

## **APPENDIX A.1**

### **SOURCE CLASSIFICATION AT NATIONAL LEVEL**

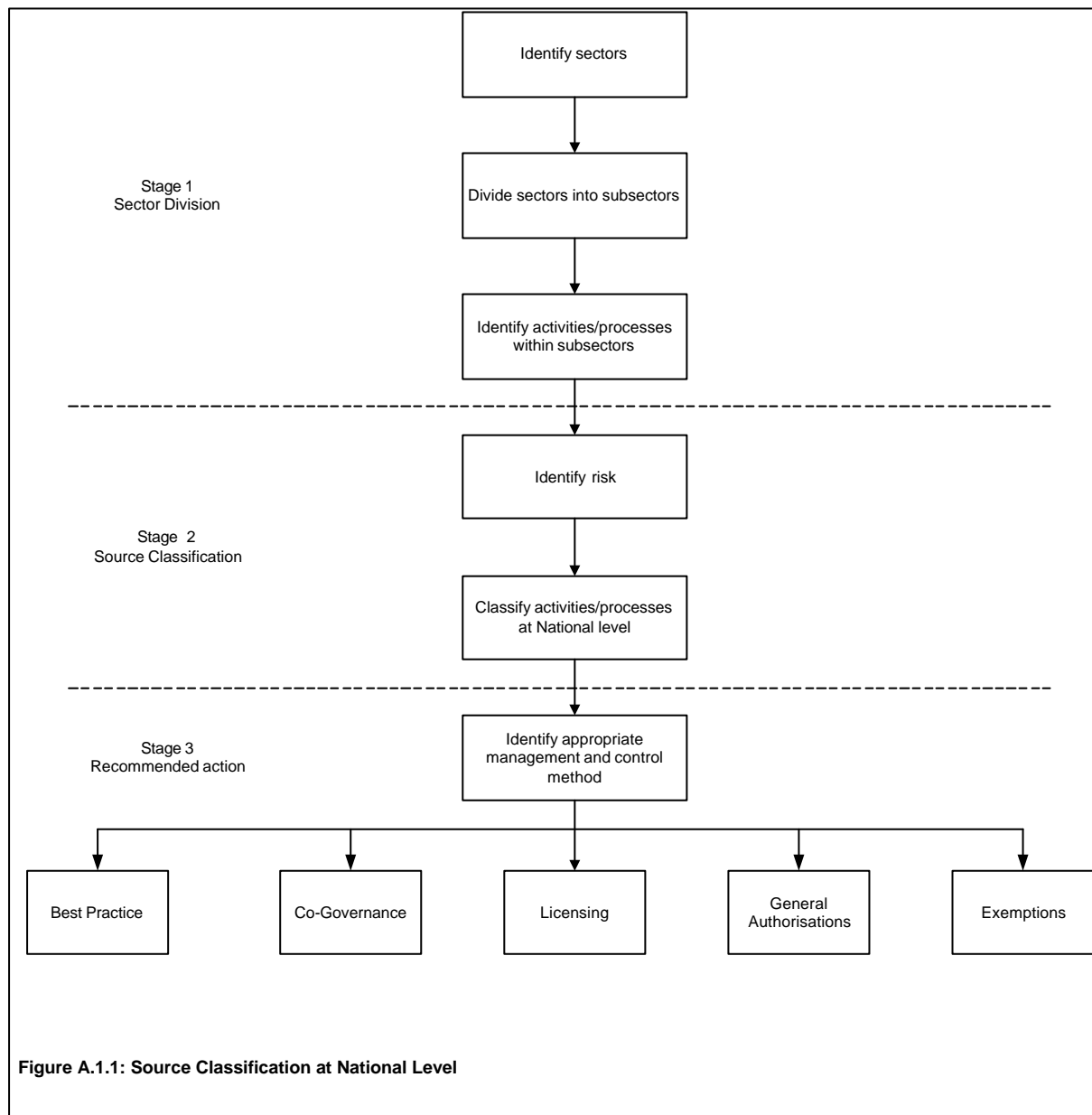
#### **TABLE OF CONTENTS**

1	PROCESS DIAGRAM.....	1
2	PROCEDURAL GUIDELINE .....	2
2.1	Stage 1: Sector division .....	2
2.2	Stage 2: Source classification.....	2
2.3	Recommended action.....	2

#### **LIST OF TABLES**

Table 1.1	Sector divisions and source classification
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# 1 PROCESS DIAGRAM



## **2 PROCEDURAL GUIDELINE**

### **2.1 Stage 1: Sector division**

This stage is geared towards dividing the sectors to a suitable level so that the classification at a National level is meaningful and can be undertaken.

