

Environmental impact management

Our efforts to prevent and mitigate negative impacts are becoming increasingly effective. The identification, analysis and monitoring of impacts, design of improvements to facilities, processes and management systems and investment in new technologies are all measures that are making our goal of minimising environmental impact in the areas in which we operate into a reality.



Update on 2009 objectives



Planned activities

Reduction of volatile organic compounds (VOCs).

Reduction of hydrocarbon spills.

Optimisation of water use.

Ongoing improvement of the environmental management system.

Degree of progress in 2009

Implementation of programmes for detecting and eliminating leaks in eight of the company's refineries and in two chemical plants.

Completion of installation of Phase II of a vapour recovery system at 42 service stations in the Autonomous Region of Madrid (Spain).

11% reduction in the amount of hydrocarbons spilled compared to 2008 (not counting external actions).

Implementation of programmes in seven refineries in Spain, Argentina and Peru, and in the chemical plant of Tarragona (Spain).

Certification of 10 new centres according to the ISO 14001 standard.

Management model

Concern for the environment is a key aspect for Repsol YPF in managing its activities. This principle is integrated into the company's strategic vision with the commitment to "contribute to the sustainable development and improvement of the social environment and respect for human rights, the environment and safety."

Platform in Tarragona (Spain).



Repsol YPF's safety, health and environmental policy, which is implemented in all of the company's activities through the management system, is based on this commitment. The basis for our environmental management system is the Safety and Environment Manual, which is applied throughout all our business units, and specifies functions and responsibilities, as well as establishing a common system of standards and management tools for the company as a whole. The manual is complemented by a comprehensive set of rules, procedures and technical guides, which are constantly updated to ensure they are properly adapted to best practices in the sector.

Promotion of ISO 14001 certification

We have been promoting the progressive certification of our centres according to

the ISO 14001 international standard for several years. We have obtained certification in 100% of the refining 56 and chemical industrial centres and in a growing number of centres involved in the rest of the company's activities (see table).

In 2009 we continued our upward trend in the number of certified centres. Every centre already certified maintained its certification and we obtained 10 new certificates too:

- Quiriquire Gas exploration and production activity (Venezuela).
- Four LPG plants: Neuquén (Argentina), Pifo and Montecristi (Ecuador), and Arequipa (Peru).
- Banática logistics terminal (Portugal).
- Four marine and fishing supply facilities in Spain.

Additionally, we have obtained ISO 14001 certification for a total of 20 logistics terminals, 21 air plants, 36 marine and fishing supply facilities, three marketing subsidiaries, 33 service stations, 29 LPG factories, five pipelines, one natural gas underground storage facility, geophysics and drilling operations in Argentina, exploratory activities in Libya and direct sales and aviation in Argentina. All these certificates can be viewed at www.repsol.com.

Environmental audits

Every year we draw up a safety and environmental audit plan that encompasses "crossed" internal audits, carried out by qualified personnel from a centre other than the one being audited, and external audits (voluntary and legal). The Safety and Environmental Audit Manual sets out the common methodology for carrying out audits



MAIN ISO 14001 CERTIFICATIONS BY ACTIVITIES IN 2009

Activity	Centres with ISO 14001 certification	%
Refining	9 out of 9	100
Chemicals	8 out of 8	100
Exploration and production	16 out of 17	94
Technology centres	2 out of 2	100
Lubricants and specialties	15 out of 15	100

ENVIRONMENTAL TRAINING

	Hours	Persons	Coverage rate
Spain	1,307	486	2%
Argentina	1,572	128	1%
Rest of Latin America ⁽²⁾	2,878	228	5%
Rest of the world ⁽³⁾	126	24	1%
TOTAL	5,883	866	2%

(1) Internal audits carried out by the centres' own personnel are not included.

(2) Bolivia, Brazil, Peru, Ecuador and Venezuela.

