

# Development of international alert risk criteria in the Nistru river basin



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## The aim of development the international alert criteria

The following reasons determine the need to cooperate during the occurrence of a emergency :

- standardization and facilitation of the decision making methods and procedures;
  - the quick decision regarding the international alert;
  - informing in the phase of appearance of the emergency risk;
  - The coordination of methods of the situation forecasting and analysis.
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**A risk analysis of the enterprises located in the Nistru river basin, based on the check list method, was performed in order to determine the risk level for water**

Regions	No. of objects	WRI 5-10	WRI 3-5	WRI 1-3
Lvov	11	4	6	1
Ivano-Frankovsk	7	5	1	1
Ternopol	7	0	0	7
Cernovet	5	2	1	2
Hmelinitk	55	0	15	40
Vinita	36	0	29	7
Odessa	10	0	8	2
<b>Total</b>	<b>131</b>	<b>11</b>	<b>60</b>	<b>60</b>

There was determined that the most hazardous objects with WRI 5-10 are the tailing dumps (9 units) and diesel oil tanks (2), and with WRI 3-5 – pesticides dumps (49units), storage tanks, емкости (6), lanfills (5 )

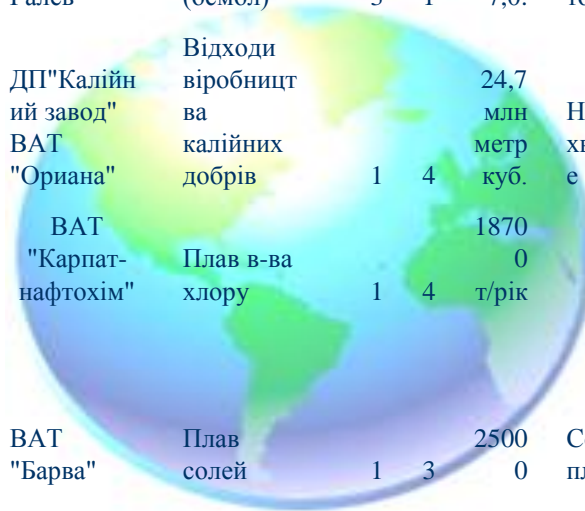
The following types of wastes, with WRI 5-10, are specific for the enterprises located in the Nistru river basin

No	Name of the company	Hazardous Material
<b>Lvov region</b>		
1	JSC Oil refinery "Galicina"	oil sludge, acidic oil waste
2(4)	Stebnitsk State Mining and Chemical Enterprice "Polymineral"	sludge and processing plant tailings
3(6)	Razdolsk State Mining and Chemical Enterprice "Sera"	Phosphogypsum, gypsum modifier
<b>Ivano-Frankovsk</b>		
1	Open joint-stock company "Oriana-Galev"	Hexachlorobenzene
2	State Enterprice "Kaliinii Zavod" OJSC "Oriana" "Ориана"	Potash fertilizer production wastes
3	OJSC "Carpat-Neftehim"	Chlorine melting
4	OJSC "Barva"	Saline melting
5	OJSC "Neftehimik Prikarpatia"	Oil sludge
<b>Cernauti</b>		
1	Limited Liabilit Co "Hreshiatik"	Diesel fuel
2	Transnistria HPP	Diesel fuel



ИВАНО-ФРАНКОВСКАЯ ОБЛАСТЬ 5

1	ТОВ "Оріана-Галев"	м. Калуш	16 км від р.Дністр	ТОВ "Оріана-Галев"	Гексахлор - бензол (осмол)	3	1	1108 7,0.	Металева тара на полігоні токс. відходів	Заповнен 9,5 карт, 2,5 карти вільно	110870 00	7,04 5
2	ДП "Калійний завод" ВАТ "Ориана"	м. Калуш	16 км від р.Дністр	ДП "Калійний завод" ВАТ "Ориана"	Відходи виробництва калійних добрив	1	4	24,7 млн метр куб.	На хвостосховищі	відсутні	247000 000	8,39 3
3	ВАТ "Карпатнафтохім"	м. Калуш	16 км від р.Дністр	ВАТ "Карпатнафтохім"	Плав в-ва хлору	1	4	1870 0 т/рік			187000	5,27 2
4	ВАТ "Барва"	с. Ямниця Тисьменицький район	9 км від р.Дністер	ВАТ "Барва"	Плав солей	1	3	2500 0	Солевідвал, площею 1,4 га	10 метр куб	250000	5,39 8
5	ВАТ "Нафтохімік Прикарпаття"	м.Надвірна Надвірнянського району	49 км від р.Дністер	ВАТ "Нафтохімік Прикарпаття"	Нафтошлами	3	4	4650 00	Шламонакопи чувач, 1,5 га		465000 000	8,66 7



