Project 1 - Crude Oil Refineries and installations for the gasification and liquefaction of coal or bitumous shale

Comments:

CATEGORY	FACTOR	COMMENTS
AIR	ammonia	hazardous substance, aquatic life, human health, water quality - reference 3
	benzene	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, flora, fauna, aquatic life
	carbon monoxide (CO)	greenhouse gases - reference 1
	carbon dioxide (CO2)	
	heavy metals:	reference 2
	lead (Pb)	human health, flora, fauna, soil
	nickel (Ni)	
	zinc (Zn)	
	copper (Cu)	
	hydrogen fluoride	hazardous substance, hazardous waste, corrosive material, human health - reference 3
	hydrogen sulphide	hazardous substance, hazardous waste, flammable gas, poison, health effects, aquatic life (long term) - reference 3
	mercaptans	human health, odour
	persistent organic pollutants	
	poly-aromatic hydrocarbons (PAH)	carcinogenic, priority toxic pollutant, human health, flora, fauna, aquatic life- reference 4
	organohalogens	
	hexachlorobutadiene	carcinogen, hazardous waste, priority toxic pollutant, human health, flora, fauna, aquatic life, reference 4 & 5
	1,2-dibromoethane (ethelene dibromide)	carcinogen, hazardous substance, hazardous waste, human health, fauna, aquatic life, water quality
	oxides of nitrogen (NOx) / NxO	acid rain, soil, flora, fauna, human health
	oxides of sulphur (SOx)	acid rain, photooxidants, soils, fauna, health
	phenol compounds	hazardous substance, hazardous waste, priority toxic pollutant, human health, aquatic life
	radionuclides	human health, fauna, water, aquatic life
	sulphur compounds	flora, fauna, aquatic life, historical monuments
	photo chemical oxidants	ozone
	methane (CH4)	greenhouse gas, explosive
	non methane volatile organic compounds (VOC)	greenhouse gas, volatile, flora
	other hazardous substances	human health, flora, fauna
	particle emissions	climate change, flora, aquatic life, human health, historical sites
	oil vapour	human health, flora, aquatic life, historical sites
	odour	human health
	noise	
	waste heat	climate change, flora

CATEGORY	FACTOR	COMMENTS
WATER	ammonia	hazardous substance, aquatic life, human health, water quality - reference 3
	benzene	carcinogen, hazardous substance, hazardous waste, priority toxic pollutant, human health, flora, fauna, aquatic life
	heavy metals:	reference 2
	lead (Pb)	human health, flora, fauna, soil
	zinc (Zn)	
	copper (Cu)	
	nickel (Ni)	
	hydrogen fluoride	hazardous substance, hazardous waste, corrosive material, human health - reference 3
	hydrogen sulphide	hazardous substance, hazardous waste, flammable gas, poison, health effects, aquatic life (long term) - reference 3
	organohalogens	reference 5
	hexachlorobutadiene	carcinogen, hazardous waste, priority toxic pollutant, human health, flora, fauna, aquatic life, reference 4 & 5
	1,2-dibromoethane (ethelene dibromide)	carcinogen, hazardous substance, hazardous waste, human health, fauna, aquatic life, water quality
	phenolic compounds	hazardous substance, hazardous waste, priority toxic pollutant, human health, aquatic life
	sulphates	aquatic life, water quality
	other hazardous substances	water quality, aquatic life, human health
	nutrients	water quality, aquatic life
	oil products	
	chemical oxygen demand (COD)	
	total organic carbon (TOC)	
	biological oxygen demand (BOD)	
	change in pH	
CLIMATE	changes in ambient air temperature	
	particle emissions	
	greenhouse gases, ozone	methane gas, CO, CO2, SOx, NOx, photochemical oxidants
FLORA	changes in natural vegetation	pollutants, project location
	disturbance of aquatic habitat	
	disturbance of plant habitat	
	disturbance of natural vegetation	
	decrease in biodiversity	pollutants
	impact of threatened species	pollutants, project location
	changes in species population	
	changes in aquatic food web	pollutants, project location
	changes in mammal food web	
	impact on protected areas	
	changes to agricultural crops	
FAUNA	migratory changes - mammals	project location
	disturbance of wildlife habitat	
	decrease in biodiversity	pollutants, project location
	impact on threatened species	
	changes in species population	pollutants
	impact on threatened area	pollutants, project location
	changes in mammal food web	
SOIL	soil contamination	heavy metals, POP, radionuclides
	erosion	disturbance of surface area

CATEGORY	FACTOR	COMMENTS
LANDSCAPE	land use changes	
	visual aspects	
	physical composition	
	impact on sensitive lands	
HISTORICAL MONUMENTS	archaeological changes	
	palaeontological changes	
	changes to historical sites	acid rain pollution
HUMAN HEALTH & SAFETY	changes in ambient noise levels	during construction, plant operation
	changes in disease incidence	lung disease (heavy metals), pregnant woman (Hg), blood disorders (Pb,Cd,Co,Ni)
	risk of spills	
	risk of surface water contamination	
	risk of ground water contamination	
	risk of explosions	
CULTURAL HERITAGE	cultural changes	
	land use changes	
	way of life	
SOCIO-ECONOMIC	changes to well being of life	
	changes to quality of life	
	quality of recreational facilities	
	quantity of recreational facilities	
	present use of natural resources	
	potential use of natural resources	
	employment opportunity	
	economic development - transboundary	

References

1. Proceedings of the EMEP Workshop on Emission Inventory Techniques, Regensburg, Germany, 2-5 July, 1991, EMEP/CCC-Report 1/91
2. Economic Commission for Europe Convention of Long-range Transboundary Air Pollution, Task Force on Heavy Metal Emissions, June 1994
3. Economic Commission for Europe, Convention on the Transboundary Effects of Industrial Accidents
4. Economic Commission for Europe, State of Knowledge Report of the UN ECE Task Force on Persistent Organic Pollutants
5. Recommendations to ECE Governments on the Prevention of Water Pollution from Hazardous Substances