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# Investigation and identification of technical guidelines for pesticides POPs waste

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# Investigate technical guide for pesticides POPs waste

- **The purpose of compiling**
  - Guide the local environmental management departments to carry out the investigation and identification of pesticides POPs in waste
  - ensure the scientific accuracy of survey data

# 1) Investigation types of pesticides

The object of this investigation: eight kinds

DDT、 HCB、 Chlordane、 Mirex、 Toxaphene、 HCHs、 endosulfan and POPs mixture.

- Alleged POPs waste refers to constituted pesticides or containing these insecticides or insecticide-contaminated waste.
- Product prohibited by the state which is no longer in circulation (inventory) is included in the scope of this survey.

## 2) The relevant departments of the pesticide POPs

For BHC and endosulfan manufacturers, you can access to historical production or manufacturers list from industry and commerce, trade, agriculture and other sectors.

Most production companies have discontinued or changing the line in the 1980s, the survey of manufacturing enterprises in the development of the state implementation plan process was thoroughly investigated, this is no longer doing the survey, if historical production enterprises is discovered newly, it can be reported to the units of the project organization, and the project organizational unit is responsible for doing the supplementary survey.

Units investigated		corresponding coordination units	POPs species of major concern
Agriculture	agricultural sector	Economic and trade departments /Rural Work Committee	DDT HCB Chlordane Toxaphene
	Plant Protection Station	Bureau of Agriculture / Rural Work Committee / Bureau of Forestry	
	Soil and Fertilizer Station	Bureau of Agriculture	
	agriculture promotion agencies	Bureau of Agriculture / Rural Work Committee	
	forestry promotion agencies	Bureau of Forestry	
	forest pest and disease control agencies	Bureau of Forestry	
	urban garden department	Construction Committee / Construction Bureau	

Units investigated	corresponding coordination units	POPs species of major concern	
Health areas	disease prevention and control center	Health Bureau	DDT
	Epidemic Prevention Station	Health Bureau	
	Patriotic Health Campaign Committee	Health Bureau / Construction Committee / Construction Bureau	
	Schistosomiasis prevention and control institutions	Health Bureau	
	pesticides service stations	Health Bureau	
	health service centers	Health Bureau	
	health pest control company	Health Bureau / Construction Committee / Construction Bureau	

Units investigated		corresponding coordination units	POPs species of major concern
Termite control agencies	Termite or station	Construction Committee / Construction Bureau / Termite Control Association	Chlordane Mirex
	Termite control company	Construction Committee / Construction Bureau / Termite Control Association	
	construction timber and sleepers material corrosion unit	Construction Committee / Construction Bureau / Railroad Bureau	



### 3) The locations may be waste and inventory:

- (a) the warehouse or temporary of production, discontinued or converting enterprises;
- (b) Pesticides distribution / wholesale / retail outlets and warehouses;
- (c) Temporary library of a large number of agriculture, health, construction users;
- (d) Other warehouse or staging points.

In addition to the warehouse, waste and inventory may exist in other locations, for example, temporary storage point setted up in the process of demolition, immigration, and special treatment.

*Various regions can organize and conduct the investigations according to the local specific circumstances.*