Five main sectors are identified (as shown in **Table 1**), namely a) mining, b) industry, c) agriculture, d) settlements (urban and rural/dense) and e) national infrastructure. The sectors are divided into sub-sectors and further categorised into activities and processes of a similar nature.

### **2.2 Stage 2: Source classification**

The activities and process are classified based on a qualitative (first-tier) assessment of the level of threat to the water resource, i.e. the potential of the source to have a serious detrimental impact on the water quality of the resource. Three levels of threat are used as follows:

- High threat level: A high probability of the occurrence of the impact and a severe consequence,
- Medium threat level : A medium probability of occurrence and manageable consequences,
- Low threat level: A low probability of occurrence and negligible consequences.

**Table 1** indicates the class of threat of the various sub-sectors and activities/processes.

### **2.3 Recommended action**

An appropriate management and control method, or combination of methods, is identified for each of the risk classes (A, B or C) in the five main sectors. The individual options for appropriate source management and control methods are:

- use of Best Practice guidelines,
- use of co-governance instruments,
- licensing the water use
- general authorisations, and/or
- use of exemptions.

**Table 1: Sector divisions and source classification**

SECTOR	CLASS	THREAT LEVEL	SUBSECTOR	ACTIVITIES	THRESHOLD LEVEL
Mining	Class A	High	Precious metals; Base metals ; chrome mines	<p>Mines with a potentially significant and/or permanent impact on water quality, including:</p> <ul style="list-style-type: none"> <li>All gold and coal mines, underground or open cast, irrespective of size.</li> <li>Any mine with any kind of extractive metallurgical process, including heap leaching. (This will include most other precious and base metal mines.)</li> <li>Any mine where pyrites occur in the mineral deposit</li> </ul>	>500 tonnes/day or have disturbed or are disturbing or will disturb a total surface area of more than 4 ha of land
			Coal works	Store or handle coal or carbonaceous material (including any coke works, coal loader, conveyor, washery or reject dump) at an existing coal mine or on a separate coal industry site.	>500 tonnes/day of coal or carbonaceous material handled and/or storage of > 5000 tonnes of coal or carbonaceous reject material except where the storage is within a closed container or building.
			Mineral processing or metallurgical works	The commercial production or extraction of ores (using methods including chemical, electrical, magnetic, gravity or physico-chemical) or the refinement, processing or reprocessing of metals involving smelting, casting, metal coating or metal products recovery.	<p>&gt; 150 tonnes/day of processed ore concentrate ;</p> <p>&gt; 10 000 tonnes/year of smelt, process, coat, reprocessed or recovered ferrous or non-ferrous metals, alloys or their ore-concentrates ;</p> <p>&gt; 150 tonnes/day or 30 000 tonnes/year of scrap metal and are not wholly contained within a building or &gt; 50 000 tonnes/year and are wholly contained within a building.</p>
Mining	Class B	Medium	Diamond mines	Mines with potentially significant and/or permanent impact on aspects of the water environment such as yield/availability of water, dynamics of the river, riparian rights, etc	>500 tonnes/day or have disturbed or are disturbing or will disturb a total surface area of more than 4 ha of land.
			Platinum mines		

