



## INSIGHTS INTO ENVIRONMENTAL LIABILITY INSURANCE IN AN INTERNATIONAL CONTEXT

New challenges and innovations in reinsurance 10.June 2014

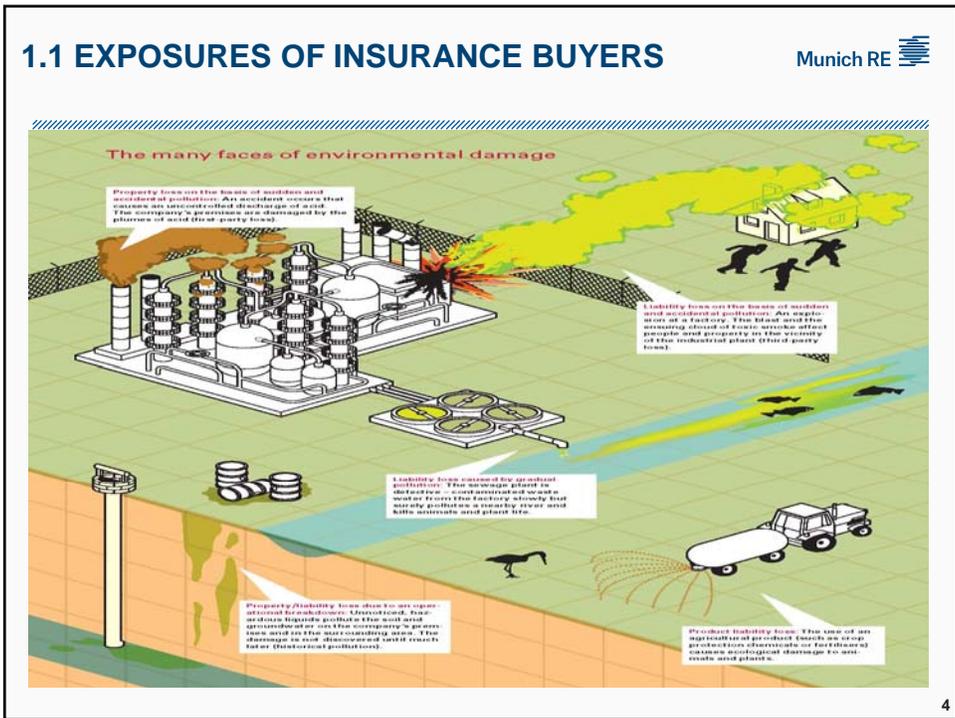
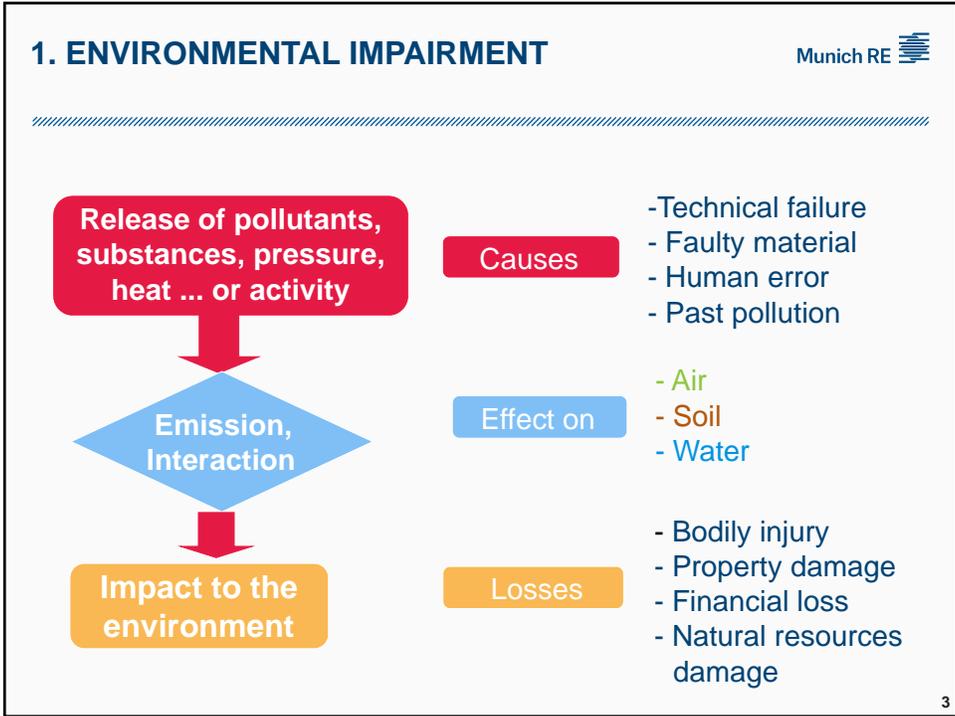
Walter Roos, Senior Consultant – Center of Expertise Complex Casualty Risks



## AGENDA



- 
1. Environmental impairment/ pollution condition
  2. Environmental incidents and claims examples
  3. Issues of concern covering environmental pollution
  4. Scope of coverage of Environmental Liability Insurance
  5. Overview about environmental markets in Europe and US
  6. Risk assessment
  7. Premium indication with the help of MR Nature (IT-Tool)
  8. Reinsurance of Environmental Liability



## 2. ENVIRONMENTAL INCIDENTS AND CLAIMS

Munich RE 



5

### 2.1 Environmental disasters (pull of last 12 years)

Munich RE 

- 2001: Fertilizer explosion in Toulouse, France in 2001
  - Liability loss caused by fire, explosion and contamination: €1.9bn
- 2003: Gas field blow-out (H<sub>2</sub>S) in Chongqing, China
  - 250 fatalities, 10 000 people injured: costs unknown
- 2005: Murphy Oil: Meraux Refinery, New Orleans (2005 )
  - Liability loss caused by flooding of oil in water: \$ 330 m
- 2005: Tank fire in Buncefield Oil Storage Depot in Hemel Hempstead
  - Liability loss caused by fire, explosion and contamination: GBP 700m
- 2010: Deepwater Horizon: Offshore drilling rig blow out in the GoM
  - BP has paid \$ 40bn for claims and remediations costs.
- 2010: Enbridge Pipeline leak in US near lake Michigan
  - Liability loss caused by a soil and water contamination: \$ 750m
- 2013: MMA Derailment at Lac Megantic
  - Liability loss caused by fatalities, BI, PD and cleanu-up: \$ 100m

