

# Svenska svar på europisk enkät om olycksutredningar

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## 1 Inledning

European Safety, Reliability and Data Association (ESReDA) har sedan flera år en arbetsgrupp (Accident Investigation Work Group, AIWG) som arbetar med frågor kring olycksutredningar. Hittills har Sverige inte varit med i detta samarbete men har trätt in från januari 2002. Intressenter från svensk sida är bl.a. KTH och Räddningsverket.

Mål för gruppen är att ta fram riktlinjer för utredningar, dels med fokus på myndigheter, dels med inriktning på behoven hos verksamhetsansvariga i industri, transporter etc.

En del av gruppens verksamhet är att ta fram en summering av hur man utreder olyckor på olika håll i Europa. En enkät hade skickats ut under hösten 2001 och cirka 30 organisationer hade svarat, dock ingen från Sverige. Syftet med enkäten är att klargöra "state of the art" hur man utreder stora olyckor i Europa.

När jag kom i kontakt AIWG, visade det sig att av enkäten var fördröjd så vi tyckte det vore önskvärt med ett svenskt deltagande. Det fanns flera skäl, som att det kunde finnas mycket att lära och ett snabbt sätt att visa ett aktivt intresse. Under februari 2002 skickades enkäten till ett antal svenska myndigheter och organisationer.

Den totala rapporten med alla inblandade länder är ännu inte klar. Denna summering innehåller enbart de svenska svaren. Någon egentlig analys av resultatet har inte gjorts ännu, utan de givna svaren från myndigheterna får tala för sig själva.

Enkäten har skrivits på engelska. Denna summering kommer därför att innehålla en blandning av svenska och engelska.

## 2 Enkäten

Syftet med enkäten uttrycks som: *"The purpose of the questionnaire is to clarify the state of the art of major accident investigation in Europe and in more detail to find out how investigations are carried out in different organisations".*

Det handlar således om utredningar av större olyckor, och inom olika branscher. Denna enkät är i huvudsak inriktad på myndigheter.

Enkäten innehåller 16 frågor om hur organisationen utreder olyckor och haverier.

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<sup>1</sup> [www.ima.kth.se](http://www.ima.kth.se)

<sup>2</sup> [www.irisk.se](http://www.irisk.se)

Enkäten gick ut till åtta myndigheter och en annan statlig organisation i Sverige. Samtliga myndigheter har svarat. För myndigheterna har svarsprocenten därmed varit 100%. Den nionde organisationen har ej svarat, men eftersom den inte är myndighet kan detta vara bra genom att svaren då blir helt fokuserade på myndighetsrollen.

Den svenska insatsen var tidspressad, och urvalet av organisationer blev ej fullständigt. De som kontaktats var sådana som tidigare visat intresse för utredningsfrågor. Det finns troligen flera som kunde inkluderats, och som bör kontaktas ifråga om ytterligare samarbete.

Tabell 1 visar de myndigheter som svarat. Räddningsverket har flera olika verksamheter med skilda arbetsätt och har valt att ge svar från flera olika områden inom sitt ansvarsområde. Totalt finns det därmed 11 svar på enkäten.

Tabell 1 De myndigheter som lämnat svar på enkät om utredningar.

	<b>Förkortn</b>	<b>Myndighet</b>	<b>Kontakt person</b>
1	AV	Arbetsmiljöverket Swedish Work Environment Authority	Folke Lindberg folke.lindberg@av.se
2	BV	Banverket Swedish National Rail Administration	John-Åke Halldén john-ake.hallden@banverket.se
3	J	Järnvägsinspektionen Swedish National Rail Inspectorate	Kjell Johansson kjell.johansson@jarnvagsinsp.se
4	SjöV	Sjöfartsverket Swedish Maritime Safety Inspectorate	Sten Anderson sten.anderson@sjofartsverket.se
5	SHK	Statens haverikommission Swedish Board of Accident Investigation	Carin Hellner ch@havkom.se
6	SKI	Statens Kärnkraftinspektion Swedish Nuclear Power Inspectorate	Per-Olof Sandén perolof.sanden@ski.se
7	VV	Vägverket Swedish National Road Administration	Peter Larsson peter.larsson@vv.se
-	SRV	Räddningsverket Swedish Rescue Services Agency	
8	SRV-BEx	SRV - Avd. för brandfarlig och explosiv vara	Alf Rosberg ar@sprangarnes.se
9	SRV-R	SRV- Räddningstjänstavdelningen	Björn Albinson Bjorn.albinson@kd.srv.se
10	SRV-RoM	SRV- Risk- och miljöavdelningen	Hans Ekåsen hans.ekasen@kd.srv.se
11	SRV-TE	SRV- Tillsynsenheten	Lena Tellvik lena.tellvik@kd.srv.se