SECTOR	CLASS	THREAT LEVEL	SUBSECTOR	ACTIVITES	THRESHOLD LEVEL
Mining	Class C	Low	All mines	<p>All other mines , such as :</p> <ul style="list-style-type: none"> <li>• Large mines with no significant impact on the water environment, where ideal water quality and quantity objectives may be set. (zero impact committed to.)</li> <li>• Small scale /artisanal, low impact mines/prospecting operations using the Standard Environmental Management Programme (SEMP)</li> </ul>	< 500 tonnes/day
			Crushing, grinding or separating works	Process materials including sand, gravel, rock, minerals, slag, road base or demolition material (such as concrete, bricks, tiles, asphalted material, metal or timber) by crushing grinding or separating into different sizes.	> 150 tonnes/day or 30 000 tonnes /year

SECTOR	CLASS	THREAT LEVEL	SUBSECTOR	ACTIVITES	THRESHOLD LEVEL
Industry	Class A	High	Chemical industries	Battery industries that manufacture or reprocess batteries containing acid or alkali and metal plates.	> 30 tonnes/year
				Paint solvents	> 5000 tonnes/year.
				Petrochemical industries	> 2000 tonnes/year
				Pesticides, fungicides, herbicides, rodenticides, nematocides, miticides, fumigants and related products	>2000 tonnes/year
				Pharmaceutical or veterinary products industries that manufacture or use materials classified as toxic	
				Industries that manufacture, blend, recover or use substances classified as explosive, radioactive, or toxic	
				Industries other than explosives or toxic but chemical	> 10 000 tonnes/year
			Chemical storage facilities	Store or package chemical substances in containers, bulk storage facilities, stockpiles or dumps with a total storage capacity exceeding:	<ul style="list-style-type: none"> <li>• 20 tonnes of pressurised gas, or</li> <li>• 200 tonnes of liquefied gases, or</li> <li>• 2000 tonnes of any chemical substances.</li> </ul>
			Drum or container reconditioning	Packaging containers (including metal, plastic or glass drums, bottles or cylinders) previously used for the transport of storage or substances classified as poisonous or radioactive.	> 100 drums/day unless the works are wholly contained within a building.
			Paper, pulp or pulp products industries	Industries that manufacture paper, paper pulp or pulp products.	> 30 000 tonnes/year or > 70 000 tonnes/year of which at least 90% of the raw material used is recycled and no bleaching or de-inking is undertaken.
			Petroleum works	1. Refine crude petroleum, shale oil or natural gas, or 2. Manufacture petroleum products (including aviation fuel, petrol, kerosene, mineral turpentine, fuel oils, lubricants, wax, bitumen, liquefied gas and the precursors to petrochemicals, such as acetylene, ethylene, toluene and xylene, or 3. Dispose of oil waste or petroleum waste or process or recover oil waste or petroleum.	> 100 tonnes/year
					> 20 tonnes/year

SECTOR	CLASS	THREAT LEVEL	SUBSECTOR	ACTIVITES	THRESHOLD LEVEL
Industry	Class B	Medium	Breweries or distilleries	Produce alcohol or alcoholic products.	> 30 tonnes/day or 10 000 tonnes/year.
			Cement works	Work involving the production of quicklime including using argillaceous and calcareous materials in the production of cement clinker.	>150 tonnes/day or 30 000 tonnes/year.
			Ceramic works	Production of products such as bricks, tiles, pipes, pottery goods, refractories or glass manufactured through a firing process.	> 150 tonnes/day or 30 000 tonnes/ year.
			Chemical industries	Agricultural fertiliser	> 20 000 tonnes/year
				Carbon black industries	> 5000 tonnes/year
				Explosive or pyrotechnics industries that manufacture explosives for purposes including extractive industries and mining uses, ammunition, fireworks or fuel propellants.	
				Paints, pigments, dyes, printing, inks, industrial polishes, adhesives or sealants.	> 5000 tonnes/year.
				Plastic industries that manufacture.	>2000 tonnes/year
				Plastic industries that reprocess.	> 5000 tonnes/year
				Rubber industries that manufacture.	> 2000 tonnes/year
				Rubber industries that retread, recycle or process.	> 5000 tonnes/year
				Soap or detergent industries (including domestic, institutional or industrial soaps or detergent industries.	> 100 tonnes/year products containing substances classified as toxic or > 5000 tonnes/year of other products
			Concrete works	Produce pre-mixed concrete or concrete products.	> 30 000 tonnes/year
			Dredging works	Materials obtained from the bed, banks or foreshores of many waters.	> 30 000 m³ per year
			Electricity generating works	Including associated water storage, ash and waste management facilities that supply electrical power from energy sources (including coal, gas, bio-material or hydro-electric stations), but not including from solar powered generators.	> 30 megawatts
			Extractive industries	Industries that obtain extractive materials by methods including excavating, dredging, blasting, tunnelling or quarrying or that store, stockpile or process extractive materials.	> 30 000 m³/year
			Petroleum works	1. Produce, other than in the course of exploratory activities, crude petroleum or shale oil or, 2. Produce natural gas or methane 3. Store petroleum and natural gas product	> 5 petajoules/year a) > 200 tonnes of liquefied gases or b) > 2000 tonnes of any petroleum products

