional Chemical Incidents identified outside CIRS Regional contracts, 2000

Enquiry Type	*CI Jan-Jun*	*CI summary*	*CI Jun- Dec*	*CI summary*
Northern & Yorkshire	Jan	CO	Jul	[1]Unknown fumes; [2]Domestic gas; [3]Sulphuric acid
	Feb	[1]Propane leak; [2]Unknown chemical; [3]Epoxy resin; [4]Unknown chemical;	Aug	[1]Hydrogen sulphide; [2]Sulphur dioxide; [3]Lindane; [4]Dishwater powder
	Mar	Hydrocarbon contamination of food	Sep	Trichloroethylene
	Apr	[1]Chlorine gas release; [2]Sulphur dioxide & nitric oxide in fire; [3]Ammonia	Dec	Propionic acid leak
	May	Kettle descaler		
	Jun	[1]CS gas; [2]Unknown chemical in food		
West Midlands	Jan	Kettle descaler	Jul	[1]Chromic acid spill; [2]Propylene glycol
	Feb	Mercury spill	Aug	Dishwasher powder in tea
	Mar	[1]Ammonia & sulphur dioxide fumes; [2]Sulphuric acid	Nov	[1]Chlorine release; [2]Cement powder; [3]Adhesive exposure
	Jun	Phosphine		
Scotland	Jan	Contaminated food	Jul	Sodium hydroxide
	Apr	[1]Silicone tetrachloride gas; [2]Mercury spill	Aug	Methanol
	May	Unknown chemical	Sep	[1]Ammonia spill; [2]Chloramines
			Oct	Phenol leak
Wales	Apr	CO	Sep	Mercury spill
	Jun	Chlorine	Oct	Lead oxide
Northern Ireland			Oct	Natural gas
National	Feb	Strychnine contaminated drugs of abuse	Jul	Unknown chemical in tea
			Sep	Pesticide in beer
	May	Tape product recall	Nov	Tin in food
	Jun	Soya bean oil breast implants		
Overseas	Mar	[1]Trichloroethylene; [2]Methanol dye	Jul	Unknown chemical in tea
			Aug	[1]Rodenticide spill; [2]Lindane contamination of ground water
	Apr	Scrap metal foundry contamination	Oct	Hydrochloric acid
	May	Hydraulic fluid vapour	Nov	[1]Styrene & xylene ship cargo; [2]Cyclo-trimethylene & polyisobutylene exposure; [3]Unknown chemical in a shopping centre; [4]Styrene leak;
			Dec	Arsenic contamination of drug
Enquiries for information about chemicals from other, 2000	May	Organophosphates	Aug	[1]Lead; [2]Cadmium & mercury; [3]Organophosphates
	Jun	Kerosene		

Pollution prevention and control, and management of land contamination – more responsibilities for Health Authorities and the Chemical Incident Response Service

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Introduction

Recent legislation that will deal with both the prevention of future pollution from industrial installations and historical contamination of land will involve participation of public health departments. The background to this legislation is given and the anticipated involvement of Health Authorities as statutory consultees is outlined. Checklists to aid health authority response to these new requirements follow. In conclusion, issues that may need planning for now to prepare your Health Authority for the consultation process are presented along with a section on some of the future considerations.

Integrated Pollution Prevention and Control under Part I of the Environmental Protection Act 1990

(See also Chemical Incident Reports Number 15, January 2000, p18 and Number 18, October 2000, p22)

Integrated Pollution Prevention and Control[1] is the new system for approving new and reviewing existing larger industrial processes by either the Environment Agency or Local Authorities. Its aims are to:

1. Reduce pollution
2. Recover as much waste as possible
3. Dispose of residual waste in ways least damaging to the environment
4. Promote efficient energy use
5. Avoid accidents and limit their consequences should they occur
6. Return the site to a satisfactory state after use.

The legislation stipulates that Health Authorities must be consulted. Weighty tomes consisting of plans and technical information will therefore be arriving at public health departments with a response required **within four weeks.**

About 7000 applications for new and existing industrial sites in England and Wales are expected for review between now and 2007. This is likely to include about 160 incinerator proposals. If Health Authorities anticipate damage to the health of local populations from a proposed or existing industrial development this can influence approval.

Draft Checklist for Health Authority response to Applications under Integrated Pollution Prevention and Control (IPPC)

The Health Authority is required to respond to the Environment Agency within four weeks. The following areas are ones which may need to be considered as part of the Health Authority response, supported by information from CIRS:

1. Hazards and population
2. Missing information
3. Obtain missing information
4. Interpreting the findings
5. Outcomes of consultation
6. Response to Environment Agency or Local Authority
7. Monitoring of the health of the population by the Health Authority

The list given cannot be assumed to be comprehensive, as this process is likely to be dynamic depending on local strategy and needs. It will be important to share experiences from Health Authorities and CIRS when developing responses to individual applications. In particular, each response should be tailored to reflect the specific hazards and your own population.

1. Hazards and Population

- Check that your Health Authority should be dealing with this application
- Check whether the hazard is likely to affect the population of neighbouring districts (e.g. smoke plumes) and that they too have been notified. In these circumstances clarify which is the lead Health Authority and agree a shared process of response
- List all potential health hazards from the application document (e.g. explicitly stated toxins, implicit noise, increased traffic, potential for accidents)
- Identify the location and size of the affected population
- Identify the location and size of subgroups at greater risk (e.g. nursing homes, hospitals, schools). Use of tools such as a Geographical Information System (GIS) with up to date population data may facilitate this activity.
- Check the likelihood of the proposed development becoming a Control of Major Accident Hazards (COMAH) site. If a site is classed as a COMAH site your health authority will also become involved in off-site emergency planning at

a later stage (see Chemical Incident Report 17, July 2000, pages 16-17).