Frågornas utformning och deras svar återges i tabellform i nästa avsnitt för frågorna 1 - 14. Frågorna 15 och 16 återges nedan:

**Fråga 15:** "Other information that should be taken into account by ESReDA."

Arbetsmiljöverket svarar:

We have worked for 6 month but inspectors have made investigations for many years.

Vägverket svarar:

"The information given above is only valid for the in depth studies of fatal road accidents."

**Fråga 16:** "Information of contact person."

Detta har summerats i Tabell 1 högra spalten.

### 3 Svar på enkäten

**Fråga 1:** What is your definition and/or what are your criteria for an “*accident*”?

**Fråga 2:** What is your definition and/or what are your criteria for an “*incident*”?

Tabell 2 Svar på två första frågorna (Utförliga svar ges som kommentarer efter tabellen)

		<b>1 Definition accident</b>	<b>2 Definition incident</b>
1	AV	One day of from work. Safety at work.	Unwanted occurrence which could have lead to an accident.
2	BV	Any accident involving a moving rail vehicle. In our statistic we only count accidents involving death or serious injury, or with costs in excess of EUR 10 000 (common definition in the UIC).	An event that during slightly different conditions could have lead to an accident.
3	J	An event which causes losses in human life or health, losses in infrastructure or rolling stock, damage to the environment or spillage of dangerous goods	An event which could, under other circumstances have lead to an accident.
4	SjöV	Accident is an undesired event, which results in harm to people, damages to property, process loss and/or damage to environment.	The word “incident” is to be avoided. A better word is “near accident” or “near miss” (tillbud in Swedish). ( <i>Kommentar A</i> )
5	SHK	Those terms are not defined in the law. The law define “accidents which shall be investigated”. ( <i>Kommentar B</i> )	An incident we operationally define as a set of circumstances that may have led to an accident. Regarding to flight there are examples of serious incidents in the above mentioned Annex.
6	SKI	Any deficiency arising in a barrier or any other condition leading to the dispersion of radioactive substances or which leads to radiation doses exceeding permissible limits during normal operation (The Swedish Nuclear Power Inspectorate´s Regulations Concerning Safety in Certain Nuclear Facilities, SKIFS 1998:1)	The concepts used within nuclear safety are events and conditions. ( <i>Kommentar C</i> )
7	VV	I can only answer for the traffic safety part. In general we mean an accident which occurs on the road with at least one vehicle in motion (road accident).	We do not use incidents in our work.
8	SRV-BEx	An event that cause injury, damage on the environment or loss of economic values.	An event that could cause injury, damage on the environment or loss of economic values.
9	SRV-R	Accident, in these answers, is where the fire brigade has been called.	As above
10	SRV-RoM	The law about haz-mat transportation says; “The accident has caused damage on humans, animals, property or environment.	The law about haz-mat transportation says; “An accident that <u>could</u> have caused damage on humans, animals, property or environment.
11	SRV-TE	.... accidents that could cause serious injury to people or serious damage to the environment. ( <i>Kommentar C</i> )	See answer to question 1.

## **Kommentarer: De fullständiga svaren till frågorna 1 och 2**

### **A (SjöV)**

A near accident is

- an undesired event which, under slightly different circumstances, could have resulted in an accident or loss of operational ability, or
- undesired working conditions which, under slightly different circumstances, could have resulted in an accident or loss of operational ability, or
- an undesired event which did not result in injury, illness, damage or production loss, but could have resulted in such, depending on other circumstances.