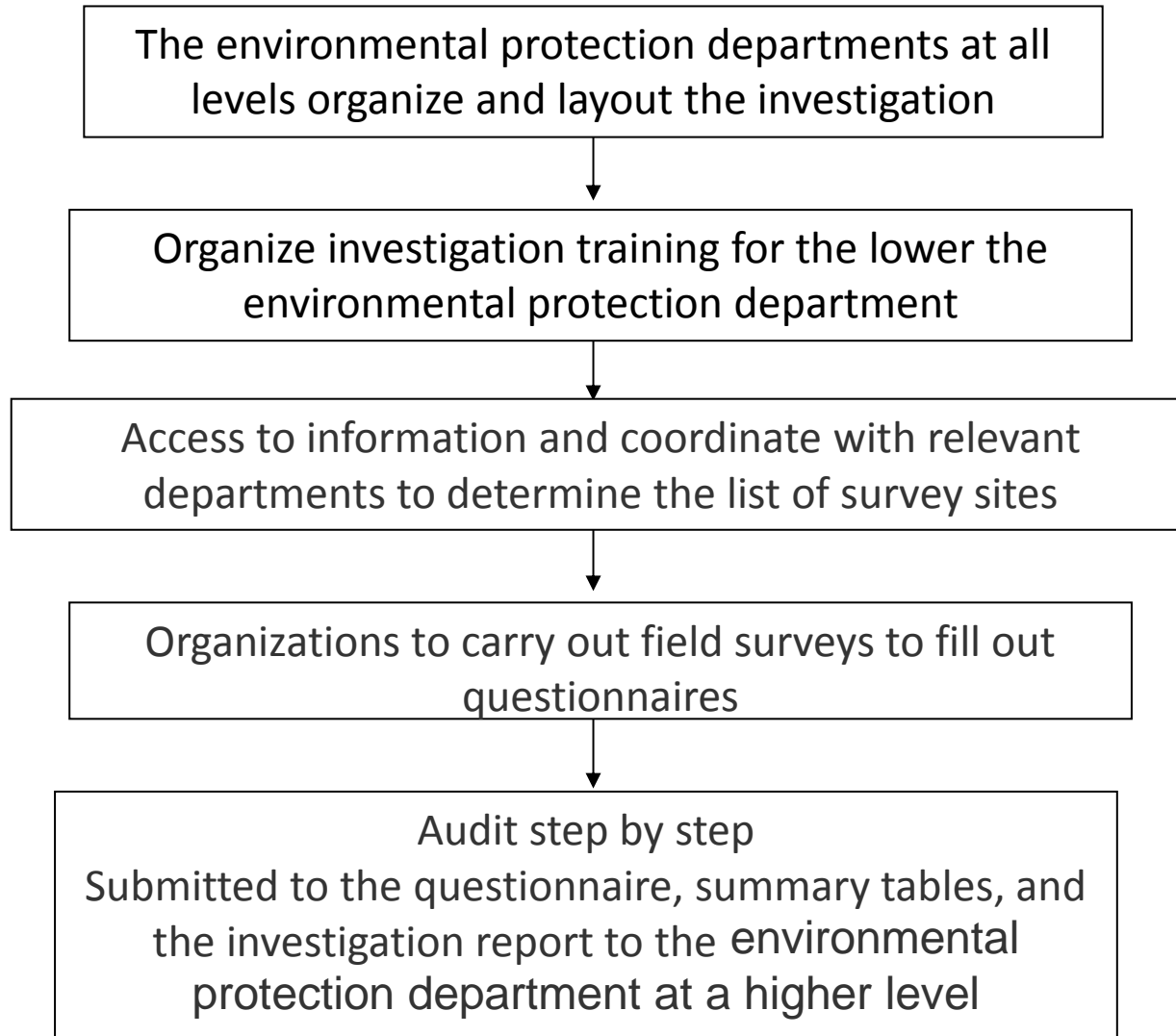


Figure 3.1 The investigation process

# The field survey methodology:

- (1) First judge if there are eight kinds of POPs waste pesticides or inventory in the treasury
- (2) Waste or inventory records, fill out the questionnaire on the type and weight. Only records the weight simple accumulation.

For example, Mirex waste may be the expiration of the original drug, powder, emulsion, etc., and may also be mirex packaging, but the weight of the mirex waste in the survey points is the sum weight of the expired products, packaging.

If the label is clearly, stated in the manufacturer and year of production of waste or inventory; description of the situation near the store. This information can be stated on another additional page.
- (3) Take photos on POPs inventory or waste-kind. The original information of the site investigation, including records, in-kind photographs, tables, etc. should be safekeeping by the county environmental protection department, prepare for the review.
- (4) When you encountered within the large scope of pollution which is difficult to determine the exact number, the special circumstances should be promptly reported to the higher environmental protection department or the Ministry of Environmental Protection.