Cernauti 2 (2пр)

1	ТОВ "Цукровий завод "Хрещатик"	сmt Коstr ижівка	5 км до р.Днес тр	ТОВ "Цукровий завод "Хрещатик"	Дизельне паливо	3	4	150 тонн	Склад ППМ	Наземні резервуари	150000	5,176
2	Придністрівська ГЕС	м.Ново-дністрівськ	100 м до р.Днес тр	Придністрівська ГЕС	Дизельне паливо	3	4	250 тонн	Склад ПММ	Наземні резервуари	250000	5,397

## Emission criteria

While developing the emission criteria, it is necessary first of all to consider the following:

### 1. Hydrologic characteristics

- year supply (50%, 90%);
- multiannual discharge;
- low water flow (time of beginning and ending of the low water season);
- discharge during floods (time of beginning and ending of flood season);
- the water discharge downstream the accident location;
- gggggggg(в случае аварии на реках, являющимися притоками первого и выше порядков);

### 2. Гидрохимические характеристики:

- минерализация и ионный состав речной воды;
- динамика ионного состава в течение гидрологического года;
- изменение ионного состава вдоль течения реки.

### 3. Класс опасности для воды (WRC)



## Пороговые значения для объявления тревоги в бассейне реки Днестр

Классификация веществ	Пороговые значения эмиссии для среднего и нижнего течения Днестра	Пороговые значения эмиссии для верхнего течения и притоков Днестра
Класс опасности для воды (КОВ) Water Risk Class (WRC)	Уведомление об аварии (кг) (kg) или (л) (l)	Уведомление об аварии (кг) (kg) или (л) (l)
«0» 4(ukr)	> 100 000	> 10 000
1 3	> 10000	> 1000
2 2	> 1000	> 100
3 1	> 100	> 10
Water Risk Index (WRI)	2	1

## Imission-oriented criteria

### Imission-oriented criteria based on the MPC for fishery water bodies

**Maximim permissible Concentration – concentration of the pollutant in the water, that for a long tern does not cause harm to aquatic organisms**

#### **Main advantages:**

- considers the multilateral influence on physiology of aquatic organisms;
- multiannual discharge;
- are applied both, in Ukraine and Moldova;
- available registers for more than 100 substances and their compounds.

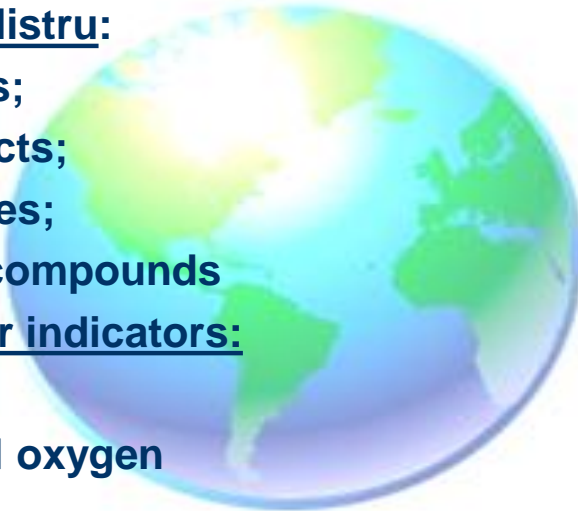
In accordance with the listed wastes (substances), accumulated in the Nistru basin, for the determination of the immisison-oriented alert criteria, it is necessary to consider MPC for the following substances:

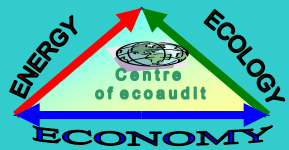
Specific for Nistru:

- pesticides;
- Oil products;
- phosphates;
- chlorine compounds

General water indicators:

- pH;
- Dissolved oxygen
- Nitrates;
- mineralization;





## Рекомендуемые Имиссионные критерии

Substances	MPC, mg/l	WRC	Limiting factor	IWAD Alert thresholds	Recommended alert thresholds
<b>WRI 5-10</b>					
phosphogypsum phosphorus trichloride	0,1	4/0 3/1	toxic		0,5 mg/l
hexachlorobenzene	0,001	1/3	toxic		0,01 mg/l
Potassium salts: potassium Chloride	350,0	4/0	organoleptic		450,0 mg/l
organochlorine pesticides	not allowed	1/3	organoleptic	0,5	0,5 mg/l
Diesel: Oil Products	0,05	3/1	Toxic	3	2,0 mg/l
<b>WRI 3-5</b>					
pesticides	not allowed	1/3	organoleptic	0.5	0.5 mg/l
chlorine	0,00001	1/3	toxic		0,0001 mg/l
ammonia	0,05	3/1	toxic		0,5 mg/l
fuel oil	look oil products				
DDT	not allowed	1/3	toxic	0,025 мкг/л	0,025 mkg/l