### **B (SHK)**

The law that is the basis for our activities, Act (1990:712) on the Investigation of Accidents, uses the words accident and incident. But those terms are not defined in the law. The law defines "accidents which shall be investigated". Regarding to flight accidents there is a definition of an accident in Annex 13 to the Convention on International Civil Aviation (Sweden is one of the contracting states). In other areas than flight we operationally define an accident as an unexpected, sudden event with fatal consequences, and "accidents which shall be investigated" are more exactly defined in the law mentioned above.

### **C (SKI)**

The concepts used within nuclear safety are events and conditions. Events and conditions which are within the scope of the "International Nuclear Event Scale (abbreviated as INES), are described in the International Atomic Energy Agency's (IAEA) and the Nuclear Energy Agency's (NEA) document: "INES: The International Nuclear Event Scale – User's Manual". The manual describes how the events are to be classified and what a report should contain. Events which fall within the scope of the INES level 2 or higher must be reported within 16 hours, in order for the Swedish Nuclear Power Inspectorate to be able to establish the classification and report to the IAEA within 24 hours after the event has occurred, in accordance with the agreement signed between Sweden and the IAEA.

Also, SKIFS 1998:1 defines three categories of the severity of detected deficiencies in the defence-in-depth system to be reported to SKI. Category 3 defines "incidents": temporary deficiency in the defence-in-depth system which arises when such an event or condition is corrected and which, without measures, could lead to a more severe condition, and which is documented in the Technical Specifications.

### **D (SRV-TE)**

The regulations governing the reporting of accidents can be found in Swedish rescue services legislation. Paragraph 43 of the Swedish Rescue Services Act defines those operations, – at establishments – covered by the regulations, which involve a risk for accidents that could cause serious injury to people or serious damage to the environment.

The obligation to report accidents, during these operations, to the Swedish Rescue Services Agency (SRSA) is clearly detailed in 70 § of the Swedish Rescue Services Act, which orders that if an accident, that can cause serious injury to people or damage to the environment, occurs at such an establishment – as defined by 43 § of the Swedish Rescue Services Act (1986:1102) – or where there is imminent danger of such an accident the owner or proprietor of the establishment must immediately inform his/her municipality and the SRSA.

All operations covered by the Swedish Seveso II legislation are also covered by 43 § of the Swedish Rescue Services Act. Paragraph 70 of the Swedish Rescue Services Act includes an obligation for the SRSA to inform the European Union Commission in accordance with articles 15 and 19 of the Council directive 96/82/EG, dated 9th December 1996, regarding on the control of major accident hazards involving dangerous substances.

**Fråga 3:** Is a formal investigation carried out depending on the **probability** and/or **consequence** of the accident?

**Fråga 4:** Is in your country a **formal permanent** established organisation active to carry out accident investigations within your field?

Tabell3. Svar på frågorna 3 och 4. (Utförliga svar ges som kommentarer efter tabellen)