Much of this process in assessing hazards and population risks can be considered to be part of the initial work required for an Environmental Health Impact Assessment (Dr Kate Ardern, CPHM, Liverpool Health Authority, current guidance on EHIA; page 19-23)

2. Missing information

List relevant information that may be missing from the proposal. Missing information falls into two main categories:

- Information not given in the application that may be known to the proposer (e.g. prevailing wind direction, measurements of pollutants in all relevant media, plans for future monitoring to confirm that assumptions made hold in reality, time to decommissioning)
- Information that may not be known to the proposer, but may be known to Environmental Health departments or the Environment Agency (e.g. interaction with other pollution sources in the same area)

3. Obtain missing information

Request additional information that the Health Authority considers relevant, insisting that it is made available in a timely manner for the completion of the consultation process from either

- The local representative of the Environment Agency or
- The local representative of the Local Authority

4. Interpreting the findings

As quickly as possible, giving information on time scales, initiate the process for requesting information

from CIRS on

- Known or reported health risks associated with the potential exposure to the likely chemical hazards
- Known or reported health problems associated with similar installations

from other agencies and informed specialists

- Environment Agency
- Health and Safety Executive
- Food Standards Agency
- The relevant occupational health department
- Others depending on the type of application

5. Outcome of consultation

The consultation process may then be facilitated by assessing the above information, possibly in consultation with CIRS and the Local Authority, and assigning one of the following outcomes:

- This application will lead to no significant health risk to people
- Health risk to the local population is known but is not quantifiable
- Health risk to local population is known and is quantifiable
- Health risk to the local population of the intended development is unknown

6. Response to Environment Agency or Local Authority

- State if the Health Authority does or does not object to the development, and if objecting, specify the objections
- Make sure the grounds for objecting do not create legal liabilities for the Health Authority
- Ask the Environment Agency to inform your department in future should emissions from a plant exceed the levels given in the licence on an occasional or routine basis
- Ask whether the Environment Agency will confirm the assumptions underlying the application once the plant is working.
- Consider recommending to the Environment Agency the need for environmental sampling to confirm predictions of levels of pollutants and the area under any plumes and that this information should be shared with the Health Authority
- State that your advice on unknown or unquantifiable hazards may change if risk assessments change in future.

7. Monitoring of the health of the population by the Health Authority

If the health impact is unknown or unquantifiable, the Health Authority may have to decide whether to instigate health outcome monitoring for the exposed population after the completion of the implementation of the IPPC plan. You will need to be clear about a number of issues:

- What would monitoring involve?
- How much would it cost?
- For how long would it need to go on?
- Whether the magnitude/frequency of the expected effect in individuals and the population size will allow you to come to any conclusion about health effects

Depending on the health monitoring outcome it may be necessary to feed the information back to the li-

cence holder, consider how this can best be done when preparing your response to the Environment Agency or the Local Authority.

If expected effects are too rare or too small to be detectable by the statistical interpretation of test results then only studies of larger numbers (i.e. of more sites of the same nature) would allow meaningful conclusions. It is unlikely that a Health Authority would be able to organise such a study in isolation, but via CIRS or other agencies a collaborative investigation could be undertaken.

Contaminated land legislation contained in Part IIA of the Environmental Protection Act 1990

(See also Chemical Incident Report Number 6, October 1997, pages 2-3 and Number 16, April 2000, pages 15-16)

The legislation establishes a systematic approach to pre-existing pollution of land[2]. This requires Local Authorities to develop a strategy to inspect their area and determine the presence of contaminated land defined as:

> "Land that appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land that a) significant harm is being caused or there is a significant possibility of such harm being caused or; b) pollution of controlled waters is being or is likely to be caused."

The legislation does not suggest the direct involvement of public health departments. However, Local Authorities concerned about harm to people are likely to seek Health Authority advice on whether such harm has already happened or whether it is likely to occur.

Draft Checklist for Health Authorities providing advice to Local Authorities under Part IIa Land contamination

The Health Authority needs to plan its response to the Local Authority to comply with their strategy as far as possible. The areas you may wish to consider undertaking work to complete the process to prepare the Health Authority response are listed below:

1. Information you need from the Local Authority
2. Information you need from the Chemical Incident Response Service
3. Outcomes

Each of the above headings are considered below in greater detail. Not all the issues that may need to be considered to assess the local land contamination and proposed use of site have been included as this process is likely to be dynamic and will depend on local strategy and needs. It will benefit from sharing experiences in developing responses with Health Authorities, Local Authorities and CIRS.

1. Information the Health Authority needs from the Local Authority

- Information on ALL the pollutants contained on site
- Visit the site together with local authority colleagues to see the possible ways that pollutants might get to people directly or through animals, food or water and plants.
- Review site plans and site history
- Understand the current use of the site and how it might change in the future

2. Information you need from the Chemical Incident Response Service

Initially:

- Check whether all relevant environmental sampling and analysis have been done
- Toxicity of the substances on site
- Any recorded toxic effects on people, with specific information on data from similar settings

If people have been exposed to toxic substances:

- Assess people for acute health effects
- Depending on the exposure undertake biological tests on individuals if environmental levels are high enough
- Practicalities of testing (what does it involve, who can do it and how much it costs)
- Effect of test results on management of health care for individuals
- Effect of test results on management of site

3. Outcomes

Once tests results are known (environmental tests and biological tests if appropriate) discuss with CIRS and Environmental Health Department:

- Necessary restrictions on the use of the site
- Necessary clean up of the site

Information to the public, the media and other agencies (this process may well have started much earlier!)

Issues for the Health Authority to consider in preparing for the consultation processes

The above guidance assumes that the Health Authority faces IPPC applications and land contamination issues without prior preparation. You might want to consider some action that should make your life easier in future.