(3) Trinidad and Tobago, Libya and Portugal.

and three-year cycles for auditing the centres. There must be a balanced number of internal and external audits in each cycle.

In 2009 we carried out 1,082 safety and environmental audits, of which 411 were "crossed"⁽¹⁾ and 671 were external audits (141 associated with certification processes and 530 regulatory audits of a legal nature).

Environmental Training

A total of 866 employees received 5,883 hours of environmental training in 2009 (see table).

Environmental criteria in strategic planning

One of the functions of the Audit and Control Committee of the Board of Directors is to set and guide the company's safety and environmental policy, guidelines and objectives.

Every year we establish environmental objectives, within the framework of the safety and environmental strategic lines, which are approved by the company's Executive Committee. These objectives form part of the targets for those Repsol YPF employees with variable remuneration linked to the achievement of objectives.

Environmental investment and expenditure

Environmental investment amounted to €246 million and expenditure to €146 million in 2009.

Investment was spent primarily on ensuring optimum water consumption, improving the quality of effluents, improving the environmental quality of oil products, minimising emissions into the atmosphere, increasing energy efficiency and improving spill prevention systems. The following are some of our most unique projects:



Repsol YPF helps to supply clean drinking water in countries such as Bolivia.

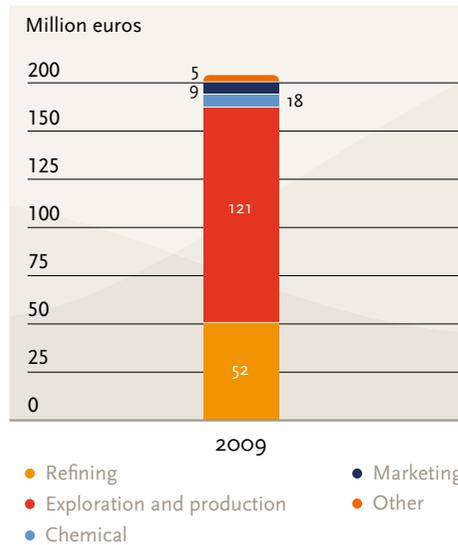
ENVIRONMENTAL INVESTMENT AND EXPENDITURE BY SECTOR⁽⁴⁾

	Million euros	
	Investment	Expenditure ⁽⁵⁾
Protection of the atmosphere	31	20
Water management	64	19
Waste and soils	54	59
Product environmental quality	41	<1
Other	56	48
TOTAL	246	146

(4) The information included in this table refers to companies in which Repsol YPF holds a majority interest and/or has operating responsibility.

(5) Expenditure deriving from the rights required to cover CO₂ emissions is not included.

ENVIRONMENTAL INVESTMENT BY ACTIVITY⁽⁶⁾



⁽⁶⁾ The data do not include investments made in the environmental quality of products



Canaport LNG regasification plant (Canada).

Caring for the environment in new projects: Canaport LNG

The start-up of the Canaport LNG regasification plant was one of the milestones of 2009 for many reasons, including the tremendous effort made from the environmental viewpoint.

Environmental impact and other studies revealed the effect that earth movement and construction of the facility had had on wetlands.

Canaport LNG has been in permanent contact with the relevant local, regional and national authorities in environmental matters and has established very ambitious programmes which go beyond simply restoring the affected areas.

Part of this work was carried out in 2009 and the rest is expected to be completed in 2010.

These actions will allow wetland habitat to be conserved by removing sandbanks, restoring the water flow between the wetland area and the Kennebecasis river, recovering local native plants and improving public access.

- Continuation of the logistics biofuels marketing project in Argentina, with an environmental investment of €11 million.

- Project for improving fuel quality at the A Coruña refinery (Spain), with an environmental investment of €11 million.

- Continuation of the project for improving gasoline and diesel quality at the Cartagena refinery (Spain), with an environmental investment of €6 million.