		<b>3 Probability and/or consequence</b>	<b>4 Formal permanent organisation</b>
1	AV	It is depending of both probability and consequence.	In Swedish Work Environment Authority is established an commission of inquiry. It is established by the Director-general.
2	BV	All accidents are investigated, although minor accidents may be analysed together with similar accidents. We are obliged by law (BV-FS 1996:1) to carry out investigations as a part of our safety management system.	“Statens Haverikommission” (The National Board of Accident Investigation) and The Railway Inspectorate .
3	J	Accidents with high consequences must be investigated, but also accidents and incidents with high possible consequences can be investigated.	The Swedish Investigation Board and Swedish National Rail Inspectorate
4	SjöV	Depending on the consequence.	<b>Yes.</b> Maritime Casualty Investigation Division within the Maritime Safety Inspectorate. If a ship has been abandoned at sea, 5 or more dead or loss more than 20 milj SEK The Board of Accident Investigation is the investigation body.
5	SHK	If the expected consequences of an accident are of a certain extent, in accordance with the law, we investigate the incident. We can always investigate an incident if an investigation is of importance from the safety point of view.	<b>Yes,</b> The Swedish Board of Accident Investigation, SHK, is such an organization. SHK is an independent authority arranged by law.
6	SKI	Both.	<b>No.</b> Normally, the licence holder will establish the organisation. In certain cases SKI will establish a temporary group within the Inspectorate, a so called RASK-investigation.
7	VV	Depending on the consequence. We carry out in depth studies of every road accident in Sweden which include at least one fatality.	<b>Yes.</b> This is done within the organisation of the Swedish National Road Administration. (Kommentar A)
8	SRV-BEx	Accidents and incidents that could cause “a high consequence” will go through a more proper investigation	The competent authorities will investigate serious accidents. For explosives and flammables it is The Swedish Rescue Services Agency together with the local police.
9	SRV-R	Consequences	Just for some bigger accidents. Proposal is made to “force” the fire brigade to do some investigations.
10	SRV-RoM	A <u>formal</u> investigation is not carried out of our organisation. SRSA has no responsibility according to the act of carriage of dangerous goods.	<b>Yes.</b> 1. By the government. 2. Yes 3. <a href="http://www.havkom.se">www.havkom.se</a>
11	SRV-TE	Potential consequences (Kommentar B)	The Swedish National Board of Accident Investigation takes the initiative to investigate serious accidents if they are covered by the criteria stated in the Act (1990:712) on the Investigation of Accidents. There are criteria for aviation, maritime, railway, and other serious types of accidents.

**Kommentarer: De fullständiga svaren till frågorna 3 och 4****A (VV)**

It is not arranged by law. Some extremely severe road accidents or accidents of special interest are investigated by the Swedish Board of Accident Investigation. These investigations are governed by law.

**A (SRV-TE)**

If an accident or incident occurs, during an operation covered by 43 § of the Swedish Rescue Services Act, those responsible are obliged to inform their municipality and the SRSA immediately, detailing:

- the circumstances of the accident, incident or imminent accident;
- the dangerous substances that are present in the establishment that could cause serious injury to people or serious damage to the environment; and whether or not any of said substances have leaked out;
- the information that is accessible to facilitate an assessment of the consequences for people and the environment; and - - what emergency measures have been taken.

As soon as is possible, a person responsible for the operation must submit information detailing:

- what decontamination and restoration measures are planned for the limitation of the consequences; and
- what measures are planned for the prevention of another accident.

**Fråga 5:** Who (in your organisation) **appoints** the members of the investigation team?

**Fråga 6:** What are the **criteria** for appointing the members of the investigation team?

Tabell 4. Svar på frågorna 5 och 6. (Utförliga svar ges som kommentarer efter tabellen)

		<b>5 Who appoints?</b>	<b>6 What are the criteria?</b>
1	AV	The secretariat of the commission.	All of your criterias are used.
2	BV	The obligation to carry out investigations is delegated to line-managers. Some few accidents is investigated by special teams appointed by the safety director.	We have a education for accident-investigators. Look at appendix (bilaga ) 9 in attached BVH 006.
3	J	The First Investigation Officer	In most cases general recognized specialists in rail transportation, but if it is necessary, we can appoint specific specialists and experts on human reliability.
4	SjöV	2 investigators are permanently employed.	General recognized specialists (for shipping transports).
5	SHK	An investigation is supervised by a chairman. The chairman appoints the members of the investigation team from case to case basis depending on the circumstances (type of accident etc).	see 5. We have a few investigators employed full time ( expert in flight operations and expert in flight engineering). We also have a few investigators part time . If needed we are free to contract external experts in an investigation.
6	SKI	Normally, the head of Reactor safety will appoint the members of the investigation team.	The team should have competence within following areas: deep knowledge of the facility, knowledge in relevant technical/engineering areas and human factors and MTO-knowledge (interaction Man-Technology- Organisation).
7	VV	We do not have a formal person or process for that. We have special investigation teams that consist of people with good knowledge about vehicles, roads and some times also behaviour.	The criteria are as mentioned earlier good knowledge about the road transport system at its components.
8	SRV-BEx	The Head of Department	Specialist on safety and handling of explosives or flammables. Experience from investigations of accidents.
9	SRV-R	For fire investigations we appoint some persons in some brigades – but it is on a voluntary base.	Fire officers with a special education – only for fire investigations.
10	SRV-RoM	See question 3 (A <u>formal</u> investigation is not carried out of our organisation.)	See question 3
11	SRV-TE	No praxis so far ( <i>Kommentar A</i> )	Depending on the type of accident an investigation group is formed from personnel who have the right background and knowledge.