6



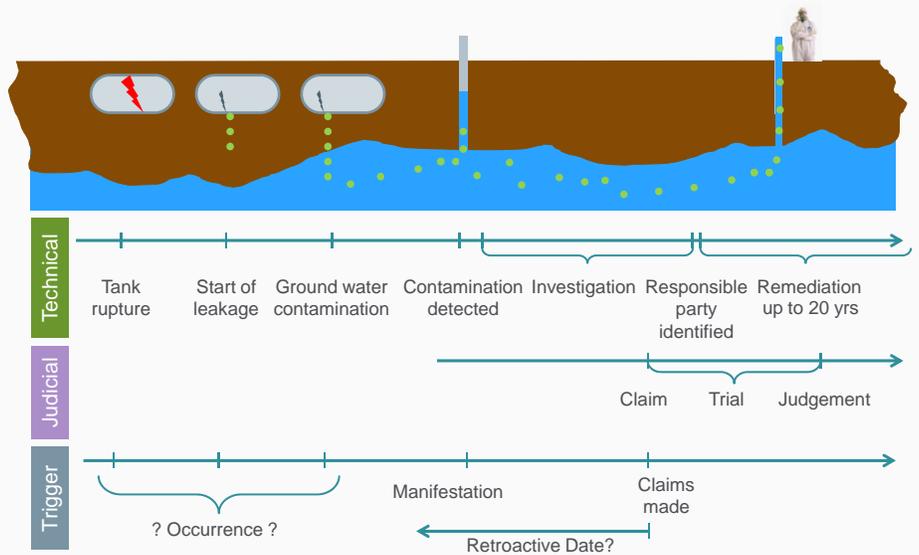
### 3. ISSUES OF CONCERN IN COVERING ENVIRONMENTAL POLLUTION



- > Risk identification
- > Insured's environmental awareness
- > Insured risk changes
- > Determining time-frame of the loss event
- > Gradual pollution
- > Incurred but not reported claims
- > Contaminated sites (inherited pollution)
- > Purely financial losses
- > Restoration or clean-up costs
- > Accumulations



#### 3.1 Time dimension ("long tail")



### 3.2 Inherited pollution – Examples

Munich RE 



- Power plants, iron and steel works, mines, paper factories, railway territory, chemical plants, refineries, tank farms, pipelines, military bases.
- Military bases, mining operation, landfills and the crude oil industry are the worst.

11 11

### 3.3 Changing regulatory framework

Munich RE 



#### Europe

- ELD - Directive 2004/35/CE
- REACH

#### USA

- Shale gas
- Air pollution/ Global warming

#### China

- Industry accidents
- Enforcement of environmental laws

12

### 3.4 ELD- Directive 2004/35/CE: Public law environmental damage claims

Munich RE 



The state is the advocate of the environment and claimant.

The legally protected interests are: **water, land, protected species and natural habitats.**

Natural restitution –  
Recovery of nature

**Group actions:**  
enforceable claim on the authorities to take action, hence indirectly claimants

13

#### 3.4.1 Directive 2004/35/CE – Content

Munich RE 

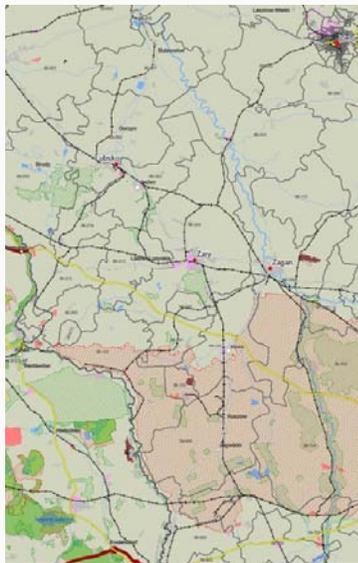


- **New:** “coverage” of liability under public law
- **New:** liability for ecological damage, type of damages, calculation/amount
- **New:** further remediation for water-/land damage (compl. + comp.)
- **New:** coverage for liabilities for damage on own premises and under public law
- **New:** prevention measures now enforceable in all EU member states, if there is an “imminent” threat (covered in EIL policies of special carriers)

14

### 3.4.2 ELD Poland – 30.4.2007 Act on environmental damage prevention and its remedy → very broad

Munich RE 



- At least 8% of the country are designated FFH sites or bird sanctuaries. Liability extended to damage to nationally protected species and habitats.
- Includes inherited pollution discovered after the Act comes into force (unless reported accordingly by 30 November 2006)
- Own land must also be cleaned up even if there is no acute risk to third parties or humans.
- No state of the art and permit exemptions.
- Proportional liability.
- Authorities can demand financial guarantees in special cases.
- Minister of Environmental Protection can issue executive decrees on financial guarantees in respect of special installations.

15

### 3.4.1 Poland status May 2013 – EU report

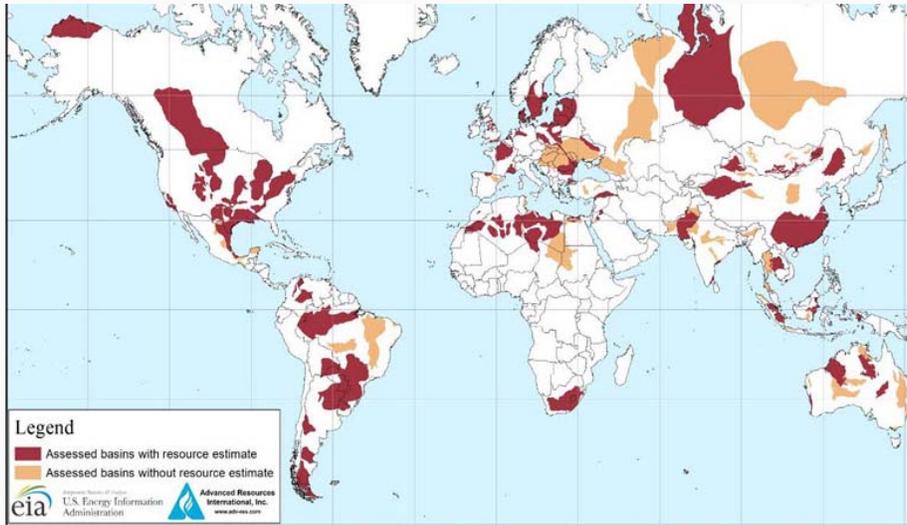
Munich RE 

- Since May 2007 more than 500 cases of imminent threats and damages registered by the Regional Directorate for Environmental Protection.
- 65 imminent threats of damage and 455 actual environmental damage, of which 302 are closed and 218 are ongoing.
- Most of the cases concern land damage followed by biodiversity damage
- ELD filled a gap in the pre-existing legal framework, old regulation were unclear and difficult to apply for the environmental authorities. The authorities have been therefore extensively using the ELD regime.
- There are no restrictions on categories of persons who may provide a notification of a ELD case. NGOs have been particularly active .
- The definition of land damage is very broad. In practice, it covers all damage which occurs on land or soil which breaches soil quality standards. A Bill has been going through legislative process to limit soil damage to threatening human health.