- Project for improving the rainwater collection system at the industrial complex of Puertollano (Spain), with an environmental investment of €13 million.

Minimising environmental impacts is one of our investment priorities. At Canaport LNG, Repsol YPF's new regasification plant in Canada, a tremendous effort has been made to reduce environmental impacts on the surrounding areas to an absolute minimum (see table).

Measures put in place to reduce environmental impacts

Our main efforts are aimed at reducing emissions into the atmosphere, optimising water consumption, improving the quality of effluents, minimising the generation of waste and improving spill prevention systems using the best practices available and state-of-the-art technology.



Exploration platform off the coast of Venezuela.

Main environmental impacts by activity



Refining

Emissions into the atmosphere⁽⁶⁾:
109,914 t
Water withdrawal: 76,102 kt
Treated waste: 103,248 t
Hydrocarbon spills: 35 t



Logistics and transport

Emissions into the atmosphere⁽⁶⁾:
1,513 t
Water withdrawal: 299 kt
Treated waste: 6,178 t
Hydrocarbon spills: 322 t



Marketing

Emissions into the atmosphere⁽⁶⁾:
3,235 t
Water withdrawal: 3,356 kt
Treated waste: 29,471 t



Exploration and production

Emissions into the atmosphere⁽⁶⁾:
91,439 t
Water withdrawal: 12,61 kt
Treated waste: 189,627 t
Hydrocarbon spills: 323 t



Chemicals

Emissions into the atmosphere⁽⁶⁾:
19,407 t
Water withdrawal: 22,132 kt
Managed waste: 38,905 t



LPG

Emissions into the atmosphere⁽⁶⁾:
1,775 t
Water withdrawal: 402 kt
Treated waste: 3,982 t

(6) The figure for atmospheric emissions refers to emissions of SO₂, NO_x, NMVOC, CO and particles.

t: metric tons.
kt: metric kilotons.



Atmospheric emissions

Our main atmospheric emissions are greenhouse gases⁽⁷⁾, sulphur dioxide (SO₂), nitrogen oxides (NO_x), volatile organic compounds (VOC_s) and, to a lesser extent, carbon monoxide (CO) and particles.

Sulphur oxide emissions

SO₂ emissions stem mainly from the sulphur contained in the fuels used in combustion processes at our refineries.

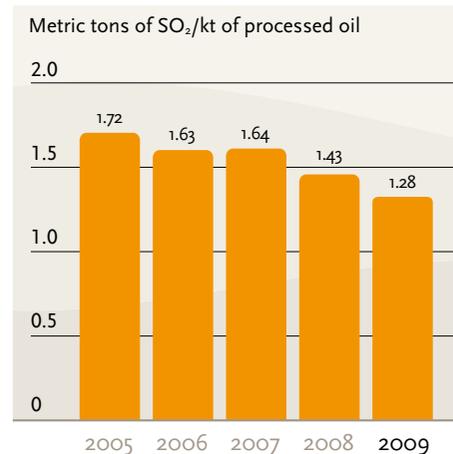
In 2009 we reduced the emission ratio per unit of processed oil in refining by 10% compared with 2008 figures, primarily due to the changes made in the calculation methodology required by the Integrated Environmental Authorisation of the Puertollano (Spain), Muskiz (Spain) and La Pampilla (Peru) refineries, due to an improvement in the quality of the fuels used.

Nitrogen oxide emissions

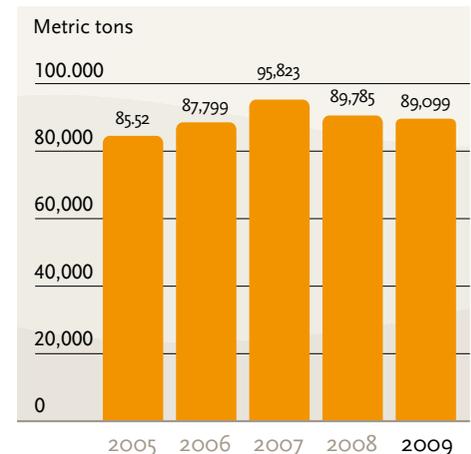
NO_x emissions are mainly produced in the refining and exploration and production businesses during combustion processes. In 2009, NO_x emissions were slightly lower (1%) than in 2008.