SECTOR	CLASS	THREAT LEVEL	SUBSECTOR	ACTIVITES	THRESHOLD LEVEL
Industry	Class C	Low	Logging operations	<ol style="list-style-type: none"> <li>1. Cutting and removal of timber (being sawlogs or pulplogs) from a compartment, where:</li> <li>2. The construction of new access roads within a compartment for cutting and removal of timber or</li> <li>3. The construction of new access roads for hauling timber from more than one compartment.</li> </ol>	<ol style="list-style-type: none"> <li>a. At least 20% of the compartment has a slope greater than 18° and</li> <li>b. At least 30 timber stems (at least 40cm in diameter)</li> </ol>
			Marinas and boat repair facilities	<ol style="list-style-type: none"> <li>1. Pontoons, jetties, piers or other structures (whether water-based or land-based) designed or utilised to provide moorings or dry storage.</li> <li>2. Works such as slipways, hoists or facilities for the repair and maintenance of vessels (other than boat repair facilities that are not adjacent to waters)</li> </ol>	<p>&gt; 80 vessels (excluding rowing boats, dinghies, or other small craft)</p> <p>&gt; 5 vessels (being vessels other than rowing boats, dinghies or other small craft) or any vessel 25m or longer is handled or capable of being handled at any one time.</p>
			or timber milling or processing works	(Other than a joinery, builders' supply yard or home improvement centre) that saw, machine, mill, chip, pulp or compress timber or wood.	<p>&gt; 6000 m³/year of timber or timber products and burn waste (other than a source of fuel)</p> <p>&gt; 50 000m³/year of timber or timber products</p>
			All sub-sectors	All activities covered in the industry sections above	< specified threshold level



SECTOR	CLASS	THREAT LEVEL	SUBSECTOR	ACTIVITES	THRESHOLD LEVEL
Agriculture	Class A	High	Livestock intensive operations	Feedlots that are intended to accommodate in a confined area and rear or fatten (wholly or substantially) on prepared or manufactured feed: 1. Piggeries 2. Poultry 3. Dairies 4. Saleyards	> 1000 head of cattle > 4000 sheep > 400 horses > 2000 pigs or 200 breeding sows > 250 000 birds > 800 animals in milk production > 50 000 cattle/year > 200 000 animals of any type
			Livestock processing industries	1. Slaughter animals (including poultry) 2. Manufacture products derived from the slaughter of animals including tanneries or fellmongeries or rendering or fat extraction plants. 3. Scour, top or carbonise greasy wool or fleeces with an intended production capacity.	> 3000 kg live weight/day or > 200 tonnes/year > 5 000 tonnes/year of products including hides, adhesives, pet food, gelatine, fertiliser or meat. > 200 tonnes/year
Agriculture	Class B	Medium	Agriculture	Industries that process agricultural produce including dairy, seeds, fruit, vegetables or other plant material.	> 30 000 tonnes/year
			Aquaculture of mariculture	Commercial production (breeding, hatching, rearing or cultivation) of marine, estuarine or freshwater organisms, including aquatic plants or animals (such as fin fish, crustaceans, molluscs or other aquatic invertebrates) but not including oysters.	> 150 tonnes/day or 30 000 tonnes/year.
Agriculture	Class C	Low	Agriculture and farming	All other farming and agricultural activities	

