

Gasutsläpp från krackningsanläggningen på ett oljeraffinaderi.

930202 MARS 1993_01

Vid underhållsarbete på krackningsanläggningen uppstod ett mekaniskt fel på en trycksatt rörledning. Vid borring gick borsten för långt och gas släppte ut. De tre underhållsarbetarna förgiftades av gasutsläppet, en av dem med dödlig utgång. Den indikator som skulle avgöra hur långt borringen skulle fortgå hade visat felaktiga värden. Företagets interna brandkår lyckades skingra gasmolnet och undvika antändning.

Inblandade ämnen och mängder

	CAS Nr.	Mängd
brandfarliga och giftiga gaser		totalt 14,5 kg
vätesulfid	7783-06-4	ca 1,38 kg
kolväten C1-C4 gaser.		

Skador:

Människor: 1 person från ett inhyrt underhållsföretag omkom, och ytterligare 2 personer skadades.

Materiella: Inga.

Miljö/ekologi: Inga effekter rapporterade.

Infrastruktur: Inga.

Erfarenheter redovisade (Ja/Nej): Nej

Report Profile

Identification of Report:

country: FA ident key: 1993_001_01

reported under Seveso I directive as major accident reports: SHORT

Date of Major Occurrence: Time of Major Occurrence

start: 1993-02-02 start: 12:00:00

finish: finish:

Establishment:

name:

address:

industry: - not applicable -

Plant for distillation of the refination or subsequently worked of mineral oil ori ts products

Seveso II status: not applicable: Yes art. 6 (notification): No

art. 7 (MAPP): No

art. 9 (safety report): No

Date of Report:

short: full:

Authority Reporting:

name:

address:

Authority Contact:

rep_cont_name:

rep_cont_phone:

rep_cont_fax:

Additional Comments:

a) - not applicable -

b) - not applicable -

c) - not applicable -

d) - not applicable -

e) - not applicable -

Short Report

country: FA **ident key:** 1993_001_01

Accident Types:

release: Yes **explosion:** No

water contamination: No **other:** No

fire: No

description:

In the hydro-cracker plant during repair works on a pressure pipe a mechanical failure occurred. During milling of apertures in the piping, the encircling enclosure that is a gas sealing joint which should guarantee to the atmosphere was mi... see Appendix Short Report / description of accident types

Substance(s) Directly Involved:

toxic: Yes **explosive:** No

ecotoxic: No **other:** No

flammable: Yes

description:

Flammable gases (H2S containing), high flammable liquids.(also toxic substance)

14,45 kg

Immediate Sources of Accident:

storage: No **transfer:** No

process: No **other:** Yes

description:

The failure happened during repair works.

During milling of inlets in a pressure guide pipe, the encircling casing, that guarantee the gas-density seal to the atmosphere, corroded too.

Suspected Causes:

plant or equipment: Yes **environmental:** No

human: Yes **other:** No

description:

The testing of the employed bore-machine showed, that the cause of the perturbation was the discordance between the actual advance value and the advance value ... see Appendix Short Report / description of suspected causes

Immediate Effects:

material loss: Yes

human deaths: Yes

human injuries: Yes **community disruption:** No

other: No

ecological harm: No

national heritage loss: No

description:

By the outlet three collaborators of external companies which made the works have been injured one of them deathly.

Emergency Measures taken:

on-site systems: Yes **decontamination:** No

external services: Yes **restoration:** No

sheltering: No **other:** No

evacuation: No

description:

Immediately after the gas outburst the plant was shutted down. The intervention of the fire brigade prevented a larger spreading of the gas cloud.

Immediate Lessons Learned:

prevention: Yes **other:** No

mitigation: No

description:

Creation of a maintenance instruction for the application of the HOT-TAPPING-methods
Examination of the near adjoining boring machine.

Appendices for the FA / 1993_001_01 report

Appendix Short Report / description of accident types:

In the hydro-cracker plant during repair works on a pressure pipe a mechanical failure occurred. During milling of apertures in the piping, the encircling enclosure that is a gas sealing joint which should guarantee to the atmosphere was milled too. The works on the pipe had the task to interrupt it before the radiator to put it out service for repair.

These borings and lockings of under pressure tubes are called HOT-TAPPING and are executed by specialised companies. By milling of the security enclosure and by these apertures the pressure released from this part of the plant through the penthane columns, air-cooler reflow vessel and the involved piping system. During this action escaped the hydrocarbon (C1-C5) and H₂S, in total a quantity of 14,45 kg. For a sulphur content of 1.5 ma% in the hydro-cracker unit in the quantity which was gone out 1.385 kg H₂S. By the outlet three collaborators of external companies which made the works have been injured one of them deathly. Immediately after the gas escape the plant was shut down. The application of the plant fire brigade prevented a larger distribution of the gas cloud. The neighboroud was not in danger.

Appendix Short Report / description of suspected causes:

The testing of the employed bore-machine showed, that the cause of the perturbation was the discordance between the actual advance value and the advance value indication. The bore movement was exactly the double of the necessary and displayed.

By this fact the fitting was destroyed. It is presumable that the false indication is a consequence of a construction error which was from the beginning in the bore-machine and was not observed.