16

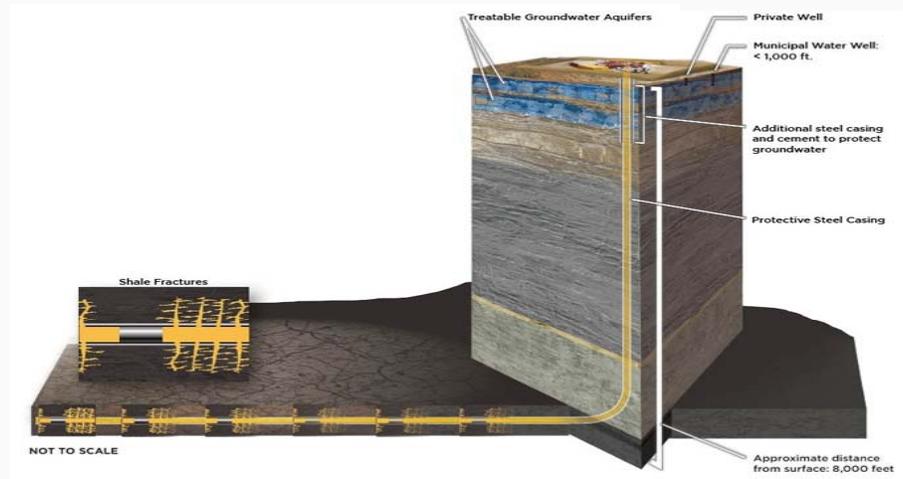


### 3.5 Basins with assessed shale oil and shale gas formations



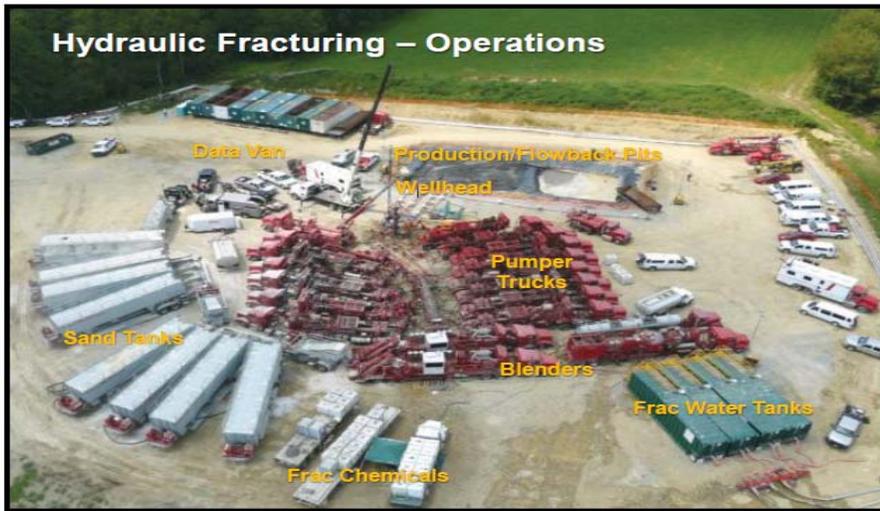
### 3.5.1 Hydraulic Fracturing Technology

<https://www.youtube.com/watch?v=7ned5L04o8w>



Quelle: Hydraulic Fracturing Facts

### 3.5.2 Drilling Job-Site



Quelle: Bob Donnan

21

### 3.5.3 Production-Site



22

### 3.5.4 Who is at risk

Munich RE 

---

Primary Risk	<input type="checkbox"/> Energy Companies <input type="checkbox"/> Service/Construction Contractors <input type="checkbox"/> Drilling Contractor	}	Own/Build Operate/Maintain the Well
Secondary Risks	<input type="checkbox"/> Municipalities <input type="checkbox"/> Public Utilities <input type="checkbox"/> Water Treatment Plants <input type="checkbox"/> Testing Labs <input type="checkbox"/> Testing Equipment Mfg.		
Tertiary Risks	<input type="checkbox"/> Landowner/Farmer <u>Lessors</u> <input type="checkbox"/> Chemical Mfg.	}	Mostly Contractual or Vicarious Liability

23

### 3.5.5 Loss Scenarios - 1

Munich RE 

---

Operational Accidents	Seismic and Geological Activity
<ul style="list-style-type: none"> <li>▪ Blow outs (Leroy Township, PA on 4/25/11)</li> <li>▪ Spills and accidents involving vehicles and equipment used to transport people, equipment, chemicals, etc.</li> <li>▪ Bodily Injury or Property Damage (including loss of value or enjoyment)</li> <li>▪ Gas migration related fires, explosions...above or under ground</li> <li>▪ Sudden release of pollutants</li> <li>▪ Storage of Hazardous Substances</li> </ul>	<ul style="list-style-type: none"> <li>▪ Earthquake activity (reported EQ in Arkansas, TX &amp; other states)</li> <li>▪ Sediment and water run-off</li> <li>▪ Waste water injection in deep geological formations</li> </ul>

24

### 3.5.6 Loss Scenarios -2

Munich RE 

---

Products / Completed Operations	<ul style="list-style-type: none"> <li>▪ Chemical manufacturers (e.g., mislabeling)</li> <li>▪ Equipment manufacturers (e.g., testing equipment; well casing material)</li> <li>▪ Cement manufacturing (e.g., well casing, pad footings)</li> </ul>
Nuisance	<ul style="list-style-type: none"> <li>▪ Private Nuisance w/o BI stemming from odors or noise</li> <li>▪ Attractive Nuisance with Bodily Injury</li> </ul>
Miscellaneous	<ul style="list-style-type: none"> <li>▪ Breach of Contract, Misrepresentation, Injunctive Relief (Loss of Value,</li> <li>▪ Negligence, Gross Negligence, Strict liability</li> <li>▪ Violation of Statues (Federal or Sate)</li> <li>▪ Medical Monitoring</li> </ul>
Environmental	<ul style="list-style-type: none"> <li>▪ Air pollution caused by drilling activities</li> <li>▪ Ground and subsurface water</li> <li>▪ Wastewater treatment</li> </ul>