Parameter		Unit	Alert thresholds
I) Physical characteristics and dissolved gases	pH		<6-9>
	Dissolved oxygen	mg O <sub>2</sub> /l	<2
II) Organic substances	Oil products	mg/l	3
	Anionic SAS	mg/l	2
	Phenols (sum)	mg/l	0.05
III) Biogenous substances	Ammonium	mg/l	15
	Nitrate	mg/l	200
	3. Nitrite	mg/l	2
	4. Phosphates	mg/l	35
IV) Elements (cumulative concentration in non-filtrated sample)	Copper	µg/l	5000
	2. Zinc	µg/l	10000
	3. Nickel	µg/l	1000
	4. Chromium	µg/l	1000
	5. Lead	µg/l	3000
	6. Cadmium	µg/l	50
	7. Mercury	µg/l	5
Others	Cyanides	µg/l	500
	DDT	µg/l	0.025
	Chlororganic pesticides	µg/l	0.5

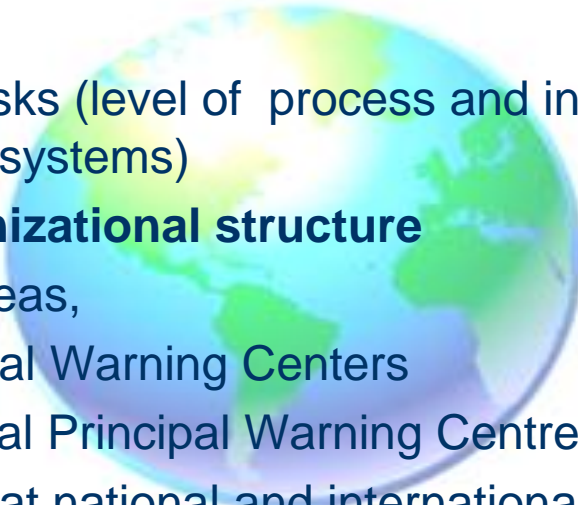
International warning and alert plan (IWAD) of the Nistru river is composed of:

- **Chapter 1: Description**

- Aims and objectives
- IWAD status and tasks (level of process and inclusion into the national warning and alert systems)

- **Chapter 2: Organizational structure**

- Definition of alert areas,
- International Principal Warning Centers
- Tasks of International Principal Warning Centrer
- involved authorities at national and international level



## Continuation

- **Chapter 3: Notifications of International Warning and Alert Plan o Nistru basin**
  - Definition of the alert type and alert method
    - technical means: telephone, fax, email and
    - organizational: emergency alert chart
  - Definition of the emergency alert levels (early, informational notification, all-clear, request of assistance)
  - Link to the respective forms,
  - Definition of “emission-oriented” and “imission-oriented” alert thresholds,
    - definition of crosspoints with CTEIA.
  - The “Lvov-Chisinau-Odessa” alert chart will be used for emergency notification.

# The Annexes to the Emergency Action Plan in the Nistru basin

## **Annex 1: List of addresses**

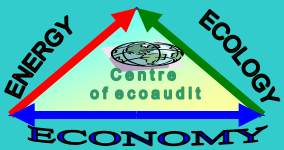
Telephone, fax, e-mail, addresses and contact persons in the International Principal Alert Center and interested national and international organizations (Focal points in the UNECE Convention on the Transboundary Effects of Industrial Accidents).

## **Annex 2: Notification transmission sample**

The annex contains a specified notification transmission sample

**Annex 3: Guidelines for assessment of emergencies caused by water pollution in the frame of “International Warning and Alert Plan in the Nistru river” (emission-oriented alert criteria), developed in the frame of МКОД**





# **Project: Improving the Safety of Tailings Management Facilities (TMF)**

**On the basis of: UNECE Safety Guidelines/Best Practises for Tailing Management Facilities, as well as relevant guidelines used in Canada, Australia and the EU**

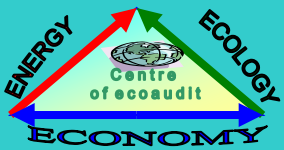
**Task: Development of Checklists to improve the Safety of Tailings Management Facilities**

**Executors: “Centre of environment audit and pure technologies (CEA)” (Ukraine) and “International HCH & Pesticides Association” (IHPA) (Denmark) .**


**Financing: Federal Environment Agency Dessau, Germany**

**With the support of: UNECE**

**Start: 8 August 2013 – Finish: August 2015**



**Thank you for attention!**



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