References Book of HERA Group

Cleaning, Restoring and Remediation treatment of polluted soils
Remediation of contaminated soils

R & D Projects

“In situ Remediation Activities of contaminated soils with heavy metals”. In collaboration with the IMIA and the UAM

"Production of bio-surfactants for bioremediation of soils and contaminated water with hydrocarbons." In collaboration with the Water Institute of the University of Granada”.

“Advanced decontamination processes from waste-sludge coming from washed soils contaminated wit hydrocarbons”. In collaboration with CIEMAT, IGME and INIA.”

“Study of the rhizospheric association of plant-microbe for application in the recovered soils contaminated with hydrocarbons." In collaboration with the University of Saint Pablo

“ EIADES Project (Environmental Impact Assessment and Environmental Restoration of contaminated sites “ Several contributors of the CAM.
Remediation of contaminated soils

ENVIRONMENTAL AUDITS

Tajo River Hydrographical Confederation:
Inventory and Risk Analysis of contaminated groundwater by the installation of petroleum products in the Tajo river (876 facilities)

Audit Plan of the safety and environmental protection of CEPSA’s fuel stations network (1,300 filling stations in Spain)

Safety Audits for the National Direction of the Ministry of Energy, Fuels and Mining in Argentina in:

- 3 Generating Thermal Plants in Cordoba. (Argentina).
- 2 Oil Terminals, YPF.
- 12 Air plants, YPF.
- 13 Pumping stations of poly products and oil pipelines, YPF.
In 2007, HERA began the classification process to participate in the international tender for the presentation of the strategic recovery plan of desert landscape for the company Kuwait Oil Company (KOC). This selective process lasted three years and ended in 2010.

In April 2011, the Kuwait Oil Company started the selection process of candidates for environmental sanitary remediation of different areas of the oil fields of Wafra, Burgan and Ahmadi.

At present, we can confirm that HERA Group has signed the contract for the awarding of decontamination works of the first lot A. The works of this project are already started and on-going.
TREATMENT FOR CLEANING, RESTORING AND REMEDIATION OF CONTAMINATED SOILS

LOCATION: LEZO - GUIPUZKOA Spain
CONSTRUCTOR HERA AG: SERVICIOS MEDIAMBIENTALES

CLIENT: CLH LEZO-RENTERIA
PROJECT CARRIED OUT In: 2011

AFFECTED LAND INDUSTRIAL ZONE

BUDGET: 11,500,000€

DESCRIPTION

Advanced technologies applied for the treatment and remediation of soils and landscape environmental restoration. Decontamination, remediation and cleaning treatments in situ, ex situ.

Type of clients:
Hydrocarbons sector, Industry, Government Administration, Companies and Property Developers

PROJECTO: MODIFICATION OF LAND USE, (FROM INDUSTRIAL ZONE TO RESIDENTIAL LAND)
Soil contaminated with hydrocarbons and heavy metals.

Services rendered:
• Works of decontamination and recovery of land:
  Design of the decontamination system
  Selective excavation (500,000 m³)
  Soil Flusing, soil improvement with surfactants
  Land treatment by washing process
  Thermal desorption (370,000 Tons)
  Recovery of landscape for new urban use
  Budget: 11.5 M€
## TREATMENT FOR CLEANING, RESTORING AND REMEDIATION OF CONTAMINATED SOILS

<table>
<thead>
<tr>
<th>LOCATION:</th>
<th>VALENCIA</th>
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<tbody>
<tr>
<td></td>
<td>Spain</td>
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<tr>
<td>CONSTRUCTOR</td>
<td>HERA AG- SERVICIOS MEDIAMBIENTALES</td>
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<tr>
<td>CLIENT:</td>
<td>CLH - VALENCIA</td>
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<td>PROJECT CARRIED OUT IN:</td>
<td>2010-2011</td>
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<tr>
<td>INDUSTRIAL LAND:</td>
<td>SOMORROSTRO</td>
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<td>BUDGET:</td>
<td>4,100,000€</td>
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### DESCRIPTION

Advanced technologies applied for the treatment and remediation of soils and landscape environmental restoration. Decontamination, remediation and cleaning treatments in situ, ex situ.

**Type of clients:**
- Hydrocarbons sector
- Industry
- Government Administration
- Companies
- Property Developers

**PROJECT:** MODIFICATION OF LAND USE, (FROM INDUSTRIAL ZONE TO RESIDENTIAL LAND) Soil contaminated with hydrocarbons and heavy metals.

