Chapter 4 Details of Field Inspection

Waste water

waste water discharge standard

Type of industry	Analysis item	Standard
Cement industry and Mining industry	COD	100
	SS	50
	PH	6~9
	Temperature	38℃ summer 35℃ winter

31

Notice of waste water sampling

Analysis item	volume	Notice
COD	250ml	Add sulfuric acid for stabilize PH<2 Temperature < 4℃ storage < 7 days
SS	1 L	Temperature < 4℃ storage < 7 days
VOC (if necessary)	40 ml	Amber/Brown glass Add HCl for stabilize PH<2 storage < 14 days

32

Noise

Standard of Noise in Taiwan

frequency / Loudness / Area	20 Hz~200 Hz(since2008.01.01)			20Hz~20kHz		
						Unit:dB(A)
	AM6:00 ~PM8:00	PM8:00 ~10:00	PM10:00~ AM6:00	AM6:00 ~PM8:00	PM8:00~ 10:00	PM10:00 ~AM6:00
Type 1	42	42	39	50	45	40
Type 2	42	42	39	60	55	50
	AM7:00 ~PM8:00	PM8:00 ~11:00	PM11:00~ AM7:00	AM7:00 ~PM8:00	PM8:00~ 11:00	PM11:00 ~AM7:00
Type 3	47	47	44	70	60	55
Type 4	47	47	44	80	70	65

33

Notice of noise sampling

Place of sampling	Decibel dB(A)	notice
Peripheral Boundary	40~80	Divided to 4 area regulated by local government
Factory inside	90~115	Labor safety regulation

Basic requirement

Sampling time	> 2 min.
Sampling point	Outside the factory boundary > 1m The living place of the person who accused noise
Height	1.2m~1.7m

34

Chapter 4 Details of Field Inspection

Fetor(Foul and Noxious Odors)

pollutant	Emission Standard in Taiwan				notice
	Emissions Pipe		Peripheral Boundary		
Foul and Noxious Odors	Height(M)	Foul Odor Concentration	Area	Foul Odor Concentration	
	0＜h≦9 9＜h≦18 18＜h≦30 30＜h≦55 h＞55	1000 3000 9000 30000 50000	Industry and farm belt	50	
			Other area	10	

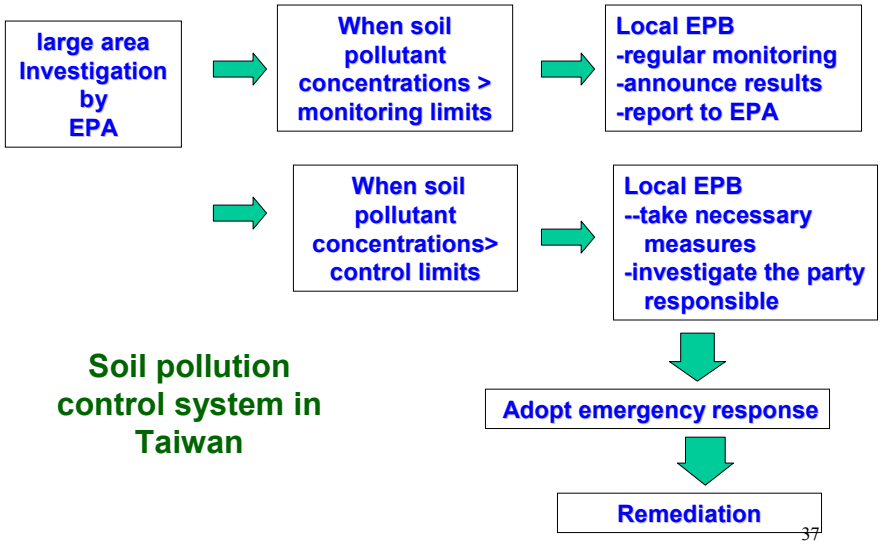
35

Sampling procedure for Fetor

Step1	determine wind direction by anemoscope
Step2	Collecting air for 3~10 min Sampling pump flow rate > 4 L / min. Sampling bag –Polyester or Polyvinyl flouride plastic(Tedlar), volume 3~20 L (usually 10) Connecting tube--Teflon or silica gel
Step3	Send to laboratory in 12hr.