# Table 1 Pesticides POPs waste / inventory survey of the basic information table for provincial, municipal, district and county levels

Survey Year : \_\_\_\_ Preparer : \_\_\_\_\_ ; Time :

The survey area					regional codes : □□□□□□	
The enterprise name (Seal)		Person in charge		address	_____ Province _____ Municipality _____ County _____ T o w n s (street, road) _____ Number Zip Code: □□□□□□	
Telephone number			fax		Email	

## Instructions

- (1) This form should be filled by the filling staff of the province, city, district and county environmental protection department;
- (2) Survey Year: fill in 2010 this survey;
- (3) Filling time: format XXXX-YY-ZZ, such as "2011-06-01";
- (4) The survey area: completed, such as "Hubei Province, Hubei Province × ×", "Hubei Province in × × × × County (city, district)";
- (5) Regional codes: code should be in accordance with the location of the administrative divisions of the country the People's Republic of administrative division code. The latest county administration and county zoning code can query the Bureau of Statistics website: <http://www.stats.gov.cn/tjbz/xzqhdm/>;
- (6) The enterprise name: fill in the full name of the enterprise the preparer belongs to, and seal;
- (7) Person in charge: fill in the legal representative of the unit;
- (8) Telephone number, fax: Format code - phone (- ext);

**Table 2 \_\_\_\_\_ County Pesticides POPs waste / inventory questionnaire**

Survey year : \_\_\_\_\_ Preparer : \_\_\_\_\_ ; Filling time :

Serial number	Storage sites	Type Name	Waste / inventory quantity (kg)	Contact Information of the Storage
1		<input type="checkbox"/> DDT <input type="checkbox"/> hexachlorobenzene <input type="checkbox"/> toxaphene <input type="checkbox"/> chlordan <input type="checkbox"/> mirex <input type="checkbox"/> mixture		The enterprise name : contact address : linkman name : phone number :
2		<input type="checkbox"/> DDT <input type="checkbox"/> hexachlorobenzene <input type="checkbox"/> toxaphene <input type="checkbox"/> chlordan <input type="checkbox"/> mirex <input type="checkbox"/> mixture		The enterprise name : contact address : linkman name : phone number :
3		<input type="checkbox"/> DDT <input type="checkbox"/> hexachlorobenzene <input type="checkbox"/> toxaphene <input type="checkbox"/> chlordan <input type="checkbox"/> mirex <input type="checkbox"/> mixture		The enterprise name : contact address : linkman name : phone number :
.....	.....	.....		.....
Total		—		—

- (1) Survey Year: fill in 2010 this survey;
- (2) Filling time: format, for XXXX-YY-ZZ, for example, "2011-06-01";
- (3) Serial number: the order number of each record. A storage place to fill in a record;
- (4) Storage sites: waste or inventory storage locations;
- (5) Type name: the types of corresponding waste / inventory program can be selected with V. If the pesticides POPs waste or inventory and other non-POPs types of pesticide mixed, neglecting other types of pesticides, fill in the POPs name. If the waste containing two or more pesticides POPs, fill out the "mixed"; tag is unknown, the unknown composition of POPs pollution, waste pesticides may be classified as "mixed" category;
- (6) Contact Information of the Storage: Fill in the name of people who are responsible for the storage sites, and their telephone number, contact address. Fill out the "no", if the storage belongs to none;
- (7) Total: The number of storage sites combined, the total waste / inventory quantity.