- Name a lead person and deputy for IPPC applications and land contamination response
- Make sure the health authority is adequately staffed to be able to do the work that is expected of them over the next few years.
- Contact both your area inspector for the Environment Agency and the Environmental Health departments dealing with IPPC applications. Establish a common understanding about your mutual expectations.
- Agree with the agencies how you would obtain more information if application documents do not contain enough.
- Ask the Environmental Health departments in your area about their approach to land contamination. Agree with them criteria for the involvement of the Health Authority.
- Agree in advance the information you would require from them in order to be able to obtain useful information from the Chemical Incident Response Service.

Issues for the Chemical Incident Response Service to consider in preparing for consultation process

In order for CIRS to prepare for the support required by Health Authorities for the IPPC applications and the land contamination issues, CIRS considers it should undertake the following:

- Warn the Health Authorities and confirm identification of the lead person for collaboration
- Increase CIRS staff to cope with the perceived extended volume and complexity of work
- Organise a meeting to agree aims and outcomes
- Continue to expand its resource of Chemical Incident Information data sheets, continuing the updating programme already implemented
- Expand the literature search strategy to obtain information on site and industry specific topics in advance of applications as appropriate
- Continue and if possible expand its programme of contribution to the consultation process by review and comment where required, contributing to review meetings and site visits with toxicological support and training.
- Contribute to collaborative studies as required

Future Considerations

CIRS will organise a meeting to be held on Friday 16 March 2001 to discuss the way forward for the non-communicable hazard function of Health Authorities. These are issues that you may want to discuss:

- Need for a centralised assessment facility, possibly based at Region, for IPPC licensing to allow rapid processing and application of the same criteria throughout.
- Environmental Health Impact Assessment (EHIA) to follow up health concerns (criteria, duration, frequency, method, costs)
- Recovery of costs of such EHIAs by Health Authorities
- Effects of new legislation and standards on ultrafine particulate discharges in air
- The approach to indirect health effects (e.g. traffic flows secondary to the existence of an industrial development).
- Effects due to chemical mixtures and interaction with other chemical pollution from other pollution sources.
- Problems with choice of site (e.g. in a flood plain)
- Potential health effects that are either not local or virtually impossible to quantify in relation to a single development (e.g. global warming, acid rain)
- Consider review of European Union legislation for acceptable levels of pollutants

Sources of further information

1. Integrated pollution and prevention control under Part I of the Environmental Protection Act 1990 (http://www.detr.gov.uk/environment/ppc/index.htm)
2. Contaminated land legislation contained in Part IIA of the Environmental Protection Act 1990 (http://www.environment.detr.gov.uk/contaminated/index.htm)
3. IPPC and Health Authorities - CIR 15, January 2000, page 18 and CIR 18, October 2000, page 22
4. Contaminated Land - CIR 6, October 1997, pages 2-3 and CIR 16, April 2000, pages 15-16
5. Health authority uses of Geographical Information Systems – CIR 18, October 2000 pages 7-12
6. Health surveillance – CIR 16, April 2000, pages 13-14.

Back copies of Chemical Incident Reports from April 1999 can be downloaded from the Medical Toxicology Unit website: www.medtox.org.uk/cirs/reports.htm

HIA : Health Impact Assessment: Rapid Appraisal - Action Research

Kate Ardern, Consultant in Public Health Medicine Liverpool Health Authority, Mary Kilfoyle, formerly Researcher in the Department of Public Health Liverpool John Moores University and Ruth Hussey, Director of Public Health Liverpool Health Authority.

(The authors would like to thanks the following for their comments and support -the other members of IMPACT- the International Collaboration for Health Impact Assessment: Alex Scott-Samuel, Martin Birley, Mike Eastwood, Debbie Abrahams and Zoe Richards, Fiona Johnstone: Public Health Specialist Liverpool Health Authority, Stephen Birch: Sefton Metropolitan Borough Council and the members of the NW Regional Development Agency's Integrated Assessment Working Group)

(N.B. Please note that this article is to alert colleagues to new work on rapid HIA that is under development and not a final validated tool)

1. Background

Health Impact Assessment (HIA) as developed in North West England, is aimed at ensuring that the consideration of possible human health effects are taken into account at the planning stage of projects, programmes and policies. It can be considered to be a natural extension of the Environmental Impact Statement.

The initial work arose as a result of a *recommendation to the Quality of the Environment Working Party of Stockport Metropolitan Borough Council. The recommendation read "that any major development should be assessed for its potential impact on the health of the local population."*

1.1 Definitions

Health Impacts have been defined as *'the overall effects, direct or indirect, of policies, strategies, programmes or projects on the health of a population.'*

Health Impact Assessment (HIA) has been defined as *'a combination of procedures, methods and tools by which a policy, programme or project may be judged as to its potential effects on health and the distribution of those effects'.* [1, 2, 3, 4]

Examples may range from projects (e.g. a housing development) to programmes (e.g. urban regeneration) to policies (e.g. integrated transport strategy). HIA builds on the generally accepted understanding that a community's health is determined by a wide range of economic, social, psychological, environmental and organisational influences. It is important to attempt to estimate the effects of these influences on health. It is intended to provide an independent, objective assessment of all the likely changes to the quality of human health both *harmful and beneficial.*

Ideally, such work should be *prospective an*d so should precede the start of the project, programme or policy concerned.

The aims of prospective HIA are:

- to assess the potential health impacts, both positive and negative, of projects, programmes and policies.
- to improve the quality of public policy decision making through recommendations to enhance predicted positive health impacts and minimise negative ones.