EVOLUTION OF SO₂ EMISSIONS IN REFINING

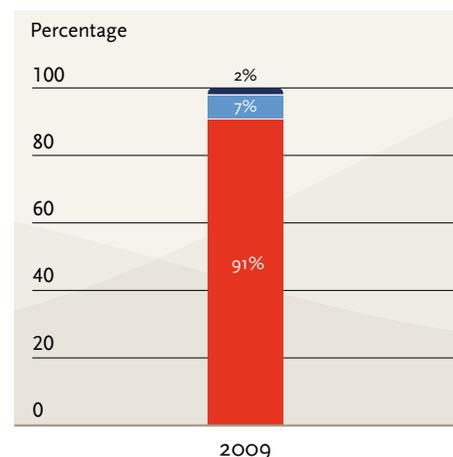


EVOLUTION OF NO_x EMISSIONS



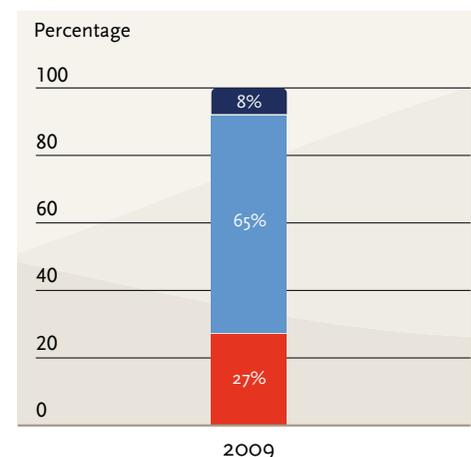
(7) For further information, see the chapter on "Sustainable energy and climate change".

SO₂ EMISSIONS BY ACTIVITY



● Refining ● Exploration and production ● Chemicals

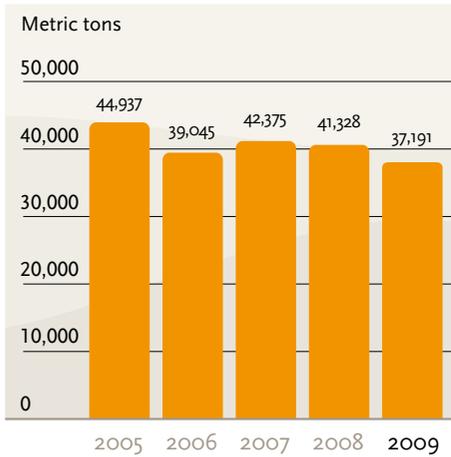
NO_x EMISSIONS BY ACTIVITY



● Refining ● Exploration and production ● Chemicals



EVOLUTION OF NMCOV EMISSIONS



Emissions of non-methane volatile organic compounds (NMVOC)

VOC emissions are produced mainly during refining, exploration and production, through service station activities and fugitive emissions in general. These emissions, due to their diffuse and sometimes discontinuous nature, are difficult to control. In 2009, NMVOC emissions fell by 10% due to reduced activity in the chemical plants of Spain and Argentina.

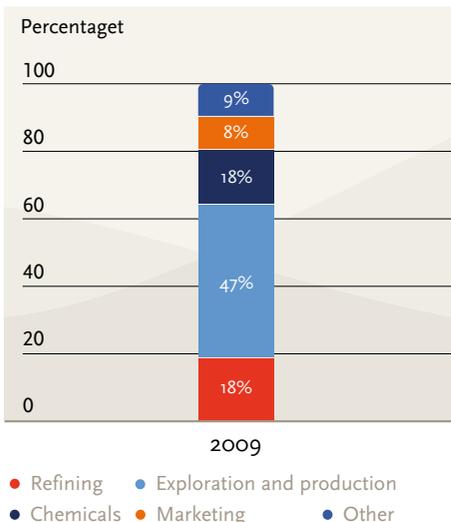
In 2009 we implemented different programmes for detecting and eliminating

leaks using Leak Detection and Repair (LDAR) or similar technologies at eight of the company's refineries and two chemical plants.