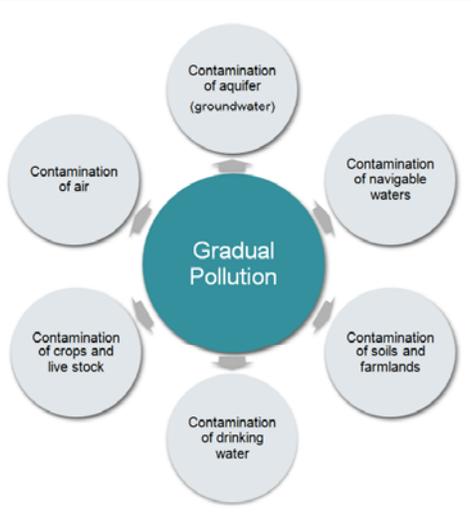
25

### 3.5.7 Loss Scenario - 3: Gradual Pollution

Munich RE 

---

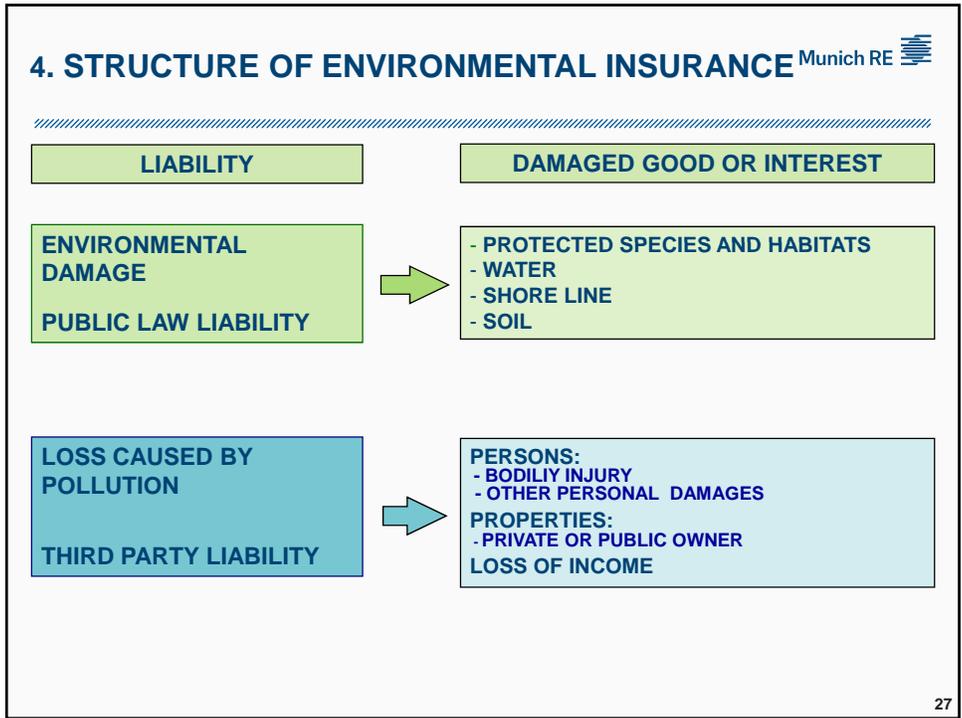
- Fracking water contains hazardous chemicals – Storage; up to 700 different chemicals have been used...some toxic
- Water Treatment – Water treatment plants fail to test and clean the water properly before releasing
- Groundwater pollution – chemical infused wastewater, radioisotopes or gas can escape into the environment in several ways:
  - Failures in well casing allow water to leak into aquifers
  - Waste water can leak out of the storage pits (lining fails)
  - Releases due to crack erosion in formations with artesian pressure



```

graph TD
    GP((Gradual Pollution))
    GA((Contamination of aquifer (groundwater)))
    GNW((Contamination of navigable waters))
    GSF((Contamination of soils and farmlands))
    GDW((Contamination of drinking water))
    GCLSL((Contamination of crops and live stock))
    GAir((Contamination of air))
    GP --- GA
    GP --- GNW
    GP --- GSF
    GP --- GDW
    GP --- GCLSL
    GP --- GAir
            
```

26



### 4.1 Environmental insurance pools Munich RE

---

<b>Italy: Pool Inquinamento</b> <b>Policy with 2 sections</b>	(a) Third party liability and off-site clean-up cover caused by pollution accidents  (b) Environmental pollution rehabilitation insurance to cover claims under public law. Sublimit for first party losses.
<b>France: Assurpol</b> <b>Care Policy</b>	(a) Covering third party liability caused by an pollution incident.  (b) Covering environmental damage to the soil, water and protected species, as well as natural habitats.
<b>Spain: PERM</b> <b>Policy with 2 sections</b>	(a) Third party liability cover for pollution accidents.  (b) Environmental pollution rehabilitation insurance to cover claims under public law. The competent authority will designate the minimum amount of a financial guarantee.

28

## 4.2 Insurance solution in Germany

Munich RE 

<p><b>Public Liability Insurance</b></p> <p><b>Basic cover</b></p>	<p>Complete exclusion for pollution liability (<i><b>inclusive fire and explosion events are defined as pollution condition</b></i>).</p> <p>Reintegration of a basic cover for residual risks, such as small quantities of chemicals or fuels. Standard cover for small and medium sized companies without a significant environmental hazard.</p>
<p><b>Environmental Liability Insurance (UHV-policy)</b></p>	<p>Cover for third-party damage, which arises from an “environmental impact”. The damage have to be caused by materials, substances, vibrations, noises, pressure, rays, gases, steam, heat, or other phenomena that have been dispersed in soil, air, or water.</p>
<p><b>Environmental Damage Insurance (USV-policy)</b></p>	<p>Coverage for governmental actions due to public law liabilities. The cover of activities on owned premises is restricted o sudden and accidental incidents. Basic cover for offsite environmental damage. Additional “first party” cover can be purchased for cleanup costs and restoration costs on the policyholder’s property.</p>

29

## 4.3 US specialized pollution coverages

Munich RE 

Insurance penetration is low → antiselection (high exposures, high premiums)

US EIL policies – 2 main categories:



- Sites: Premises Pollution policies
  - Scope of coverage:**
  - unknown historical pollution
  - new pollution gradual and sudden as well as losses caused by normal operation
  - Natural resource damage
  - Civil fines and penalties
  - Onsite cleanup
  - First party business interruption
- Services:
  - Contractor’s/Consultant’s Pollution Legal Liability policies (CPL)

30

### 4.3.2 Environmental policies in US

Munich RE 

#### Only to be underwritten by environmental experts:

- Gradual Pollution
- First-Party clean-up
- Waste-management activities
- Contractor's liability or Professional liability policies
- Historical pollution coverage
- Clean-up cost cap policies
- Policies covering the cost of restoring natural-resource damage or environmental damage (as required under the ELD)
- First party business interruption
- Mold, bacteria, emf .....