Traditionally, Health Impact Assessment is applied *retrospectively* as a reactive rather than a proactive process. The other more commonly used risk management tool called Health Impact Assessment is used after a major environmental incident to assess the likely long-term consequences for the health of the affected population. This is undertaken where a population has already been exposed to a known quantity of a defined hazard. It is a damage limitation exercise. This is the only model apart from prospective HIA to consider human health directly.

1.2 Importance of Health Impact Assessment

The main advantages of prospective HIA are its focus on social and environmental justice (it is usually the already disadvantaged who suffer most from negative health impacts). It is a multi-disciplinary, participatory approach; giving equal status to qualitative and quantitative assessment methods; making explicit values and politics and is open to public scrutiny. HIA can:

- demonstrate that 'health' is far broader than health care issues
- positively encourages public participation in the debate about public health issues and public policy or planning issues.
- improves the quality of decision-making in health and partner organisations by incorporating the need to address health issues positively into planning and policy-making.

Table 1 summarises the procedures and methods for comprehensive HIA that were developed as a result of the work in Manchester and Merseyside and which are described more fully in the Merseyside Guidelines for Health Impact Assessment.[5]

Table 1: Procedures and methods of Health Impact Assessment

HIA procedures	HIA methods
• Screening, to select policies or projects for assessment • Establishing a Steering Group and agreeing Terms of Reference • Carrying out the health impact assessment Negotiating the favoured option(s) for achieving optimal health impact • Monitoring and evaluating processes and outcomes of the HIA and providing feedback to influence continuing review	• Policy analysis (where appropriate) • Profiling the areas and communities affected • Involving stakeholders and key informants in predicting potential health impacts, using a predefined model of health • Evaluating the importance, scale and likelihood of predicted impacts • Considering alternative options and making recommendations for action to enhance or mitigate impacts

2. Rapid Appraisal Process

A process has been developed which can be applied for Health Impact Assessment rapid appraisals of activity at a local level as set out in Table 2. There are three stages to the process:

- screening,
- evaluation
- further action.

Table 2: The Three Stages Of Health Impact Rapid Appraisal

Screening of policy, work programme or project for Health Impact Assessment. It is essential that areas with the greatest likely impacts on the health of the most vulnerable groups in the population be given priority for evaluation within the constraints of budget and timescales.
Evaluation of its potential impacts on factors that determine health These influences can be considered under a number of headings (see *Table 3* below). The relative importance of these health impacts, in the short, medium and long term, and the risks to health versus health gain should be considered.
Recommendations for further action If the risks to health of a proposal outweigh the potential health gains, for instance if the proposal will exclude the poorest members of the community, further action to address these negative health impacts should be considered.

2.1. Screening

Health impact assessment should guide rather than delay the decision-making process. In order to make the most efficient use of available expert resources, it is necessary to be selective about what work is undertaken. Projects, programmes or policies should be assessed summarily with regard to their likely influences on health.

Screening criteria can include the following:

- *Economic issues:* What is the size of the project and of the population(s) affected? What are the costs of the project, and their distribution?
- *Outcome issues:* What (crudely estimated) is the nature of the potential health impacts of the proposal? What is the likely nature and extent of disruption caused to communities by the proposal? Are there any potentially cumulative impacts?
- *Epidemiological issues:* What degree of certainty (risk) do the health impacts possess? With what frequency (incidence/prevalence rates) will the potential health impacts occur? What is the extent of probable health service impacts? How consistent are 'expert' and 'community' perceptions of probability (i.e. risk), frequency and severity of important impacts?
- *Strategic issues:* When in the planning cycle should the HIA be carried out? How relevant is it to decision making, How does it fit with key statutory frameworks?

Financial and/or human resource costs of assessing a programme/project/proposal or service may also be an important consideration against which selection is carried out. This procedure is necessarily crude, but is essential if Health Impact Rapid Appraisal is to be effectively deployed. From a strategic perspective, it is likely that priority is given to overarching policies above pro-

Table 3: Health Determinants	
Impacts on health	**Examples**
Biological factors	Age Sex Genetic factors
Personal / family circumstances and life-style	Family structure and functioning Primary / secondary / adult education, occupation, unemployment Income Risk-taking behaviour, diet, smoking, alcohol, substance misuse Exercise, recreation, means of transport (cycle / car ownership)
Social environment	Culture Peer pressures Discrimination Social support (neighbourliness, social networks, isolation) Community / cultural / spiritual participation
Physical environment	Air / water quality, noise, smell, view Housing conditions Working conditions Public safety, civic design, shops (location . range / quality), communications (road / rail), Land use, waste disposal, energy, local environmental features
Public services	Access (location/disabled access/costs) Quality of primary/community/secondary health care, child care, social services, housing, social security services Leisure amenities Employment Public transport, Policing Non-statutory agencies and services
Public policy	Economic Social Environmental Health trends Local/Regional/National/EC/International: priorities, policies, programmes, projects

grammes, and to work programmes and services over individual projects, since criteria set at the policy level should have a knock-on effect in delivering action locally which is beneficial to health.

2.2. Evaluation

The range of potential health impacts identified in HIA is dependent on the definition of health that is employed. The proposed model is adapted from a socio-environmental model of health derived from the work of Lalonde (1974) [6] and Labonte (1993), [7] and is similar to that currently being applied by the UK Government to policy nationally, and other bodies such as the World Health Organisation. A range of factors influence health, not only individual choice. Indeed the lifestyle choices and risk-taking behaviour is largely symptomatic of factors outside of the control of individuals or groups of individuals, such as employment opportunities and income, and other factors governed at the city level, such as environmental management further influence the health status of individuals and communities. Table 3 provides a list of 'health determinants' - the kinds of factors which have been demonstrated to influence health status.