#### **Kommentar A (SRV-TE)**

Within the framework of the work of its Supervision Department the SRSA can follow up on and make use of observations from accidents during operations that are covered by 43 § of the Swedish Rescue Services Act. So far the SRSA has not taken the initiative for any such investigations, but if a current situation were to arise then the SRSA and the relevant county administrative board would carry out a joint investigation. The Head of the SRSA's Supervision Department would in turn take the initiative for such an investigation and propose members for a working party.

County administrative boards and municipalities can also initiate investigations of accidents of this kind.

**Fråga 7:** Is it mandatory or voluntary to answer questions and provide information to the investigation team?

**Fråga 8:** Describe the **structure** of the permanent or temporarily organisation that is responsible for the accident/incident investigations.

Tabell 5. Svar på frågorna 7 och 8. (Utförliga svar ges som kommentarer efter tabellen)

		<b>7 Mandatory or voluntary?</b>	<b>8 Describe the structure</b>
1	AV	Voluntary	The commission is placed directly under the Director-general.
2	BV	Mandatory. No sanctions. Our point of view is that sanctions are contra-productive in the context of safety-management.	See question 5. ( <i>Kommentar A</i> )
3	J	Mandatory.	-
4	SjöV	Voluntary since you can refuse to answer questions. On the other hand, the investigator can demand a maritime declaration hearing in court. If someone is lying in court, he can be prosecuted.	1 chief investigator, 1 investigator, 1 analyser and 1 secretary. In regions, there are inspectors collecting data and information on the spot.
5	SHK	It is not mandatory to answer questions put forward by the investigation team. But the authority can get assistance from the police. But if for instance a witness refuses to answer questions it is possible for SHK to go to court and hear the witness.	see question 5 and 6
6	SKI	Mandatory according to the Nuclear Act,1984:3 17 §.	The investigation team reports to the Head of Reactor Safety. Normally, a presentation of the results will also be given to the Reactor Safety Committee and the Board of SKI.
7	VV	Voluntary	Teams in our seven region offices ( <i>Kommentar B</i> )
8	SRV-BEx	Mandatory. The possible sanctions are fine or up to one year imprisonment.	Depending on the nature of the accident the structure can differ.
9	SRV-R	Voluntary	SRSA pays to get around 500 investigations per year.
10	SRV-RoM	See question 3	See question 3
11	SRV-TE	( <i>Se Kommentar C</i> )	( <i>Se Kommentar D</i> )

### Kommentarer: De fullständiga svaren till frågorna 7 och 8

#### A (BV)

Banverkets organisation is available on our website ([www.banverket.se](http://www.banverket.se)) . Infra-structure managers has a obligation to investigate all accidents. Other managers has to carry out investigations where their staff is involved. Investigations may be carried out in co-operation with other parties (both internal and external).

**B (VV)**

The accidents are investigated by teams in our seven region offices (one per region). They are also responsible for putting together the information and draw preliminary conclusions. The work is held together by the head office that gives the framework for the work, develops strategies, routines, methods etc. It is a very uncomplicated organisation with few levels.

**C (SRV-TE)**

Paragraph 19 of the Act (SFS 1999:381) on Measures to Prevent and Limit the Consequences of Major Chemical Accidents – For supervisory purposes, supervisory authorities have the right to access an operation. Supervisory authorities also have the right to access information and those documents that are required for supervisory purposes.