31

### 4.4 MTPL coverage

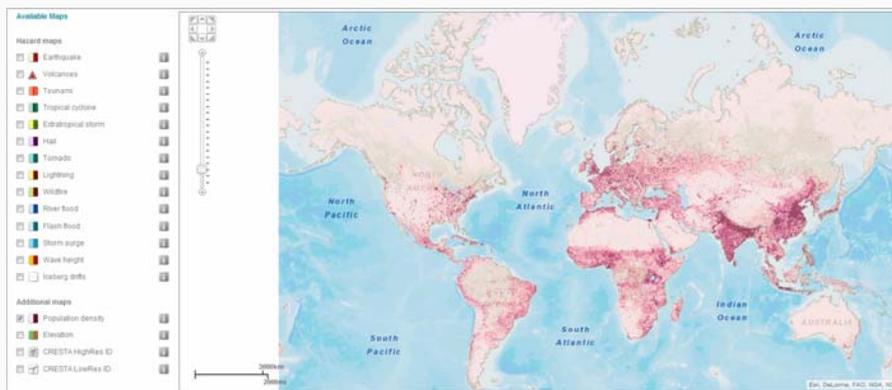
Munich RE 

- Strict liability for environmental damage caused by transportation of dangerous goods
- MTPL coverage will be affected by the ELD as well as MTPL reinsurance, in particular XL R/I



32

## 5. OVERVIEW ABOUT ENVIRONMENTAL MARKETS IN EUROPE AND US

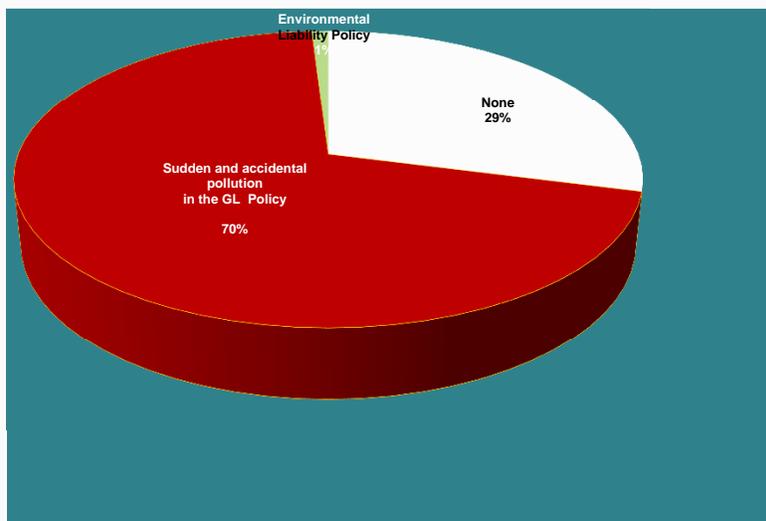


### 5.1 Environmental Pools in Europe - Status 2013

Country	Capacity in mm €	Written Premium in €	Policy Count	Average Premium	active since
France 	50 + 25	21.120.800	3.952	5.223	1989
Italy 	50	17.022.543	4.739	3.683	1979
Spain 	20.090	8.269.000	5.960	1.112	1994
Netherlands 	2,5	798.000	4.836	199	1984

## 5.1.2 Environmental insurance market in Italy

Munich RE 



35

## 5.2 Market overview Germany

Munich RE 

### Environmental Liability Insurance (UHV)

- 700.000 UHV-Policies – hazardous installations or tanks. (Limits €1m and €10 m, higher limits are restricted to sudden and accidental.)
- All other insured's are purchasing a GL/EIL-Basic Cover Policy where all other TPL pollution claims are covered which are not caused by a dedicated activity or installation.
- Premium Income: €700m, Loss ratio: 15%-30%

### Environmental Damage Insurance (USV)

- Cover of costs for clean-up/remediation forced by the governmental authorities. Onsite cleanup could be purchased for additional premium
- 1.600.000 policies covering ecological damage



36

### 5.2.1 Development of Environmental Damage Insurance in Germany – Number of risk (Source GDV)

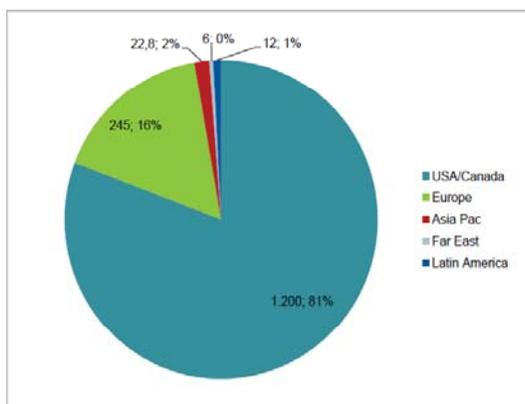
Munich RE 



37

### 5.3 Special Environmental Carriers based in US Status 2013

Munich RE 



Total EIL Premium in US/Canada \$1,5bn

#### Observations

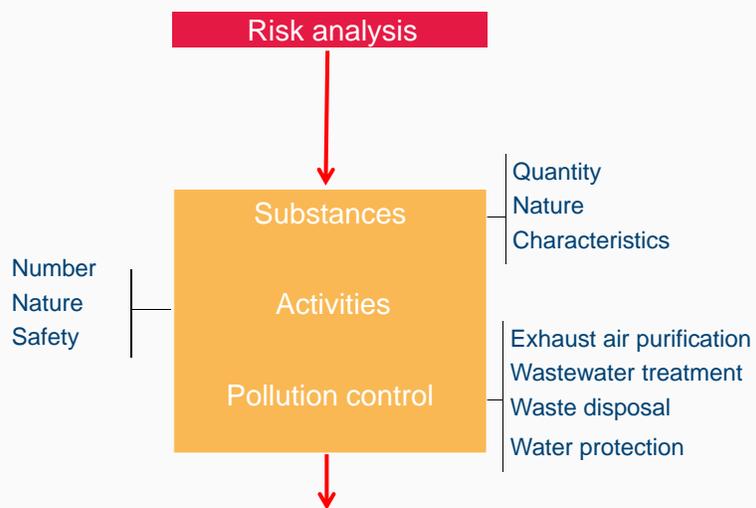
- US specialty insurers (no local European or ROW insurers), but some with global activity
- USA/Canada are the most established markets, more than 20 years of experience
- 6 key players of a total of 40+ players make up 70 % of market premium
- ROW includes
  - UK and continental Europe: fairly established (although less than USA)
  - Europe: different legislations and insurance solutions, e.g. pools, German UHV model
  - Emerging markets: Asia (China) and Latin America (Brazil, Mexico and Venezuela) with developing legislation and awareness as well as evolution of products