2.3. Further Action

Once the relative health impacts have been considered, a course of action must be devised. Alternatives must be presented. This may include further research, for example the commissioning of a more in-depth health

impact assessment (see Table 1 above)[5], the modification of the plan or proposal to adjust the cost-benefit imbalance, or in some cases the suspension of a plan or proposal.

3. Rapid Appraisal Evaluation Matrix

The principle behind the evaluation matrix as with the whole philosophy of health impact assessment is that there are different health fields (biology, environment, family and personal circumstances, service organisation and public policy) that affect an individual's health and well-being. It is important therefore that public decision-making recognises this and makes investment in those elements of *human, natural resources, environmental protection, social and economic capital* that will positively influence the ability to live a healthy and fulfilling life. Ideally there should be a balance in each of the five 'capitals'.

This matrix further develops the principles of an integrated assessment tool by incorporating features of a Best Value Performance Review Sustainability Appraisal (part of the assessment of Local Authority performance carried out by DETR), Social Inclusion Toolkits and Environmental Impact Assessment in addition to HIA.

The Evaluation matrix lists a series of questions that need to be asked on each of the five 'capitals' - which include specific reference to impacts on vulnerable population groups and delivering health improvement to disadvantaged communities. The matrix has been developed to facilitate this procedure. It is essential, however, that the HIA rapid appraisal matrix is more than a series of tick boxes: the process is intended to inform decision-making and not simply to add to paperwork.. It is envisaged that rapid HIA could be carried out by policy and project officers in statutory and non-statutory agencies as well as by public health professionals.

It is not intended in this article to give full details of the matrix as it is intended that it will be submitted for publication once it has been evaluated and revised. An example from the matrix is given in table 4:
Note: Use the de-commissioning column if the proposal is for:

- programmes/projects with time limited funding - e.g. Objective One or SRB or New Deal.
- programmes or projects where the industrial or other processes have a defined life span.

Proposals, which score 5 or less positive ticks in EACH section, or Final score 25 or less positive ticks in total will require further action and/or developmental work to ensure that it contributes to health improvement in the North West. There should be documented evidence (quantitative and/or qualitative -this should be the most appropriate evidence either from research, routine data sources, examples of good practice etc for the individual impact e.g. the most robust evidence for effects of community severance is from qualitative research whereas air quality is best assessed by quantitative methods.) to support each tick so that consistency in the interpretation of health issues and analysis can be ensured. This scoring is currently only envisaged as being a rough guide and will, no doubt change as tool is evaluated - indeed the scoring system may be found to be inappropriate. We are already giving consideration to the weighting of the priority given to different types of impacts

Table 4: An Example from Impacts on Environmental Protection Capital

Do you think the project/programme/proposal or service will directly affect or encourage other to affect? (*Mark positive impacts with a tick and negative ones with a cross*)

Health impact	Development phase	Operational phase	De-commissioning phase
Reduce number of hazardous pollution incidents Reduce the number of poor air quality days			
Sub total (no. of + ve ticks) Sub-total (no. of - ve crosses)			

4. Current Status of the HIA Rapid Appraisal Matrix

The Matrix is under evaluation to test its robustness and repeatability over the next 12 months in a number of

different settings. These include the NW Development Agency, Liverpool City Council Neighbourhood Services pilots, CDS Housing (as part of a DETR pilot on the role of registered social landlords in developing sustainable communities) and New Deal for Kensington. It is also being tested as the rapid appraisal component of the health impact assessment of the Foresight Vehicle Initiative. This is being carried out by IMPACT, (the International Collaboration for Health Impact Assessment consisting of Liverpool University, Liverpool School of Tropical Medicine, Liverpool Health Authority and Liverpool John Moores University), on behalf of the Department of Health and Department of Trade and Industry. Results of the evaluation will be used to develop the tool further and to prepare papers for publication in peer-review journals.

We will be also piloting it as the basis of our response to IPPC applications and if any colleagues would like to collaborate on this pilot. I would be very pleased to hear from them. My contact number is 0151 285 2116 or e-mail Kate.ardern@liverpool-ha.nhs.uk

IMPACT offers training on Health Impact Assessment as part of a DoH funded national capacity building. For course details please contact: Zoë Richards Education and Training Fellow e-mail zoerich@liv.ac.uk There is also our website at www.liv.ac.uk/~mhb/index.htm

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1. Scott-Samuel A (1998) Health impact assessment - theory into practice. Journal of Epidemiology and Community Health (in press).
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7. Labonté R. Health promotion and empowerment: practice frameworks. Centre for Health Promotion, University of Toronto and ParticipAction, Toronto, 1993.

CIRS CONCLUSION: TRAINING IS NEEDED

***Aim* to provide an overview of the framework and procedures of Integrated Pollution and Prevention Control so that CsCDC and DsPH involved are aware of their statutory role**

Friday 16 March 2001
Agenda for IPPC in context
Chairman: Professor R Griffiths, Regional Director of Public Health, NHSE West Midlands

0930	Arrival and registration	
1000	Introduction, aims and objectives	VM/SH
1015	Setting IPPC in context, the environmental setting and legislative constraints	?LF
1045	Discussion and general points	
1100	Health Impact Assessment and Environment – a framework	KA
1145	IPPC framework and administration; sectors and work programmes; applications timescales; account management; determination	NE/PW
1215	Air pollution assessments using exposure-response methodology	RM
12.45	Discussion	
13.00	Lunch	
1345-	Problems of IPC and IPPC	FN
1405	Consultation- a working model	PW
1425	Environmental pollution in context	PS
1445	Actions and ways forward; open discussion on prioritisation	
1545	Evaluation, lessons learnt and conclusion	
1600	Depart	

