Fuel Pipelines - Community Action to make fuel pipelines safer

1. What are fuel pipelines?

Very large, wide steel pipes are used to transport substances over long distances. This is a common way to move crude oil and fuel products - such as diesel, petrol, marine fuel, and methane gas - from one place to another. These products are moved in pipelines to and from the places where they are made (refinery), stored, or sold. In South Africa these pipelines are mostly underground.

2. Are fuel pipelines dangerous?

Fuel pipelines can be dangerous to people, to the natural environment, to public land and private property. Pipelines can break open and leak. When this happens, the liquid or gas which leaks out can explode and cause fires. Or it could poison water, crops, land and air. When a person is near a leak from a pipeline, he or she may feel tiredness, dizziness, headaches, nausea and/or vomiting and difficult breathing. A person may lose consciousness, and could even die. Fuel from leaking pipelines may over a long time even cause diseases like cancer and leukaemia.

3. What can fuel pipelines do to our health and to our environment?

Accidents happen

There is always a chance that pipelines can leak, causing explosions. If the leaks happen in closed spaces, people can also asphyxiate (die from breathing poisoned air).

Gas Pipeline Accidents

- On December 24, 2001, a methane rich pipeline exploded in Tongaat, South Africa. A nearby school was almost destroyed, and homes were affected.

- In 2001 a petrol pipeline leaked in southern Durban, South Africa. 950 000 litres of petrol were spilled. People living in the area were advised to leave their homes because the high levels of benzene in the air were dangerous for their health. Pipeline accidents have happened here again, into 2002.

- In July 2000 a damaged oil pipeline, which had fuel pouring out of it, exploded in Southern Nigeria. More than 250 people were killed. Many of them were schoolchildren. Many people died trying to run away from the huge fire which burned fields and buildings for two kilometres around the explosion.

- In New Mexico a natural gas pipeline exploded near the Pecos River of Carlsbad. Twelve people were killed. The blast made a huge hole in the ground 86 feet long, 46 feet wide and 20 feet deep.

- On November 21, 1996, a propane gas pipeline exploded in a shop in San Juan, Puerto Rico. 33 people were killed and 69 were injured.

- On August 24, 1996, a leaking butane pipeline exploded and killed two teenagers. People who lived near the pipeline had complained about the smell of leaking gas fumes to the pipeline operators many times before the explosion, but the operators had ignored them.

4. How to make pipelines safer

Pipelines that are made using the latest materials and newest ways of building (technologies) are the safest. These things could help make a pipeline safer:

- Away from people
  Pipelines should be built away from homes, businesses, schools hospitals, and other buildings where a lot of people live or work

- Very strong
  The pipe should be made of high tensile steel. New, better ways of making steel mean that there is now stronger steel available for building pipelines.

- Buried deep and clearly marked
  One of the biggest problems with pipelines is that people can damage them by accident. Underground pipelines should be marked with warning signs above the ground. There should be plastic warning tape buried two feet above the pipeline, so that anybody digging will see the plastic before they hit the pipeline. Also, people in the area must be properly informed and reminded regularly about where the pipeline is.

- Treated to stop corrosion (rust or rot)
  The pipes should have a coating on the outside to stop them breaking down as they get older. Fusion bond epoxy or polythene is a good coating against corrosion. Electric current can also be applied to the pipe to stop corrosion; this is known as cathodic protection.

- Carefully tested
  There are ways to test how much pressure the pipes can take. This testing should be done while the pipeline is being built, and when it is finished. The tests must show that the pipeline is stronger than it needs to be.

- Automatic safety equipment
  If the pipeline fails or leaks, there should be emergency equipment that automatically senses that something is wrong. Fuel should stop flowing, and the people responsible for the pipeline should get an alarm letting them know of the problem.

- Pipeline protection: Pipeline casing
  Many pipelines have the underground main pipe which carries the fuel inside another pipe, called a casing pipe. Casing pipes protect the main pipe from damage from outside. Casing pipes also protect people from leaks or problems with the main pipe inside. Pipeline casing must be well-designed and properly made, or it can actually damage pipelines.

- Backfilling and rehabilitation programme
  When a pipe has been put into the ground, soil is filled in on top of it. What type of soil is used is important B soils which are low in oxygen, contain salts and/or moisture, can cause

corrosion which damages the pipeline. Experts need to look carefully at the place and decide what they can do to prevent damage to pipeline and accidents. It is also important to replant grass and small plants which grew in the place where the pipeline is buried, so that the area looks better.

- Dedicated use
A pipeline should carry one product only. If a pipeline's use is changed, to carry a different product, there could be a higher risk of accidents. There should be a full Environmental Impact Assessment (EIA) study which looks at possible risks to people and the environment before a pipeline is allowed to carry a different product.

- Auditing

Pipelines that pass through areas where people live must be audited every year. This means they must be studied by experts and checked for safety.

5. How do you decide where a pipeline should be?

When choosing where a pipeline will be, these things are important to think about:

where the product needs to go

where it will come from

what the land (terrain) is like in between the two places

if the pipeline can go through an area which is already used for other services, such as power lines, other pipelines etc. (called< existing utility corridors)

if the pipeline can be put in areas where fewer people live and work

It is especially important to think about landowners and the environment. If possible, fuel pipelines should not run across rivers, pass through recreational areas (playgrounds, parks, sports fields, reserves) or be very close to people's homes. Pipelines should use existing utility corridors whenever possible.

6. What you can do:

In the past communities have not been part of developments in their areas which have affected them. It is important that people in communities work together to find ways to solve problems in their areas.

Communities must be active, to stand up against developments that may be bad for people's health, bad for the environment, and bad for the community. The community should be told about any new developments that may happen in their area.

The community can ask the company or developer to give them information about any pipeline that is to be built in their area. They can also ask for the histories of other pipelines in the area, including information about accidents, leaks and explosions.

The community should have legal and technical experts (somebody who knows about the building of pipelines) to give them advice on what they should do about the pipeline. Community members can make plans to take action.

People from all parts of the community should join in, so that any plans that are made include and help all community members.

Communities must ask the authorities to make sure that the pipeline is insured, so that if there are any problems, leaks or accidents, there is money to repair damage to the community and environment.

7. For more information contact:

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