Paragraph 55 of the Swedish Rescue Services Act – For supervisory purposes, supervisory authorities have the right of access to buildings, sites, and installations. Supervisory authorities also have the right to access information and those documents that are required for supervisory purposes.

**D (SRV-TE)**

Paragraph 54 of the Swedish Rescue Services Act – At a municipal level a committee, specified in 10 §, performs the immediate supervision of adherence to this act, and regulations issued under it. At a county level supervision is carried out by the county administrative board. And at a central level supervision is carried out by the SRSA.

Paragraph 15 of the Act (SFS 1999:381) on Measures to Prevent and Limit the Consequences of Major Chemical Accidents states that the SRSA is the central supervisory authority for supervision of adherence to the Act and regulations issued under it. The county administrative boards are responsible for operational supervision, for which they receive guidance from the SRSA.

**Fråga 9:** What are the **primary objectives** of the **different levels** in the investigation organisation?

**Fråga 10:** What is the **scope** of the investigation?

Tabell 6. Svar på frågorna 9 och 10.

		<b>9 Primary objectives?</b>	<b>10 Scope?</b>
1	AV	We do not have different levels.	Accidents or incidents at workplaces.
2	BV	To prevent similar accidents. The investigation is used in the safety management system to decide on corrective and preventive actions. Decisions can be taken on several management levels.	Rail-transport including electrical safety.
3	J	-	Transport by rail
4	SjöV	See above.	Transport by water.
5	SHK	Not applicable since our organization is very flat.	The law explicitly states that accidents concerning air, water and rail traffic are to be investigated if they are of a certain degree of severity. But also other accidents should, if they are considered very serious, be investigated. Finally also accidents less severe should be investigated if the investigation may lead to improved safety.
6	SKI	-	The scope of the investigation is production and safety. The scope could also be transportation of nuclear fuel or waste.
7	VV	-	Transport by road.
8	SRV-BEx	To find and understand the cause of an accident and prevent new accidents. To find and punish people who are responsible for the accident( the police)	Handling of explosives and flammables.
9	SRV-R	To find cases of fires. In some cases also to find problems with building regulations and fire fighting tactics.	Fires – mainly in buildings
10	SRV-RoM	See question 3	See question 3
11	SRV-TE	The Swedish National Board of Accident Investigation investigates accidents of a particularly serious nature. In other instances, the relevant authorities can initiate accident investigations.	To investigate serious injuries to people and serious damage to the environment resulting from operations covered by 43 § of the Swedish Rescue Services Act.

**Fråga 11:** What is/are the **primary objective(s)** of the accident/incident **investigations**?

**Fråga 12:** Describe the **procedures/instructions** that are available to carry out the accident/incident investigations.

Tabell 7. Svar på frågorna 11 och 12. (Utförliga svar ges som kommentarer efter tabellen)

		<b>11 Primary objective(s)?</b>	<b>12 Procedures/instructions</b>
1	AV	Prevention of accidents/incidents by identifying systematically threats. Recommendations to reduce or to eliminate identified threats. Determining breaking law/regulations.	We have some internal procedures for investigations.
2	BV	See 9	Attached. We only have them in Swedish.
3	J	Recommendations to reduce or to eliminate the identified threats	Accident investigation act Accident investigation ordinance (med internet-länkar)
4	SjöV	<ul style="list-style-type: none"> <li>• Fact-finding</li> <li>• Prevention of accidents/near-misses by identifying systematically threats</li> <li>• Recommendations to reduce or to eliminate the identified threats</li> <li>• Determining breaking law/legislation</li> </ul>	General instructions are given by law and by internal instructions within the government. These are available if needed.
5	SHK	The primary objective is to prevent future accidents by issuing recommendations to eliminate identified threats	We have internal instructions and checklists to set out the procedures of an investigation.
6	SKI	The primary objectives are: <ul style="list-style-type: none"> <li>• to get an independent view of the event, its courses and immediate remedies taken by the licence holders, and</li> <li>• prevention of accidents/incidents by identifying systematically threats to safety</li> </ul>	The Quality system of SKI has a chapter about experience feedback of safety related events and conditions. In this chapter the so called RASK-investigation procedure is described. The steps of how to conduct the investigation are described as well as the content and structure of the report.
7	VV	To improve our understanding. ( <i>Kommentar A</i> )	( <i>Kommentar B</i> )
8	SRV-BEx	To find and understand the cause of an accident and prevent new accidents.	We have no formalized procedures for the investigations.
9	SRV-R	As above – to avoid new ones and find to primary fire start	From education – no formal scheme in this cases
10	SRV-RoM	See question 3	See question 3
11	SRV-TE	See answer to question 10.	Apart from the requirements stated in 70 and 70a §§ of the Swedish Rescue Services Ordinance there are no other instructions.