36

Soil pollution



Soil pollution control system in Taiwan

37

Emergency response(1)

- Order polluters to cease activities, suspend business or partially or completely suspend work;
- Investigate groundwater pollution circumstances and search out persons liable for such pollution;
- If necessary, inform residents to stop using the groundwater or other polluted water sources, and restrict the digging of wells to obtain groundwater;
- Provide necessary alternative drinking water or notifying tap water authorities to provide access to tap water supply as a priority; remove or dispose of pollutants; and other response measures as necessary.

38

Emergency response(2)

- ❑Notify agricultural and health authorities to inspect agricultural or fishery products suspected of being polluted as a result of soil pollution;
- ❑If necessary, control or destroy such products in conjunction with relevant agricultural and health authorities, and compensate for losses incurred from destroyed agricultural and fishery products;
- ❑If necessary, restrict the planting of certain agricultural products on farm land;
- ❑Evacuate residents or control people's activities;
- ❑Erect notification signs or fences;
- ❑Remove or dispose of pollutants; and other response measures as necessary.

39

Soil pollution monitoring limits in Taiwan(1)

item	Concentration (mg/Kg)
As	30
Cd	10 （farmland 2.5）
Cr	175
Cu	220 （farmland 120）
Hg	10 （farmland 2）

40

Soil pollution monitoring limits in Taiwan(2)

item	Concentration (mg/Kg)
Ni	130
Pb	1000 （farmland 300）
Zn	1000 （farmland 260）

41

Soil pollution control limits in Taiwan(1)

Item	Control limit(mg/Kg)
Heavy metal	
As	60
Cd	20 （farmland 5）
Cr	250
Cu	400 （farmland 200）

42

Soil pollution control limits in Taiwan(2)

Cu	400 (farmland 200)
Hg	20 (farmland 5)
Ni	200
Pb	2000 (farmland 500)
Zn	2000 (farmland 600)

43

Soil pollution control limits in Taiwan(3)

Organic compound	
Benzene	5
Carbon tetrachloride	5
Chloroform	100
1,2-Dichloroethane	8
cis-1,2-Dichloroethylene	7
trans-1,2-Dichloroethylene	50

44

Soil pollution control limits in Taiwan(4)

1,2-Dichloropropane	0.5
1,2-Dichlorobenzene	100
1,3-Dichlorobenzene	100
3,3'-Dichlorobenzidine	2
Ethylbenzene	250
Hexachlorobenzene	500
Pentachlorophenol	200

45

Soil pollution control limits in Taiwan(5)

Tetrachloroethylene	10
Toluene	500
TPH (Total petroleum hydrocarbons)	1000
Trichloroethylene)	60
2,4,5-Trichlorophenol	350

46

Soil pollution control limits in Taiwan(6)

2,4,6-Trichlorophenol	40
Vinyl chloride	10
Xylenes	500
Pesticides	
Aldrin	0.04
Chlordane	0.5
DDT/4,4'-Dichlorodiphenyl-triichloroethane	3

47

Soil pollution control limits in Taiwan(7)