**Works of decontamination and remediation:**
- Conception of the decontamination project
- Soil Flusing, soil improvement with surfactants
- Selective excavation (80,000 m³)
- Land treatment by washing process (85,000 tons)
- Landscape Restoration
- Recovery of land for new urban use
- Budget: 4.1 M €
## TREATMENT FOR CLEANING, RESTORING AND REMEDIATION OF CONTAMINATED SOILS

<table>
<thead>
<tr>
<th>LOCATION:</th>
<th>CONSTRUCTOR</th>
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<tr>
<td>PORTUGAL</td>
<td>HERA AG- SERVICIOS MEDIAMBIENTALES</td>
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<thead>
<tr>
<th>CLIENT:</th>
<th>PROJECT CARRIED OUT</th>
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<tr>
<td>Unidentified client on express demand</td>
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<table>
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<th>AFFECTED LAND:</th>
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<tr>
<td>INDUSTRIAL ZONE</td>
<td>650,000€</td>
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</table>

### DESCRIPTION
Advanced technologies applied for the treatment and remediation of soils and landscape environmental restoration. Decontamination, remediation and cleaning treatments in situ, ex situ.

**Type of clients:**
Hydrocarbons sector, Industry, Government Administration, Companies and Property Developers

- **PROJECT:** ENVIRONMENTAL SUPERVISION OF THE DEMOLITION WORKS. RESEARCH, TEST, AND SUBSURFACE CHARACTERIZATION.

**Services rendered:**
- Works of decontamination and recovery of land
- Design of the decontamination system
- Removal of the product free supernatant
- Selective excavation (40,000 m³)
- Management of contaminated soil (15,000 m³)
- Budget: 650,000 €
TREATMENT FOR CLEANING, RESTORING AND REMEDIATION OF CONTAMINATED SOILS

LOCATION:
ALBUFERA of ALCUDIA
MAJORCA Island- Spain

CONSTRUCTOR
HERA AG- SERVICIOS MEDIAMBIENTALES

CLIENT:
Unidentified client
on express demand

PROJECT CARRIED OUT
In: 2011

AFFECTED LAND:
NATURAL PARK

BUDGET:
250,000€

DESCRIPTION
Advanced technologies applied for the treatment and remediation of soils and landscape environmental restoration. Decontamination, remediation and cleaning treatments in situ, ex situ.

- PROJECT:
  - ENVIRONMENTAL SPILL ACCIDENT CAUSED BY AN OVERTURNED TANKER-TRUCK
  - AFFECTED AREA: NATURAL PARK OF MAJORCA

Services rendered:
- Emergency Action Plan:
  Works of decontamination and recovery of land
  Excavation
  Cleaning and management of contaminated ground
  Cleaning and landscape restoration
  Budget: 250,000 €
TREATMENT FOR CLEANING, RESTORING AND REMEDIATION OF CONTAMINATED SOILS

LOCATION:
SPAIN

CLIENT:
Unidentified client on express demand

AFFECTED LAND
INDUSTRIAL ZONE

BUDGET:
1,200,000€

CONSTRUCTOR
HERA AG- SERVICIOS MEDIAMBIENTALES

PROJECT CARRIED OUT
In: 2011

DESCRIPTION
Advanced technologies applied for the treatment and remediation of soils and landscape environmental restoration. Decontamination, remediation and cleaning treatments in situ, ex situ.

Type of clients:
Hydrocarbons sector, Industry, Government Administration, Companies and Property Developers

- PROJECT: ENVIRONMENTAL SUPERVISION OF THE DEMOLITION WORKS. RESEARCH, TEST, AND SUBSURFACE CHARACTERIZATION.

Services rendered:
- Works of decontamination and recovery of land
- Design of the decontamination system
- Removal of the product free supernatant
- Selective excavation (40,000 m³)
- Management of contaminated land (10,000 m³)
- Budget 1.2 M€
TREATMENT FOR CLEANING, RESTORING AND REMEDIATION OF CONTAMINATED SOILS

LOCALIZACIÓN:
Port of BARCELONA
Spain

CONSTRUCTOR
HERA AG- SERVICIOS MEDIAMBIENTALES

CLIENT:
Unidentified client
on express demand

PROJECT CARRIED OUT
In: 2011

AFFECTED LAND
INDUSTRIAL ZONE

BUDGET:
11,000,000€

DESCRIPTION

Advanced technologies applied for the treatment and remediation of soils and landscape environmental restoration. Decontamination, remediation and cleaning treatments in situ, ex situ.

