

Notes on Toxic Releases from Refineries Covered in History Channel “Toxic Cloud” Episode that Aired on July 22, 2008

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See, for example, <https://www.youtube.com/watch?v=T0prPFLMPVA>

TX City 1947 ammonium nitrate Grand Camp fire

Em Mgr -- “prepared” 1987 sirens worked people were informed

Ammonia Chlorine

1976 dioxin Seveso 76 000 exposed

Alberton MT 1976 chlorine 1 death

1984 Bhopal Sam Mannan flack for industry 15,000 deaths

RTK laws

1987 HF release Marathon drop over tank of heat exchanger

Botched evacuation no PPE Killed vegetation showed plume travel

Slowly waking up Busy port Tx City We accept risks

2005 explosion killed 15 WE study and learn Community not harmed

WE plan for everything, exercise

RK -- Companies need to take full respty for hazards

Refinery biz crucial for US 153 across US TX key HF used for catalyst

Hazmat – aerosols Toxic clouds 2002 Minot ammonia derailment 200000 gals 1 dead 300 injured

50 refineries still us HF

RK Amoco asked for field test for HF No one knew

Surprising results – all went downwind fine aerosol went far Deadly

Alts exist Mannan good idea H2SO4 Mannan water curtains successful knocks down HF

RK Huge amounts of stored energy in refineries

Em Mgr Now we have MSDS

RK need rapid detection, auto response needed

New HS concern for refineries - terrorist weapons

Main concern with Chlorine 1200 plants with 2500 lbs or more Alts??

Chlorine spills before 16000 wastewater plants in US

Blue Plains 4 mi from Capitol Everything monitored on site We use chlorine to kill bacteria

Chlorine like mustard gas in WWI Destroys tissues. Accidents happen

2005 Grnitiveville SC 9 died Chlorine great advancement sanitation

Mannan bleach itself requires chlorine Risk Accumulation

DC as target rich environment

We looked at offsite conseq --- would head near the Capitol. So changed to bleach in 90 days

Tank cars were within 2.5 miles Cost \$12.5 million, more costly bleach

Methanol also at Blue Plains, flammable. Underground storage

Train DC FD on all.

Communities not told about high risk chems Env TX

Most understand the risks Companies take precautions

TX City is prepared for almost anything. Could a HF disaster happen again.. Simulation -- catastrophic results

RK – HF moves downwind with the windspeed, worse if low wind

Can use water spray – needs 40 parts to 1 HF for knockdown RK

EM SIP will keep safe. RK will help. Many will die...

Just a matter of time. Need to be prepared. RK – concern means mitigation systems

Cargoes on roadways -- many risks.

RK WCS are almost always catastrophic – thousands could die around refineries.