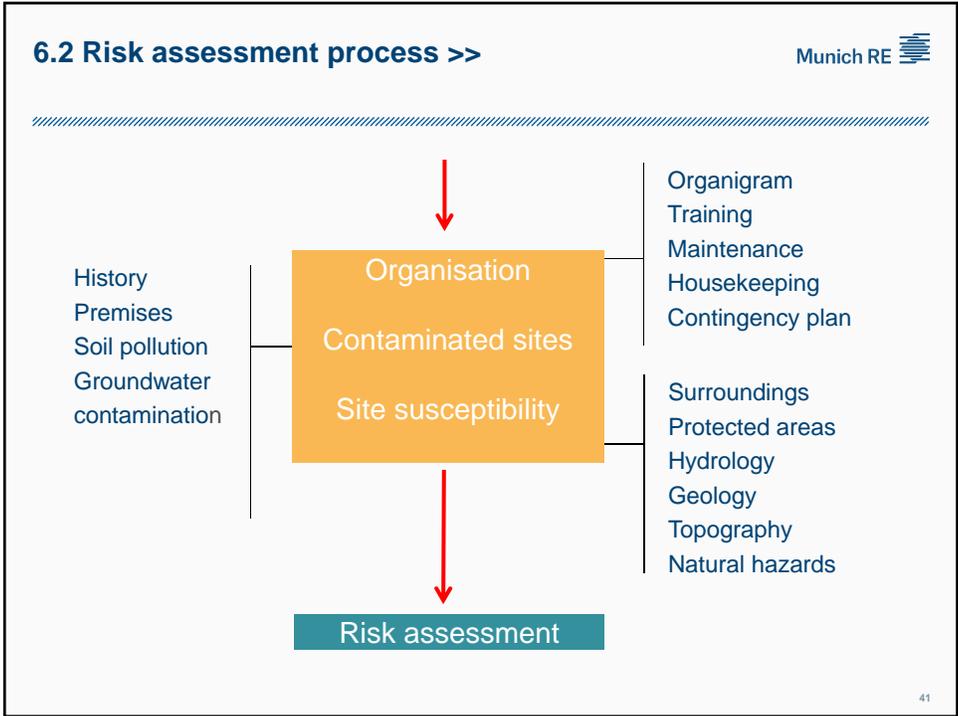
38

## 6. RISK ASSESSMENT



### 6.1 Risk assessment process <





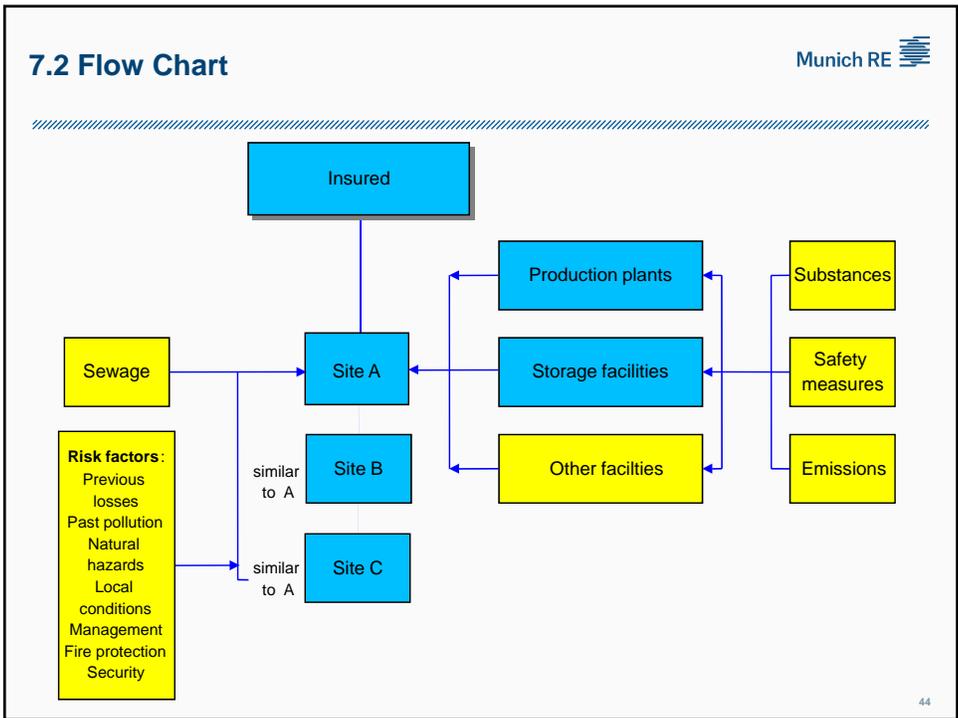
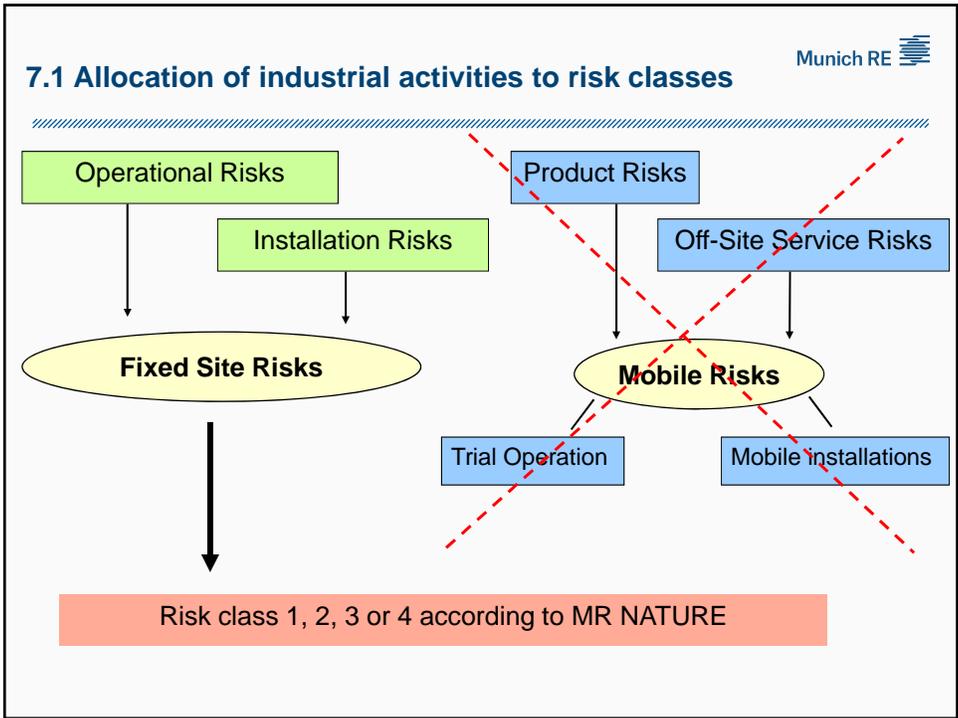
### 7. PREMIUM INDICATION WITH THE HELP OF NATURE

Munich RE 

---

**NATURE**

Identification, evaluation and rating of environmental liability risks.