KA: Dr Kate Ardern, CPHM. Liverpool Health Authority
NE: Neil Emmott, IPPC Policy Adviser, Environment Agency
LF: Linda Farrow, National Project Manger for IPPC implementation, Environment Agency
SH: Steve Humphrey, National Human Health Project Manager, Environment Agency
RM: Dr R. Maynard, Head of Air Pollution Unit, Department of Health
Vm: Dr Virginia Murray, CIRS
FN: Dr. Fortune Ncube, CCDC. Surrey Health Authority
PS: Pat Saunders, Chemical Hazard Management and Research Centre, Birmingham, West Midlands
PW: Paul Weston, Regional Process Industry Regulation Inspector, Environment Agency

To be held at Sherman Centre, 4th Floor Thomas Guy House, Guy's Hospital, St Thomas' Street, London SE1 9RT. CPD Accreditation applied for. Applications to Rico Euripidou, CIRS, 0207 771 5381

Lessons learned from participating in a national nuclear exercise

Dr Tanya Cross, Senior House Officer in Public Health Medicine, Dr Alex Mellanby, Consultant in Communicable Disease Control, Somerset Health Authority; Dr Julia Verne, Consultant in Public Health Medicine, Jody Foster, Regional Environmental Health Adviser, Communicable Disease Surveillance Centre (South West), Lawrence Davies, Regional Health Emergency Planning Adviser, South West NHS Executive Regional Office.

Introduction

Somerset Health Authority, the South West NHS Executive Regional Office and the Department of Health participated in a one-day nuclear exercise in October 2000, along with other local and national agencies. The exercise, code-named Quartus, simulated an incident involving the release of radioactive material from a local Nuclear Power Station, which had off-site consequences (that is, consequences outside the perimeter fence).

Nuclear Operators undertake a series of exercises each year to test the plans in place to deal with a nuclear incident. A level 1 exercise is based on-site, whilst a level 2 exercise tests the arrangements for dealing with an off-site incident. Each year one level 2 exercise is upgraded to a level 3 exercise, and becomes a national exercise involving all levels up to and including Government Ministers. Exercise Quartus was selected by the Department of Trade and Industry (DTI) to be upgraded to a level 3 exercise for 2000.

Previous nuclear exercises have focused on the urgent phase of an incident. Exercise Quartus focused on the recovery phase, in which the long-term consequences of a nuclear incident are addressed. The Nuclear Emergency Planning Liaison Group (sponsored by the DTI) is responsible for providing advice on different aspects of the response to a nuclear incident. A paper from this group addresses issues to do with the recovery phase (1). Exercise Quartus was designed to test the procedures laid out in this document. Lessons learnt by all agencies following Exercise Quartus will be reviewed and incorporated into the forthcoming revision of this National Guidance. The exercise lasted one day, but exercise play represented the first week following the incident.

Lessons learned In the October 2000 Chemical Incident Report Virginia Murray comments that major incident exercises 'offer an opportunity to review the plans, skills and resources within a Health Authority' (2). We certainly found the preparations for and participation in Exercise Quartus very useful and educational.

We would re-iterate the lessons documented in the two chemical exercise reports in the October 2000 Chemical Incident Report (2). In addition, we learnt the following important lessons:

1. Specific to nuclear incidents

- There is a need for health services to have a formal contract with a Service Provider to supply immediate expert radiological advice.
- It is valuable to have rapid access to easily understandable comparative radiation risks, for example, the amount of radiation released in an incident is equivalent to a certain number of X-rays, a transatlantic flight, or normal annual exposure in some parts of the country. This helps put radiation measurements into context for communication to the public.
- It is important to consider different population groups separately in relation to radiation risk. For example, the balance of risks and benefits of evacuation following a nuclear incident will be different for a group of elderly nursing home residents compared to a group of school children.

2. Applicable to other major incidents

- One person was responsible for managing the team at the Health Authority on the day of the exercise. This proved to be very effective in ensuring that good communication occurred, and that all necessary work was carried out without duplication.
- There is a need to make formal arrangements for mutual assistance between health authorities across regions in order to have fit manpower to respond to incidents lasting more than a couple of days.
- There is a need to evaluate more fully the risks and

benefits associated with evacuation, and for health services to make colleagues in other agencies more aware of the negative aspects for public health.

- A robust planned Primary Care response to major incidents is needed. This will become even more important with the advent of Primary Care Trusts.
- The value of a cascade facility to communicate rapidly with General Practitioners by fax was clearly demonstrated.
- The Joint Health Advisory Group (or JHAG, responsible for advising the incident commander on the strategic management of the health response) has an important role to play in the management of a major incident. Clarification of the exact role, responsibility and membership of the JHAG is needed at national level.
- The role of the JHAG after establishment of the Recovery Working Group (or RWG, set up once it becomes apparent that there may be off-site consequences) also needs further clarification.
- It is vital to document not only the decisions taken, but also the process of risk assessment and the rationale behind the decision making process. The rationale for decisions taken to protect public health must be clearly communicated to the public together with the advice being given.
- The Regional Office has a key role to play in mobilising regional resources, for example, ascertaining bed availability in the event of a large scale evacuation of frail individuals.
- Another key role of the Regional Office is to take an overall view of the incident. Working with the local emergency team, they are able to confirm that all issues have been considered, and that decisions made at the local level are consistent in protecting public health.

Conclusion

Participating in major incident exercises is a very effective way of preparing for major incidents. These exercises often require substantial commitment in terms of time and resources, but this expenditure is wholly justified by the benefits gained in developing the skills necessary to deal with 'the real thing'.

References

1. *Procedures for Recovery following a severe accident at a Civil UK Nuclear Site*. Paper NEPLG/13. Nuclear Emergency Planning Liaison Group.
2. *Chemical incident exercises.* Chemical Incident Report Number 18 October 2000. *Introduction*. Murray V, *A chemical incident exercise.* Booth L, Barker M. , *The role of the health authority in responding to a deliberate release of a chemical agent*. Martin C, Walsh B.