The Repsol Technology Centre also evaluated the technologies used to detect and measure the volatile organic compounds (VOCs) fugitive emissions generated by the industrial refining complexes in Spain. This evaluation led to identification of a new technology, which could represent a major step forward in the early detection and elimination of VOC leaks.

During the year, we also completed installation of Phase II vapour recovery at company-owned service stations with the greatest annual gasoline sales, in compliance with the Voluntary Agreement signed by Repsol YPF and the Autonomous Region of Madrid in 2006. These systems prevent VOCs being emitted when vehicles are refuelled. In 2009, we installed these systems at seven service stations completing the total number of systems planned for installation in the region (42), in anticipation of the future national regulation implemented by Directive 2009/126/EC, recently approved by the European Parliament and Council.

NMVOC EMISSIONS BY ACTIVITY



Verification of Smart LDAR technology for detecting and eliminating VOC emissions leaks at refineries

Smart LDAR technology is based on infrared cameras that detect fugitive emissions of volatile organic compounds (VOCs). A VOC leak, which is invisible to the human eye, is picked up by the camera as a plume of smoke.

We decided to test this equipment at the Repsol YPF refinery in Tarragona (Spain). In November and December 2009 we revised 5,000 elements (valves, flanges, pumps, etc.) in the olefin and platforming businesses and compared the results with the conventional method used, a flame ionisation detector (FID).

This technique improves leak detection

and allows us to make repairs more effectively and rapidly, saving time spent on checking equipment and helping us to monitor equipment and reduce the risk of emissions.

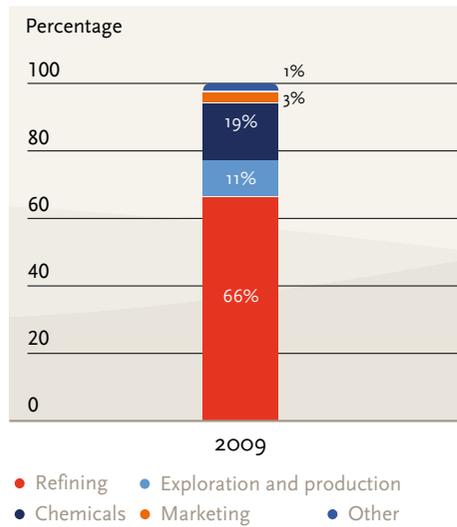
In 2010 we will develop a common protocol for using infrared cameras at all our refining centres. Together with the other VOC reduction actions, this will help us to gradually reduce fugitive emissions at our refining facilities.

Water management and discharge quality

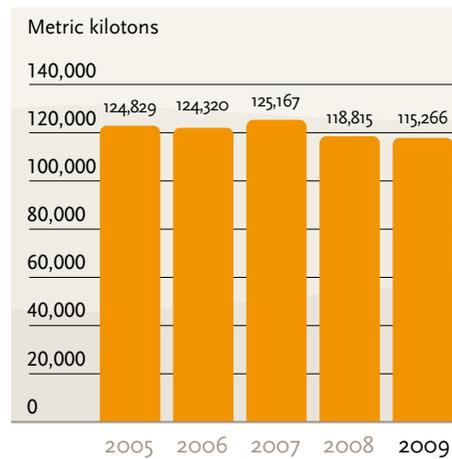
Water is a limited natural resource, which means it must be managed sensibly and its purity preserved.