- **Waste / inventory quantity (kg):** waste refers to the insecticide consisting of or containing the above-mentioned insecticides or insecticide-contaminated waste.  
**Garbage** refers to having lost its original use, such as expired products, counterfeit or poor quality of pesticide products, direct packaging, garbage of doping these pesticides; completing the pesticides expired weight of the product, counterfeit or poor quality of pesticide products, direct packaging, doped with the garbage of the pesticides added directly; the amount of waste in kilograms (kg), when the number is difficult to determine, it can be estimated;
- **Inventory** means unexpired pesticides storage which still has the function to use, or products containing pesticides. For example, DDT-related inventory refers to the original drug, powder, emulsion. Different with the garbage, waste inventory is not expired, and still functional products. Prohibited by the state and no longer allowed the circulation of listing, so once expired becomes a waste. When you fill in the weight of the waste, the original drug of the same insecticide, preparation, etc. can be added directly, and the number of the inventory is kilograms (kg);
- **For storage location with all types of waste and inventory, fill in the total number.**

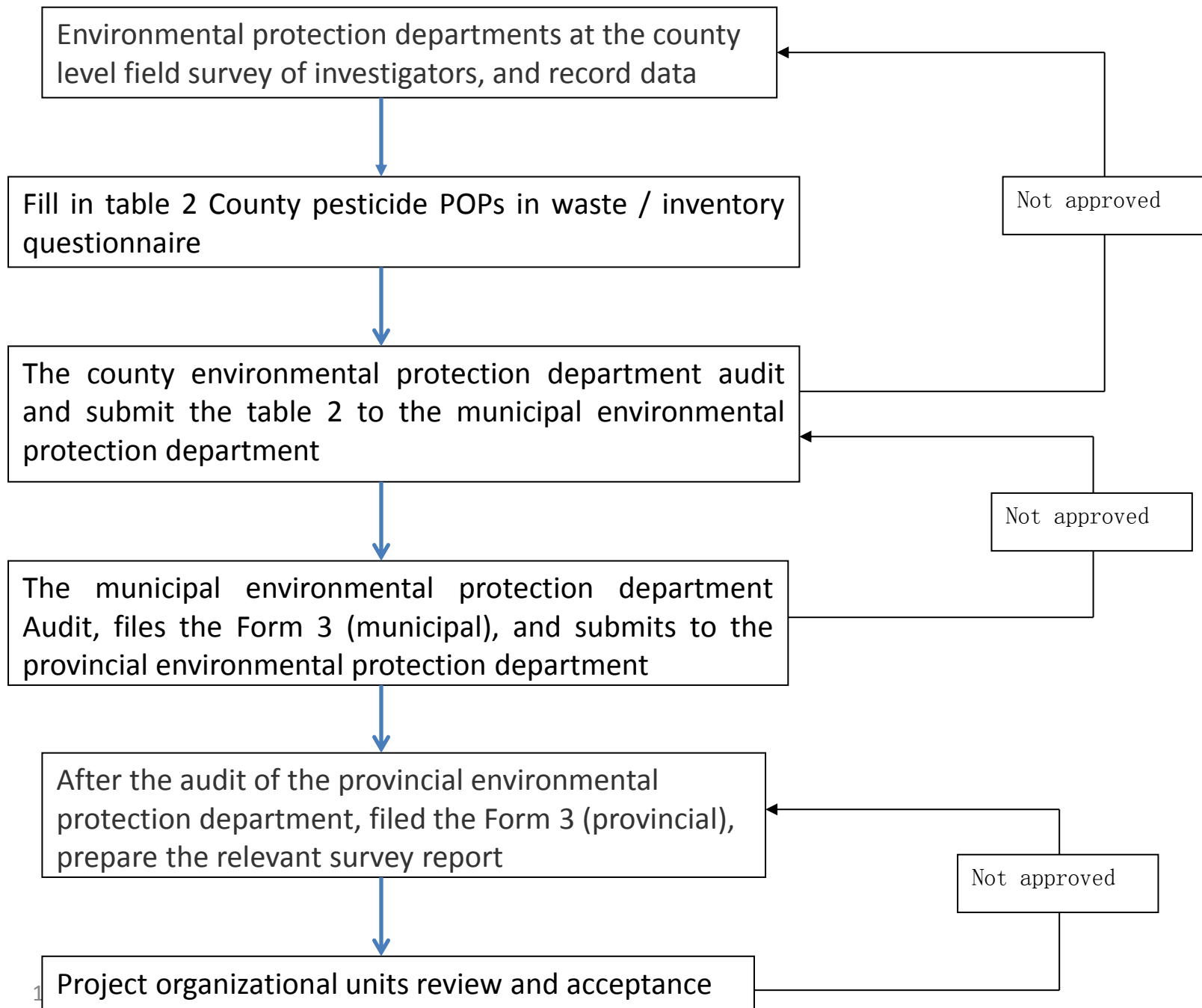


**Table 3 pesticides POPs in waste / inventory summary by region (provincial, municipal)**

Preparer: \_\_\_\_\_;