When should Fire Brigades ring or notify Health Authorities in the event of a chemical incident?

Terry Mathews CCDC South Humber

Dr Mathews has provided the following information for discussion. He is concerned about criteria for notification by Fire Brigades to Health Authorities of a chemical incident and has prepared the following checklist and statement to see if it covers all the scenarios public health may be concerned about

Draft Checklist for notification by Fire Brigades to Health Authorities of a chemical incident

The South Humber Health Authority would like to be informed of any situation which presents a risk to public health, or has the potential to escalate to such - whether there are casualties or not.

Examples of such situations include:

- CHEMICAL INCIDENT - with or without casualties
- MAJOR FIRES
- SMALLER FIRES OF CHEMICAL STORES/ ASBESTOS CONTAINING BUILDINGS
- COMAH SITE INCIDENTS (before activation of off-site plans)
- DELIBERATE RELEASE OF CHEMICAL OR BIOLOGICAL AGENT
- INLAND OR COASTAL POLLUTION INCIDENTS
- MAJOR FLOODING INCIDENTS
- DISRUPTION TO SEWERAGE OR WATER SUPPLIES
- ANY INCIDENT WHERE EVACUATION OR SHELTERING IS BEING CONSIDERED

This list is not intended to be exhaustive, but provides examples of situations where the fire service may be the first agency to be aware of a problem.

Clarification of the process to inform Health Authorities may be an issue. The one used by South Humber Health Authority is that the single point of contact for the NHS on the south bank is the Lincolnshire Ambulance control room. They then inform South Humber Health Authority Public Health personnel on a 24 hour, seven day a week basis.

Please send comments by e-mail to either Dr Mathews at terry.mathews@shumber-ha.trent.nhs.uk] or to Virginia Murray atn Virginia.murray@gstt.sthames.nhs.uk

Summary Conversion Table

Chemical incidents with biological and environmental measurements have often caused problems in the accurate interpretation and understanding of the results. The following table has been collated to provide a summary of commonly used abbreviations and conversions to other units.

Note:
If there are other units you would like added please could you e-mail CIRS at CIRS@gstt.sthames.nhs.uk with your requests.

kg^{-1} = /kg = per kg

*both substances must have the same density

Abbreviation	Definition	Conversion
t	tonne	1 t = 1000 kg
kg	kilogram	1 kg = 1000 g
g	gram	1 g = one thousandth (10^{-3}) of a kilogram 1000 g = 1 kg
mg	milligram	1 mg = one thousandth (10^{-3}) of a gram 1000 mg = 1 g
mg/kg	milligram per kilogram	1 mg/kg = 1 ppm*
µg	microgram	1 µg = one millionth (10^{-6}) of a gram 1000 µg = 1 mg
µg/l	microgram per litre	1 µg/l = 1 µg/kg = 1 ppb*
ng	nanogram	1 ng = one billionth (10^{-9}) of a gram 1000 ng = 1 µg
ng/kg	nanogram per kilogram	1 ng/kg = 1 ppt*
ng/l	nanogram per litre	1 ng/l = 1 ng/kg = 1 ppt
pg	picogram	1 pg = one trillionth (10^{-12}) of a gram 1000 pg = =1 ng
ppm	parts per million	1 ppm = 1 mg/kg* 1 ppm = 1000 ppb*
ppb	parts per billion	1 ppb = 1 µg/kg* 1000 ppb = 1 ppm*
l	litre	1 litre = 1 kg (of water) 1 litre = one thousandth (10^{-3}) of a cubic metre
m	metre	1 m = 100 cm 1 m = one thousandth (10^{-3}) of a kilometre
cm^3	cubic centimetre	1000 cm^3 = 1 litre
% v/v	percentage volume per volume	% v/v = ml/100 ml
% w/v	percentage weight per volume	% w/v = g/100 ml
% w/w	percentage weight per weight	% w/w = g/100 g
atm	Standard atmospheric pressure	= 1.013 bar = 10.33mH_2O = 760 mmHg
Gases only	ppm = 0.083 x mg/m^3 x Temp (Kelvin) x Pressure (Bar) / Molecular Weight	

CIRS Training Days

Following the success of previous training days, CIRS is pleased to announce the 2001 Training Days. For booking information on these courses and further details please contact Rico Euripidou 0207 771 5381 for the CIRS courses. Detailed information about these courses can be found on the enclosed **training flyer**

All the eight courses listed for 2001 will be held in the Sherman Centre, 4th Floor Thomas Guy House, Guy's Hospital, by London Bridge Station, London SE1 9RT

Those attending a CIRS course will receive a Certificate of Attendance and CPD/CME information.

CIRS How to Respond to Chemical Incidents

Thursday 22nd February 2001

(for Public Health Consultants and Specialist Registrars on call)

This one day course is an introduction to chemical incident response. Topics covered include a review of recent chemical incidents, how to respond to chemical incidents and lessons learnt, decontamination, exercises and information available from CIRS and the Medical Toxicology Unit.
A maximum of forty places are available for this course.

CIRS: Training Day: IPPC in Context

Friday 16th March 2001

This is an essential course for those working within Health Authorities who are likely to be involved with their statutory role in responding to IPPC applications. Speakers come from the Environment Agency and the health domain.
Professor Rod Griffiths, Regional Director of Public Health, NHSE West Midlands will chair the day.
For more details see page 23 of this Chemical Incident Report. A maximum of 40 places are available for this course.

CIRS Food Training Day

Tuesday 12th June 2001

(for CsCDC, CsPHM and Specialist Registrars and Local Authority Environmental Health Officers).