EXTERNAL WATER WITHDRAWAL BY ACTIVITY



EVOLUTION OF WATER WITHDRAWAL

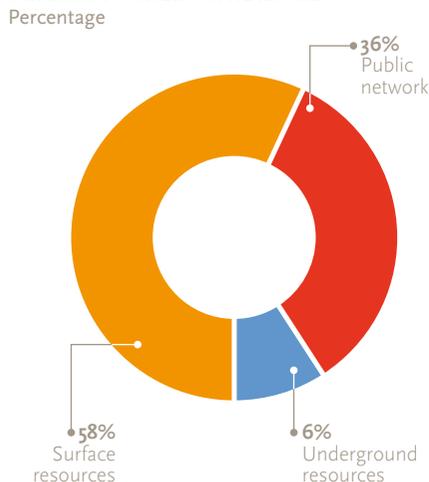


The water consumed comes mainly from surface resources (58%), from municipal supply (36%) and, to a lesser extent, from ground water (6%). In order to optimise water consumption in our operations, we draw up programmes each year that form part of the company's annual objectives.

Some of the most important actions carried out in 2009 include the programmes to optimise water consumption and quality of water discharged at the company's refineries in Spain, Argentina and Peru. These measures have been aimed at achieving greater levels of reuse, increasing use of recovered water and raising awareness about consumption of fresh water. The various actions carried out in 2009 enabled us to reuse 18,127 metric kilotons of water, 15% of the total water withdrawal.

Most of Repsol YPF's water consumption takes place during refining and chemical activities. In 2009, we consumed 115,266 metric kilotons, 3% less than in 2008.

ORIGIN OF WATER WITHDRAWAL



Treatment of rainwater at the industrial complex of Puertollano (Spain)

In 2009 we carried out the project to overhaul the rainwater network at the Puertollano petrochemical complex, aimed at improving its capacity to collect and channel such rainwater.

The project consists of four new ponds and two microtunnels to channel and collect rainwater. This water is then channelled to the wastewater treatment plant and released, totally cleaned, into

the Ojailén river or channelled directly to the industrial cycle of the petrochemical complex to be reused.

The four new ponds are capable of collecting 104,000 m³ which, added to the previous 23,000 m³ capacity available at the facility, adds up to a total of 127,000 m³.

Discharge quality

Effluent quality management involves the provision of technologically advanced facilities for treating discharge and monitoring and separating currents to reduce discharges and contaminant load.

The main contaminants discharged at our facilities are: hydrocarbons, solids in suspension and organic matter likely to undergo oxidation, measured as Chemical Oxygen Demand (COD).

Hydrocarbons

There has been a rising trend in hydrocarbon discharge since 2007, due to the inclusion of the exploration and production activity in Trinidad and Tobago, where improvement measures are being implemented at the water treatment plant to optimise discharge quality. This increase in hydrocarbon discharge has in no case exceeded the legal limits established in the country.

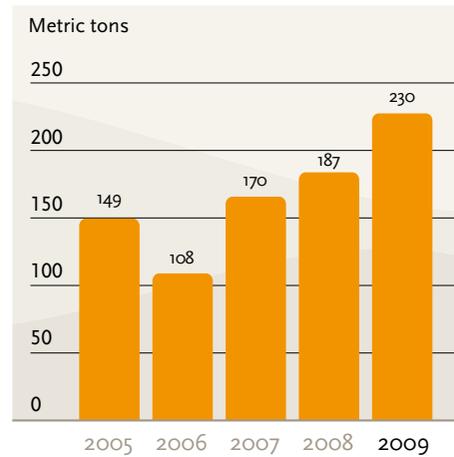
Suspended solids

These have fallen by 12% compared with 2008 figures, mainly due to reduced refining and chemical activity in Spain.