SECTOR	CLASS	THREAT LEVEL	SUBSECTOR	ACTIVITES	THRESHOLD LEVEL
Settlements Urban	Class A	High	Sewage treatment systems	Including the treatment works, pumping stations, sewage overflow structures and the reticulation system.	> 1 000 persons or equivalent processing capacity or > 250 kiloliters/day
			High Hazardous Waste Disposal Facilities (H:H)	Hazardous Waste, as analysed and characterised according to SABS Code 0228, the Basel Convention and Appendix 9.2 "Hazardous Waste Classification Tables", of the Department of Water Affairs and Forestry's Minimum Requirements for the Handling, Classification and Disposal of Hazardous Waste. Material with a Hazard Rating 1 (extreme risk) or Hazard Rating 2 (high risk) can only be disposed of at a permitted landfill with an H:H classification	Appendix 9.2 of Minimum Requirements details allowable disposal rates for all hazardous waste streams
Settlements Urban	Class B	Medium	Sewage treatment systems	Including the treatment works, pumping stations, sewage overflow structures and the reticulation system.	< 1 000 persons or equivalent processing capacity or < 250 kiloliters/day
			Low Hazardous Waste Disposal Facilities (H:h)	Classification of waste as per SABS Code 0228, Basil Convention and Minimum Requirements. Material with a Hazard Rating 3 (moderate risk) or Hazard Rating 4 (low risk) disposed at a permitted landfill with a minimum classification of H:h	Appendix 9.2 of Minimum Requirements details allowable disposal rates for all hazardous waste streams
			General Waste Disposal Facilities (G)	Household waste, builders rubble and industrial waste not classified as hazardous. Permitted Disposal Facilities classified according to their size and climatic water balance: <ul style="list-style-type: none"> <li>B+ Site Classification - A leachate management system is a Minimum Requirement</li> <li>B- Site Classification – No leachate management system necessary</li> </ul>	Size of landfill: <ol style="list-style-type: none"> <li>Communal (C) – Maximum Rate of Deposition (MRD)&lt;25 t/day</li> <li>Small (S) – 25 t/day&lt;MRD&lt;150 t/day</li> <li>Medium (M) – 150 t/day&lt;MRD&lt;500 t/day</li> <li>Large (L) – 500 t/day&lt;MRD</li> </ol>
			Composting	And related reprocessing or treatment facilities (including facilities that mulch or ferment organic waste, or that are involved in the preparation of mushroom growing substrate, or in a combination of any such activities).	> 200 tonnes/year of animal waste, food waste, sludge or biosolids > 500 tonnes/year of wood waste, garden waste, or natural fibrous material >receive any organic waste and are located within 500m of any residentially zoned land, or within 250m of a school or hospital or a dwelling not associated with the facility.
			Water supply	Class 1: Urban areas with potable water supplied by designated bulk water supply organisation	

SECTOR	CLASS	THREAT LEVEL	SUBSECTOR	ACTIVITES	THRESHOLD LEVEL
				Class 2: Urban areas where potable water supply remains the responsibility of the local government organisation	

SECTOR	CLASS	THREAT LEVEL	SUBSECTOR	ACTIVITES	THRESHOLD LEVEL
Settlements Rural/Dense	Class A	High	All	Sewage, waste and water supply activities in areas outside designated urban settlements	

SECTOR	CLASS	THREAT LEVEL	SUBSECTOR	ACTIVITES	THRESHOLD LEVEL
National infrastructure	Class A	High	Contaminated land	Legacy operations and establishments that fall within the jurisdiction of the Government following the enactment of the Water Act No 54 of 1956	
	Class B	Medium	Railway systems activities	A railway systems activity being any one or more of the following: installation of track; on-site repair of track; on-site maintenance of track; on-site upgrading of track; construction or significant alterations; operation of rolling stock on track.	
			Shipping facilities	For loading or unloading, in bulk, agricultural crop products, rock, ores, minerals or chemicals into or from vessels (but not where any material is wholly contained within a shipping container), being wharves or associated facilities.	> 500 tonnes/day or > 50 000 tonnes/year
	Class C	Low	Natural processes	Any natural process, such as salination of aquifers, etc	