## 7.3 Risk Indication

---

**Production unit, utility, disposal facility**

Category	06/24.1/p		
Designation	Facility for the production of synthetic resins,		
Short designation	production of synthetic resins	Seq. No.	1
Comments			

---

Year of construction	1986	Location	Work east
RCel	3	RCe	3
		RCf	4
		RCn	3
Processing capacity	10.000,0 t/a	Size class (SC)	4

---

Safety installations/measures	Emissions	Substances
-------------------------------	-----------	------------

Select parameters

Group	Description
Process conditions	High pressure
Process conditions	Continuous process
Safety features	Leakage collecting device
Safety features	Bursting disc
Safety features	Emergency cut-off
Fire protection	Fire extinguisher
Piping	Steel
Piping	Above ground
Inspection and maintenance	Inspection schedule

45

## 7.4 Overview and risk indication

---

<b>Plant 1: Electroplating facility</b>					
Year of construction:	0	RCel	3	RCe	3
Volume of bath:	42 m³	RCf	4	RCn	2

<b>Plant 2: Smelting of non-ferrous metals</b>					
Year of construction:	0	RCel	3	RCe	3
Throughput:	5.000 t/a	RCf	4	RCn	4

<b>Plant 3: Pyrolysis plant</b>					
Year of construction:	0	RCel	3	RCe	3
Processing capacity:	5 t/a	RCf	4	RCn	3

<b>Plant 4: Non-ferrous metal foundry</b>					
Year of construction:	0	RCel	2	RCe	3
Output:	250 t/a	RCf	4	RCn	3

<b>Plant 5: Manufacture of products made of reactive resins</b>					
Year of construction:	0	RCel	2	RCe	3
Processing capacity:	800 t/a	RCf	4	RCn	3

<b>Plant 6: Degreasing facility for metal parts using water-soluble detergents</b>					
Year of construction:	0	RCel	1	RCe	3
Detergent...	5 t/a	RCf	4	RCn	1

<b>Plant 7: Storage facility for solids containing heavy metals</b>					
Year of construction:	0	RCel	3	RCe	3
Capacity:	10 t	RCf	4	RCn	1

<b>Plant 8: Storage facility for diesel, heating fuel</b>					
Year of construction:	0	RCel	2	RCe	3
Capacity:	10 t	RCf	4	RCn	2

<b>Plant 9: Storage facility for diesel, heating fuel</b>					
Year of construction:	0	RCel	2	RCe	3
Capacity:	200 t	RCf	4	RCn	2

<b>Plant 10: Storage facility of mineral oil (flash point &gt;23 °C)</b>					
Year of construction:	0	RCel	2	RCe	3
capacity:	15 t	RCf	4	RCn	1

<b>Plant 11: Lacquer and/or paint store</b>					
Year of construction:	0	RCel	3	RCe	3
Capacity:	40 t	RCf	4	RCn	1

<b>Plant 12: Storage facility for hazardous solid waste</b>					
Year of construction:	0	RCel	3	RCe	3
Capacity:	65 t	RCf	4	RCn	1

<b>Plant 13: Storage facility for acids</b>					
Year of construction:	0	RCel	2	RCe	3
Capacity:	5 t	RCf	4	RCn	2

<b>Plant 14: Storage facility for PVC</b>					
Year of construction:	0	RCel	2	RCe	3
Capacity:	20 t	RCf	4	RCn	1

<b>Plant 15: Company diesel station</b>					
Year of construction:	0	RCel	2	RCe	3
Output:	120 m³/a	RCf	4	RCn	2

Distance from Public waters:	26 m to 250 m
Distance from Natura 2000:	501 m to 2000 m

**Risk factors**

Assessment of fire risk: Poor

**Sewage**

Wastewater discharging into Public sewers: 85 m³/d

RC1 – low risk, RC 4– high risk  
 RCel: EIL TPL Risk  
 RCe: ELD or Ecological Risk  
 RCf: Fire/Explosion Risk  
 RCn: Gradual or normal Operation Risk

## 7.5 Premiumindication with the help of NATURE



**Rating**

Short designation: Premium calculator Status: Offer  
 Alternative No.: 2 from: 25.06.2012 Last calculated: 25.06.2012 15:40:25  
 Last edited by: Roos, Walter Last modified: 25.06.2012 15:40:25

Total premium, net: 75.696 € Total premium, gross: 76.771 €

Environmental liability cover (ELC)	Environmental impairm. cover (EIC)	First party damage cover
Insured limit per claim and year: 10.000.000 €	Insured limit per claim and year: 10.000.000 €	Insured limit per claim and year: 10.000.000 €
Deductible: 50.000 €	Deductible: 50.000 €	Deductible: 1.000.000 €
Annual agg.: 1 times	Annual agg.: 1 times	Annual agg.: 1 times
Loading/disc.: 15,0 %	Loading/disc.: -20,0 %	Loading/disc.: -20,0 %
Reason(s): close vicinity to residential area; no fire water retention; modest fire protection	Reason(s): state of the art measures to prevent groundwater contamination	Reason(s): high deductible because of known past pollution; state of the art safety prevention
Loading/disc.: 5.111 €	Loading/disc.: -3.388 €	Loading/disc.: -4.935 €
Premium, net: 34.075 €	Premium, net: 16.942 €	Premium, net: 24.679 €

**Detailed rate-calculator information**

Production unit: Smelting of non-ferrous metals

Loss expectancy value (ELC) from rate table: 3.612 €  
 Risk class (RCel): 3  
 Size class (SC): 5  
 Increased insured limit factor: 170,993832% → 9.517 €  
 Base insured limit for LF: 1.000.000 €  
 Aggregate factors: - → 9.517 €  
 Company cost ratio: 0,10010010% → 9.827 €  
 Manual loading/discount: 16% → 10.956 €  
 Deductible as amount: 960 € → -8.7624381% → 9.996 €  
 Discount for capping premium: - → 9.996 €

Designation	RCa	RCel	RCc	RCn	SC	Capacity	Unit	Premium (ELC)	Premium (EIC)	Premium (FPD)	Σ Premium
Main plant	3							34.075	16.942	24.679	75.696
Electroplating facility	3	4	3	2	4	42 m²		2.000	5.495	8.004	19.813
Smelting of non-ferrous metals	3	3	2	4	5	5.000 t/a		9.996	3.580	4.931	18.507
Pyrolysis plant	3	3	4	3	1	5 t/a		6.175	2.223	4.359	12.761
Non-ferrous metal foundry	2	3	2	3	2	250 t/a		1.033	1.114	1.533	3.680
Synthetics made from reactive resins	2	2	4	3	2	800 t/a		1.033	369	510	1.912
Degreasing with detergents	1	2	2	1	3	5 t/a		461	494	682	1.637
Solids containing heavy metals	3	3	2	1		10 t		620	221	307	1.148
Heating fuel store	2	2	4	2		10 t		416	149	240	805
Heating fuel store	2	2	4	2		200 t		2.049	733	1.011	3.793
Flammable mineral oil	2	2	4	1		15 t		419	150	206	775
Lacquer and/or paint store	3	3	4	1		40 t		1.887	676	931	3.494
Hazardous solid waste	3	3	3	1		65 t		2.465	881	1.216	4.562
Acid store	2	2	1	2		5 t		219	79	108	406
PVC store	2	2	3	1		20 t		521	186	257	964
Company diesel station	2	2	2	2	1	120 m³/a		777	278	384	1.439