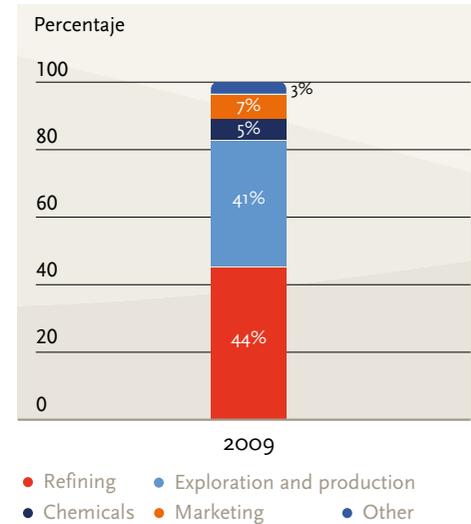
COD

This dropped by 5% compared with 2008 figures, mainly due to the decrease in the activity of the chemical plants in Spain.

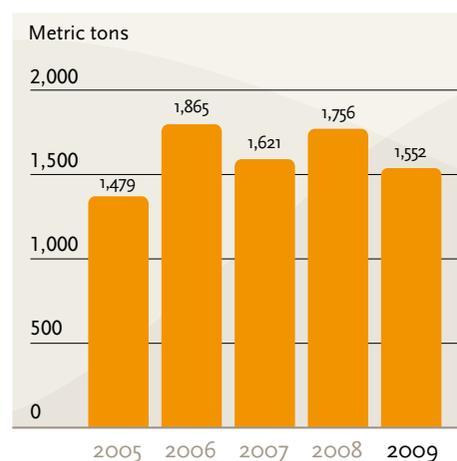
EVOLUTION OF HYDROCARBONS



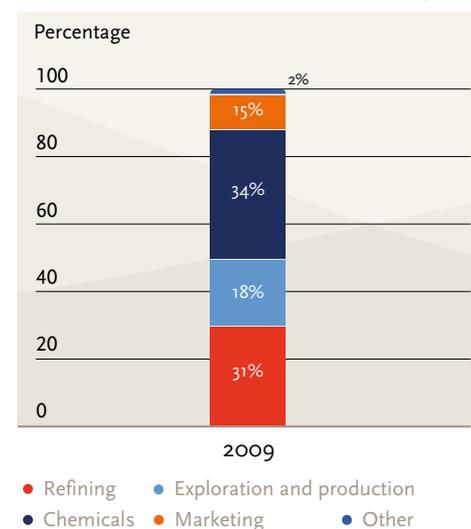
HYDROCARBONS DISCHARGED BY ACTIVITY



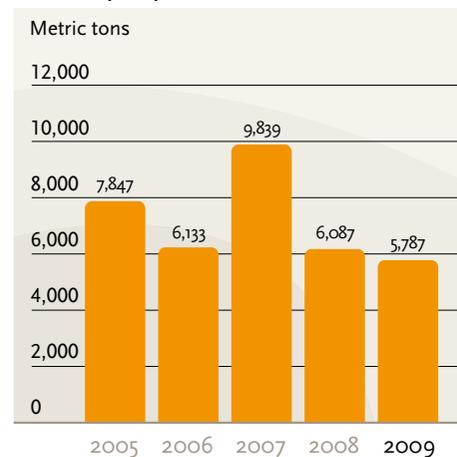
EVOLUTION OF SUSPENDED SOLIDS



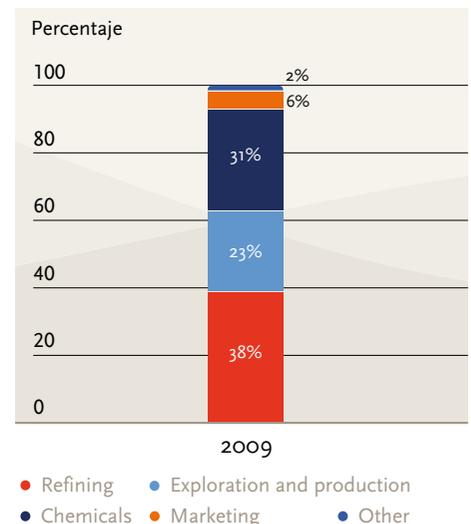
SUSPENDED SOLIDS DISCHARGED BY ACTIVITY



EVOLUTION OF CHEMICAL OXYGEN DEMAND (COD)



COD DISCHARGED BY ACTIVITY



Waste management

We make every effort to minimise the generation of waste and manage it correctly throughout the lifecycle of our activities.