Filling time: \_\_\_\_\_

Serial number	Region name	The number of the waste/ inventory storage sites (count)	Waste / inventory quantity (kg)
1			
2			
3			
.....	.....	.....	.....
total			



Verification object	the verification number	Survey of acceptable quality indicator
The region has 1~10 storage points	50% of storage (If it is singular, the total number of plus 1 and then computing)	no unqualified depot
The region has 11~40 storage points	5 storage points	failed storage point of not more than one
The region has more than 40 storage points	10 storage points	failed storage point of not more than two

The inspection work of the investigation quality includes county level self-examination, the municipal verification and the provincial verification :

- (1) Verification in accordance with the provisions of the table
- (2) Verification method is as follows: conduct site visits or telephone to confirm the storage drawn, the key information of the verification is the "quantity", "type", "Location".
- (3) Judge by the qualified indicator in the reference table. If the quality of survey of the region is judged to be failure, the audited areas should be re-corrected, report, and then re-verify and audit
- (4) The surveyed storage point of Provincial, municipal, county spot check, in principle, should not be repeated. If it is accepted by the person in charge of the investigation at all levels ,it should be signed and confirmed respectively.

# Identify technical guide for pesticides POPs waste

- **The purpose of compilation**
  - Implement the persistent organic pollutant wastes in an environmentally sound management and disposal projects
  - Guide the local solid waste management sector of POPs waste survey to identify and ensure the scientific accuracy of the data

# The Compilation basis

- The People's Republic of China Solid Waste Pollution Prevention Act
- People's Republic of China to fulfill the  $\langle$ on Persistent Organic Pollutants Stockholm Convention national implementation plans
- National list of hazardous waste
- HJ / T 20-1998 industrial solid waste sampling system like technical specifications
- Hazardous waste identification standards of GB5085-2007
- HJ/T298-2007 hazardous waste identification of technical specifications
- Storage of dangerous waste pollution control standard (GB18597-2001)
- Hazardous chemical safety labels to write To you (GB / T 15258-94)
- Transport of Dangerous Goods Packaging General technical requirements (GB12463-90):
- General Principles of the commonly used dangerous chemicals storage (GB15603-1995)
- POPs wastes in an environmentally sound management and disposal project implementation plan

## Sample number and sample quality

The minimum sample number of the solid waste collection

Solid wastes (q/t)	Sample number (count)
$q \leq 5$	5
$5 < q \leq 25$	8
$25 < q \leq 50$	13
$50 < q \leq 90$	20
$90 < q \leq 150$	32
$150 < q \leq 500$	50
$500 < q \leq 1000$	80
$q > 1000$	100

If no special requirements, sample about 500g

# Sampling method

- (1) According to the waste character, the solid waste sample should be collected respectively with long shovel type sampler, sleeve type sampler or probe sample; Sampling tools and sample containers require metal, glass, PTFE material, prohibit the use of plastic, rubber and other congener materials
- (2) Waste of loose accumulation
  - Stacking height  $\leq 0.5\text{m}$  , tile waste pile , divided into 5N (N is the number of samples, the same below) of equal area net grid, sequentially numbered; using a random number table method to sample.
  - Stacking height  $\geq 0.5\text{m}$ , sampling layers  $\geq 2$  , sample with the sample drilling