This one day course is designed to consider CDSC Surveillance, the role of the Food Standards Agency in responding to chemical incidents, Local Authorities role in investigating chemically related food incidents, and Scrombotoxin and other nasties. At the conclusion of the day it is intended that a checklist for food related incidents will be agreed.
A maximum of 30 places are available for this course.

CIRS Transport Training Day

Thursday 26th July 2001

((for CsCDC and CsPHM who have responsibility for chemical incidents and who have attended the basic course).

CIRS has been increasingly concerned about the difficulties of planning for transport related incidents. This one day course will consider air, road, rail and sea events by reviewing recent incidents. Various agencies such as the Pollution Control Branch of the Maritime and Coastguard Agency have been asked to present their roles and responsibilities. The aim is to try and develop a clearer approach on how to respond to chemical incidents arising from transport accidents. A maximum of 30 places are available for this course.

CIRS How to Respond to Chemical Incidents

Tuesday 25th September 2001

(for Public Health Consultants and Specialist Registrars on call)

This one day course is an introduction to chemical incident response. Topics covered include a review of recent chemical incidents, how to respond to chemical incidents and lessons learnt, decontamination, exercises and information available from CIRS and the Medical Toxicology Unit.
A maximum of 40 places are available for this course.

CIRS Land Contamination Training Day

Thursday 11th October 2001

(for CsCDC, CsPHM and Specialist Registrars and Local Authority Environmental Health Officers).

This specialist training day will cover a selection of issues focused on the management of land contamination incidents. The day will be of most benefit to those have been involved in the management of land related chemical incidents. A maximum of 30 places are available for this course.

CIRS Air Contamination Training Day

Thursday 22nd November 2001

(for CsCDC, CsPHM and Specialist Registrars and Local Authority Environmental Health Officers).

This specialist training day will cover a selection of issues focused on the management of acute and chronic air contamination incidents. The day will be of most benefit to those who have been involved in the management of air related chemical incidents.
A maximum of 30 places are available for this course.

CIRS Water Contamination Training Day

Friday 7th December 2001

(for CsCDC, CsPHM and Specialist Registrars and Local Authority Environmental Health Officers).

This specialist training day will cover a selection of issues focused on the management of water contamination incidents. The day will be of most benefit to those who have been involved in the management of water related chemical incidents. A maximum of 30 places are available for this course.

If Health Authorities would like additional support with training please contact CIRS and discuss with *Dr Virginia Murray's secretary Mrs Joan Bennett on 0207 771 5383*

Table 10: Summary of Chemical Incidents responded to by Chemical Incident Response Service in 2000

Statistic / Region	Total population of area[1] (in thousands)	Total no. of hospitals using NPIS (L) in region	Total no. of hospital enquiries to NPIS(L) in region - Jan—Sep 2000[2]	No. of Chemical incidents identified by CIRS from hospital enquiries	No. of Chemical Incidents identified by CIRS from Public Health enquiries	No. of Chemical Incidents identified by CIRS from other medical professional enquiries	Total number of chemical incidents
Eastern	5394.5	32	12464	54	50	2	106
London	7185.1	64	27713	100	75	15	190
North West	6604.5	49	12137	44	93	2	139
South East	8621.8	71	20732	66	110	21	197
South West	4923.1	46	3941	27	98	2	127
Trent	5162.1	35	7422	34	40	0	74
Sub-Total	**37891.1**	**297**	**84409**	**325**	**466**	**42**	**833**
Region unspecified	n/a	n/a	n/a	n/a	n/a	12	12
outside CIRS area	n/a	n/a	11283	n/a	n/a	68	68
Final Total	n/a	n/a	**95692**	**325**	**466**	**122**	**913**

Key: [1] Health Service Journal, Map of the National Health Service, 1999, England;
[2] total number of emergency care enquiries received by telephone Jan-Dec 2000 by NPIS(L): 158 858
NPIS (L) : National Poisons Information Service, London
n/a : not applicable

4th International Training Conference on Chemical Incidents: May 9-11, 2001 St.David's Hotel, Cardiff Bay, Cardiff, UK

The National Focus for Work on Response to Chemical Incidents and Surveillance of Health Effects of Environmental Chemicals. University of Wales Institute, Cardiff (UWIC), Western Avenue, Cardiff CF5 2YB, Wales, UK.

This multi-disciplinary conference is aimed at all professionals involved in managing the multi-faceted aspects of preparing for, managing and responding to chemical incidents. Thus, the conference will be of particular interest to emergency services personnel, environmental health officer, patholologists, public health physicians, Emergency Planners as well as those responsible for public health and health and safety policy. The format of this year's conference will differ from that of previous years and will take the following shape: *Main Conference:* The following areas will be covered by eminent speakers: *Planning for and management of major chemical incidents, The role of the Emergency Services, Laboratory support, Clinical aspects, Environmental aspects, Public health, Environmental Toxicology, with examples of incidents from around the world, Long term public health consequences of both acute and chronic exposures*

Submission of Scientific Papers: Delegates are encouraged to submit, by e-mail, scientific papers for presentation at the conference. The submissions will be assessed by peer review and delegates invited to present a short presentation (10 minutes) or a poster communication.

Further details will be available soon, together with application forms. Enquiries by :***telephone*** The National Focus Office, 029 20416388, ***E-mail***:nfocus@uwic.ac.uk, or ***Internet*****:** www.natfocus.uwic.ac.uk

CIRS sends congratulations to Henrietta Harrison, our Toxicology Information Officer, and her husband Philip on the arrival of their daughter, Emma, who was born on Thursday 18th January 2001.

Chemical Incident Report
Edited by Dr Virginia Murray, prepared and distributed in collaboration with Rico Euripidou, Joan Bennett, Ivan House and the staff of the Chemical Incident Response Service.