Type of clients:
Hydrocarbons sector, Industry, Government Administration, Companies and Property Developers

PROJECT: MODIFICATION OF LAND USE
(FROM INDUSTRIAL ZONE TO RESIDENTIAL LAND)
Port zone contaminated with hydrocarbons

Services rendered:
• Works of decontamination and recovery of land:
  Design of the decontamination system
  Selective excavation (500,000 m³)
  Soil Flushing, soil improvement with surfactants
  Land treatment by washing process
  Thermal desorption (350,000 Tons)
  Soil cleaning and environmental landscape recovery
  Budget: 11,0 M€
TREATMENT FOR CLEANING, RESTORING AND REMEDIATION OF CONTAMINATED SOILS

LOCATION:
SINES
PORTUGAL

CONSTRUCTOR
HERA AG- SERVICIOS MEDIAMBIENTALES

CLIENT:
Unidentified client
on express demand

PROJECT CARRIED OUT
In: 2010

AFFECTED LAND
INDUSTRIAL LAND

BUDGET:
6,900,000€

DESCRIPTION

Advanced technologies applied for the treatment and remediation of soils and landscape environmental restoration.
Decontamination, remediation and cleaning treatments in situ, ex situ.

Type of clients:
Hydrocarbons sector, Industry, Government Administration, Companies and Property Developers

PROJECT: MODIFICATION OF LAND USE:
FROM INDUSTRIAL LAND TO NATURAL PARK

Services rendered:
• Works of decontamination and recovery of land:
  Design of the decontamination system
  Selective excavation (480,000 m³)
  Soil Flushing, soil improvement with surfactants
  Land treatment by washing process
  Thermal desorption (343,000 Tons)
  Environmental landscape recovery
  Budget: 6,9M€
TREATMENT FOR CLEANING, RESTORING AND REMEDIATION OF CONTAMINATED SOILS

LOCATION:  
BISCAY  
Spain

CLIENT:  
Unidentified client  
on express demand

AFFECTED LAND  
INDUSTRIAL LAND

BUDGET:  
900 000€

CONSTRUCTOR  
HERA AG- SERVICIOS MEDIAMBIENTALES

PROJECT CARRIED OUT  
In: 2010 - 2011

DESCRIPTION  
Advanced technologies applied for the treatment and remediation of soils and landscape environmental restoration.  
Decontamination, remediation and cleaning treatments in situ, ex situ.

Type of clients:  
Hydrocarbons sector, Industry, Government Administration, Companies and Property Developers

PROJECT:  DISMANTLING OF THE TETRAETHYL FACTORY  
CLEANING, RESTAURING AND MODIFICATION OF LAND USE

Services rendered:  
Design of dismantle project of the lead-tetraethyl Plant.  
Management of the hazardous waste (aniline)  
Inertization and management of the lead sludge  
Modification of the land use  
Treatment of contaminated waster  
Incineration of waste with a high content in TEL  
Budget: 900,000 €
TREATMENT FOR CLEANING, RESTORING AND REMEDIATION OF CONTAMINATED SOILS

LOCATION: BISCAY, Spain

CLIENT: Unidentified client on express demand

CONSTRUCTOR: HERA AG- SERVICIOS MEDIAMBIENTALES

AFFECTED LAND: INDUSTRIAL LAND

PROJECT CARRIED OUT: In: 2010 -

BUDGET: 1,450,000€

DESCRIPTION

Advanced technologies applied for the treatment and remediation of soils and landscape environmental restoration. Decontamination, remediation and cleaning treatments in situ, ex situ.

Type of clients:
Hydrocarbons sector, Industry, Government Administration, Companies and Property Developers

PROJECT: DECONTAMINATION WORKS BY SPILLS ON GROUND

Services rendered:
- Design of dismantling project
- Ground treatment by washing process (63.000 Tons)
- Management of the hazardous materials (aniline)
- Extraction and treatment of groundwater
- Budget: 1,450,000 €
LOCATION: BARCELONA
Spain

CONSTRUCTOR
HERA AG- SERVICIOS MEDIAMBIENTALES

CLIENT:
Unidentified client on express demand

PROJECT CARRIED OUT
In: 2004

INDUSTRIAL ZONE
BARCELONA FORUM

BUDGET:
4,500,000€

DESCRIPTION
Advanced technologies applied for the treatment and remediation of soils and landscape environmental restoration.
Decontamination, remediation and cleaning treatments in situ, ex situ.

Type of clients:
Hydrocarbons sector, Industry, Government Administration, Companies and Property Developers

PROJECT: BARCELONA FORUM 2004
MODIFICATION OF LAND USE, (FROM INDUSTRIAL ZONE TO RESIDENTIAL LAND)
Soil contaminated with hydrocarbons and heavy metals.

Services rendered:
• Works of decontamination and recovery of land:
  Selective excavation (600,000 m³)
  Inertization (210,000 m³)
  Disposal in landfill (300,000 tons)
  Budget: 4.5 M €
  Recovery of land for new urban use