# Sampling method

- **(3)** Storage pool and waste
  - Divide it into 5 N area of equal grid, order Numbers
  - Extracting N grids as sampling unit to take samples in random table method; Per unit collected a sample.
  - The thickness of the waste in the pool  $\geq 2\text{m}$ , divided into the upper (depth of 0.3 m place), central (1/2 depths), and at the bottom (5/6 depths) three layer to take samples, and mixed



# Sampling method

- **(4)** For waste in bags, barrel and other containers
  - Order Numbers each container, using a random number table method extract  $(N + 1) / 3$  (rounded to the nearest integer) bags as the sampling unit to take samples
  - According to solid waste characters use long shovel type sampler, sleeve type sampler or probe sample respectively. Open the vessel mouth, each container is divided into the upper (1/6 depths), central (1/2 depths), and at the bottom (5/6 depths) three layer to take samples, mixed

# Sampling method

- **(5) Liquid waste**
  - According to the size of the container, sample with glass sampling pipe or heavy bottles of sampler
  - Blend liquid waste in container (containing volatile components of liquid waste except) then open the container, slow insert liquid surface to the bottom of the container with sampling pipe or heavy glass bottle sampler from the center of the vessel mouth; When the sampling tube / sampler is filled with liquid waste, slowly raised, and inject the sample into the sample container.

## 4 Sample pretreatment and sample analysis

- The samples should be saved with portable refrigerator or dry ice and transport to the laboratory as soon as possible. If the samples cannot be analyzed in the short term, store below 4 °C
- Conduct the preparation of sample in accordance with the requirements in HJ / T 20, prohibit the use of plastics, rubber and other materials.
- Sample extraction, purification and instrumental analysis method: **EPA Method 505, EPA Method 508, EPA Method 608, EPA Method 617, EPA Method 625, EPA Method 8080A, EPA Method 8081, EPA Method 8250**

- (1) In the detection process, if the detection results of one kind of contaminant (containing different with the Department of thing's, fellow objects of and calculation)  $\geq 50 \text{ mg / kg}$  or  $\geq 50 \text{ mg / L}$ , the waste can be determined with POPs waste characteristics.
- (2) When the waste contains a variety of POPs, calculate the total content of all POPs substances.
- (3) When the waste in a different state (such as liquid, solid, and semi-solid) mixed, measure the POPs content in waste according to the different forms respectively.
- (4) After the waste samples testing, if the test results  $\geq 50 \text{ mg / kg}$ , or  $50 \text{ mg / L}$ , the number of samples greater than or equal to the lower limit of the number of copies of sample exceeds the standard in Table 2, This waste can be determined to belong to the pops waste.

## A normal tests sampling plan

Sample number (count)	The lower limit of the number of copies of sample exceeds the standard
5	1
8	3
13	4
20	6
32	8
50	11
80	15
100	22

If the number of the solid waste samples taken doesn't match with the sample number in the Table, choose the smaller number of samples closest to the actual number of samples, then judge by the table

# Identification technical guide for clean-up of POPs contaminated sites

- **The purpose of compilation**
  - Implement the persistent organic pollutant wastes in an environmentally sound management and disposal projects
  - Guide the local solid waste management sector to investigate and identify the clean-up of POPs contaminated sites, and ensure the scientific accuracy of the data

# Main waste type

- (1) Construction waste: including tiles, cement, etc.;
- (2) packaging waste: including costumes pesticides glass bottle (barrel, cylinder), plastic bottles (barrel, cylinder), all kinds of packing paper, sacks (with), foam, packing boxes, etc.;
- (3) Abandoned equipment waste: polluted various production machinery and accessories, etc.;
- (4) Pollution soil: including clean up contaminated soil in production workshop, inventory workshop, and Waste dumps etc.
- (5) Other waste, those may be pesticides of liquid waste, from the raw material and other waste.

POPs pollution in the process of packaging waste site cleaning and abandoned equipment waste, belongs to the POPs waste, need not identified. The following identification method is mainly for construction waste, pollution of soil, the other waste, etc. Identify methods and procedures is same to the identify technical guide for pesticides POPs waste

Thank You !