### **Kommentarer: De fullständiga svaren till frågorna 11 och 12**

#### **A (VV)**

The primary objectives are:

- To better understand what causes fatal injuries in the road transportsystem. The in depth studies are not primarily focused on what causes the accidents.
- Create an understanding about at leading levels in the society the tragedies and human catastrophes that are hidden behind the statistic figures.

To be used as a tool in the quality management of the road transport system. It is used for assessing the traffic safety quality of the system and also as a tool to identify efficient and long-term stable solutions that effects primarily the **injury risk** and with a holistic system approach. It is **not** used for answering questions on guilt and liability

**B (VV)**

We have a “hand book” in Swedish that describes how the investigations should be carried out. It is important to notice that we collect some “hard” data but mainly “soft” data since our ambition is to get a holistic view of the whole system.

**Fråga 13:** Describe the standard **method** that is recommended to carry out the accident/incident investigations.

**Fråga 14:** Are you willing to co-operate with ESReDA and inform ESReDA in more detail about the investigations?

Tabell 7. Svar på frågorna 13 och 14. (Utförliga svar ges som kommentarer efter tabellen)

		<b>13 Recommended standard method</b>	<b>13 Co-operate with ESReDA?</b>
1	AV	The chain of events and the factors behind the different events in the chain.	Yes by interview with ESReDA.
2	BV	See 12 (have procedures in Swedish)	We can discuss this matter further. We can't give this priority.
3	J	-	Interview with ESReDA. Giving bookmarks to relevant www pages.
4	SjöV	There is no standard method used.	Yes
5	SHK	In all investigations we mainly follow the investigation model lined out in the above mentioned Annex.	You will find information regarding the Swedish Board of Accident Investigation at <a href="http://www.havkom.se">www.havkom.se</a>
6	SKI	Includes MTO och barriers, with 6 steps. (Kommentar A)	Yes, I am willing to co-operate in interview or/and by e-mail.
7	VV	We do not use a standard method. We carry out case studies since the variety of accident is so great.	It depends on the resources that must be put into it.
8	SRV-BEx	We will try to find the initiation-point and then identify technical and human errors.	Yes !!
9	SRV-R	No written standard method	Not for now. The system will be changed and we hope to some co operation with agencies more specialised in fire investigation
10	SRV-RoM	See question 3	Yes, if possible
11	SRV-TE	Apart from the requirements stated in 70 and 70a §§ of the Swedish Rescue Services Ordinance there are no other instructions.	The SRSA submits reports in connection with the Seveso II Directive to the Commission's MARS database.

**Kommentarer: De fullständiga svaren till frågorna 13 och 14****A (SKI)**

The method has some similarities to the MTO-analysis including barrier analysis and a focus on how the licence holder responds to the incident.

The steps to investigate (and describe) are:

- the course of event (both from a human factors and technical point of view)
- possible causes of the event (focus on deficiencies in barriers – both technical and administrative/organisational barriers)
- possible consequences and the impact on safety
- a proposal on areas for improvement of safety barriers or conditions that could stop the event from recurring
- immediate measures or plans by the licence holder, and an evaluation on if these measures are enough to permit the licence holder to operate, and
- what measures SKI has to take due to the event.