**Calculation sheet**

Insured: Spiegeleisen GmbH Alternative: 2  
 Königswinterer Straße 444  
 53227 Bonn

Policy No.: Calculation of: 25.06.2012

**Environmental liability cover (ELC)**

Insured limit per claim and year: 10.000.000 € Net premium: 34.075 €  
 Annual aggregate: 1 times  
 Per-claim deductible: 50.000 €  
 Loading/discount: 15 % corresponds to 5.111 €  
 Reason(s): close vicinity to residential area; no fire water retention; modest fire protection

**Environmental impairment cover (EIC)**

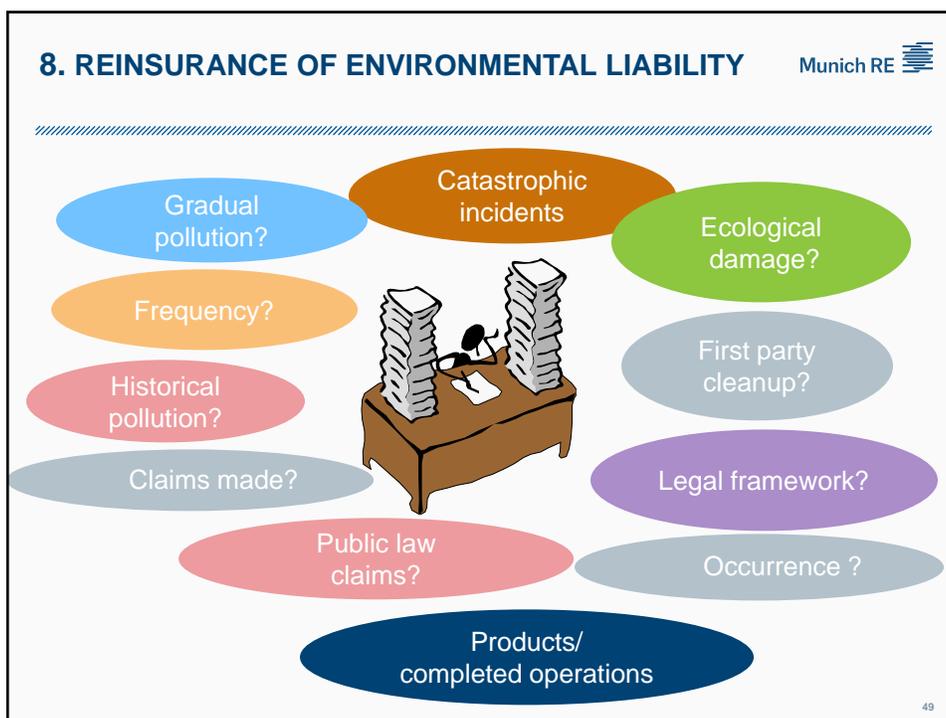
Insured limit per claim and year: 10.000.000 € Net premium: 16.942 €  
 Annual aggregate: 1 times  
 Per-claim deductible: 50.000 €  
 Loading/discount: -20 % corresponds to -3.388 €  
 Reason(s): state of the art measures to prevent groundwater contamination

**First-party-damage cover**

Insured limit per claim and year: 10.000.000 € Net premium: 24.679 €  
 Annual aggregate: 1 times  
 Per-claim deductible: 1.000.000 €  
 Loading/discount: -20 % corresponds to -4.935 €  
 Reason(s): high deductible because of known past pollution; state of the art safety prevention

Designation	Capacity	Rating item	Premium
<b>Location No.1 Main plant</b>			
1 Electroplating facility	42 m²	3/3/3 (4)	19.813,00 €
2 Smelting of non-ferrous metals	5.000 t/a	3/3/3 (5)	18.507,00 €
3 Pyrolysis plant	5 t/a	3/3/3 (1)	12.761,00 €
4 Non-ferrous metal foundry	250 t/a	2/2/2 (2)	3.680,00 €
5 Manufacture of products made of reactive resins	800 t/a	2/2/2 (2)	1.912,00 €
6 Degreasing facility for metal parts using water-soluble detergents	5 t/a	1/1/1 (3)	1.637,00 €
7 Storage facility for solids containing heavy metals	10 t	3/3/3	1.148,00 €
8 Storage facility for diesel, heating fuel	10 t	2/2/2	805,00 €
9 Storage facility for diesel, heating fuel	200 t	2/2/2	3.793,00 €
10 Storage facility of mineral oil (flash point >=23 °C)	15 t	2/2/2	775,00 €
11 Lacquer and/or paint store	40 t	3/3/3	3.494,00 €
12 Storage facility for hazardous solid waste	65 t	3/3/3	4.562,00 €
13 Storage facility for acids	5 t	2/2/2	406,00 €
14 Storage facility for PVC	20 t	2/2/2	964,00 €
15 Company diesel station	120 m³/a	2/2/2 (1)	1.439,00 €

Print date: 25.06.2012 15:44:27 Page 1 from 2



## 8.1 Potential reinsurance problems - ELD Munich RE

---

- Environmental damage has potential for large losses in terms of restitution of the ecological conditions
- Large loss potential with coverage of product pollution
- Large loss potential due to recovery by other liability insurers
- High frequency of first-party losses (agriculture, use of products, underground pipes, tanks, small firms)
- Increasing loss frequency due to enforcement pressures exercised on the authorities by environmental protection groups
- Routinely long-term remedial measures → loss reserving
- Risk of excessive remedial action where there is damage to species and in natural habitats, remedial measures also deal with historical pollution
- Knowledge is patchy because of the lack of underwriting and claims experience

## 8.2 MR's position on obligatory RI treaties >

Munich RE 

---

### Basic principle

- Insurance of environmental damage in accordance with the EU directive is possible on a claims-made or manifestation basis subject to the following limitations:
  - Restriction of the limit on complementary and compensatory remediation.
  - Ditto for the remediation of protected species and natural habitats.
  - First-party damage only covered under special policies or endorsements on sudden and accidental basis with time factor for duration of event and notification of loss and separate RI contract.

## 8.2 MR's position on obligatory RI treaties <<

Munich RE 

---

### The following are considered not insurable in an obligatory RI-treaty:

- Gradual pollution – Exceptions:  
Germany, environmental pools, specialist insurers, special products  
N.B. Proof of cedant quality, Munich Re risk assessment (regular reviews), adequate pricing
- Damage resulting from approved normal operation
- First-party damage in general liability RI contracts  
Exceptions: Germany, pools, specialist insurers, special products
- Mining, disposal sites, pipelines, GMO → fak./special acceptance
- Hazardous industrial plants in the case of cedants with little expertise

**Environmental Liability Insurance**