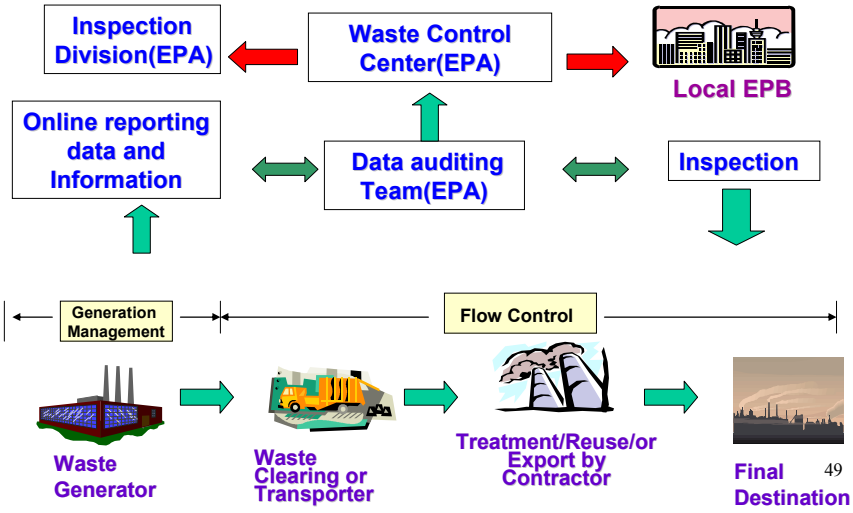
Dieldrin	0.04
Endrin	20
Heptachlor	0.2
Toxaphene	0.6
Endosulfan	60
Other rganic compoun	
Dioxins	1000 ng-TEQ/Nm^3
Polychlorinated biphenyls	0.09

48

Chapter 4 Details of Field Inspection

Waste

Waste online report system and Control Mechanism



49

Advanced checking point for solid waste(1)

topic	check point	
Type and amount	•waste clearance and treatment plan •online report data and manifest	
Characteristic (hazardous or non hazardous)	Sampling and analysis： •TCLP(sludge/dust/ash) •sparkling degree(waste solvent) •PH(waste acid or alkali)	
Storage	•Assortment •Container or package •Leakage prevention •Storage time	hazardous and no hazardous should be separate Hazardous waste storage time < 1 year

50

Advanced checking point for solid waste(2)

If cement factory accept certain waste as raw material	analyses report of waste content(as raw material)	
	waste treatment facility permit	
	sampling and analysis	
If factory has its own treatment facility (incinerator)	Self treatment permit(waste) Air pollution control system permit(incinerator) Other regulation requirement for waste incinerator	

51

Heavy metal standard of TCLP in Taiwan

Item	Extraction Test Standard (mg/liters)
Cd	1.0
Se	1.0
Cr +6	2.5
Pb	5.0
Cr	5.0
As	5.0
Ag	5.0
Cu	15.0
Ba	100.0

TCLP

toxic characteristic leaching procedure

52

Chapter 5 Special Issue for cement factory use industrial waste as raw material

3 T of Cement kiln

Temperature 1,200~1,450℃

Time 5~10 sec.

Turbulence

If industry waste calorific value > 2,000 Kcal/Kg, it could use as substitute fuel for cement process.

53

Industrial waste use as fuel or raw material for cement process in Taiwan

purpose	waste	proportion
substitute fuel	Waste solvent	10%
	Used tire	10%~30%
raw material	Non hazardous sludge	<<1%
	Oil tank bottom sludge	<<1%

54

Limitation of waste solvent use as fuel in Taiwan

Item	limit
Calorific value	>2,000Kcal/Kg
Ash content	<12%
Chlorine content	<1000ppm
Sulfur content	<2%
Pb、Cd、Cr、Zn、As、Hg	< 50ppm
PH	4~12.5
Substitute ratio	<10%
Transport vehicles	GPS tracking system

55

Special checking point for cement factory accept waste

Topic	Checking point
Permission	
	Waste treatment facility permit
	Air pollution control system permit updated
Waste Solvent	Standard or limitation of waste Solvent
	Analysis report done by cement factory / source of waste
	Sampling and analysis

56

Special checking point for cement factory accept waste

	Dioxin problem
	Manifest data (from source to final)
	Transport vehicle tracing by GPS tracking system
Used tire/Oil tank sludge	Pollutant emission
	Manifest data (from source to final)
Non hazardous sludge/ ash	TCLP Analysis report done by cement factory / source of waste
	Sampling and analysis
	Manifest data (from source to final)

57

Thank you!

58