To this end, different measures have been put in place, primarily for improving internal waste management, implementing waste minimisation programmes at every stage of the process, promoting reuse and recycling, and substituting raw materials or additives.

At Repsol YPF, waste is generated mainly during exploration and production, refining and chemical activities. The main waste products generated at our facilities include muds from cleaning the bottom of tanks, drilling muds and hydrocarbon-contaminated soil.

In 2009, we dealt with 43% less hazardous waste than in 2008, mainly due to a smaller quantity of contaminated soil having been produced by exploration and production activities in Argentina.

We have been committed to maximising the reuse and recycling of waste generated at our facilities for several years. In this



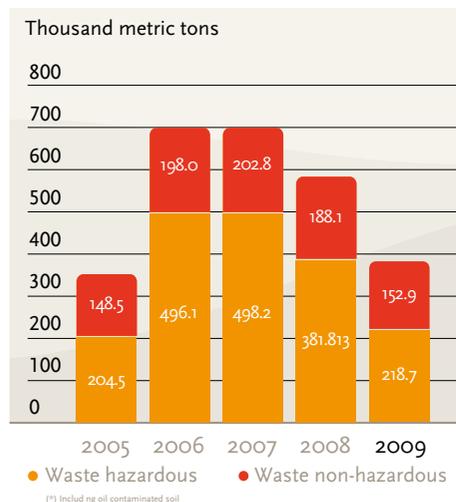
Repsol YPF industrial facility.

regard, 59% of the hazardous waste and 19% of the nonhazardous waste we dealt with in 2009 was destined for reuse and recycling.

Some of the most important waste generation reduction actions carried out in 2009 included those at the Ensenada chemical complex (Argentina), where we achieved a significant reduction thanks to the improved operation of some units and to the internal reprocessing of special wastes: biocell treatment, maleic incinerator furnace and sulfolane recovery. This waste reduction led to a decrease in our management costs of US\$250,000. Additionally, the Lubricants and Specialties business unit in Spain has worked on different projects aimed at minimising waste management. These include:

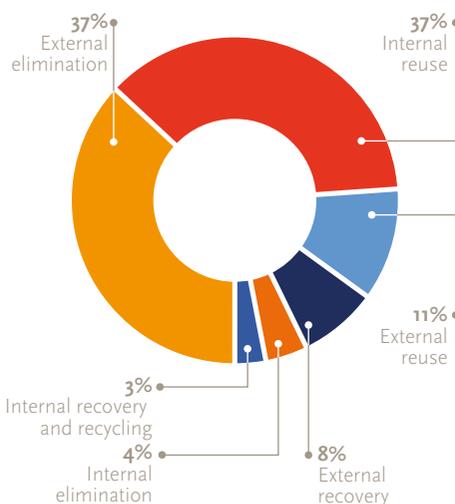
- Continuation of the reverse logistics programme, an integrated system for managing intermediate bulk containers (IBC) and pallets to increase waste recovery and reuse. In 2009, we achieved a 20% reduction in spending on IBCs (compared to 13.7% in 2008) and 25% on pallets (compared to 18% in 2008), representing significant savings for the company.
- Substituting packaged products for bulk products allows us to reduce container waste and improve working conditions, since this waste no longer has to be dealt with.

EVOLUTION OF HAZARDOUS^(*) AND NON-HAZARDOUS WASTE



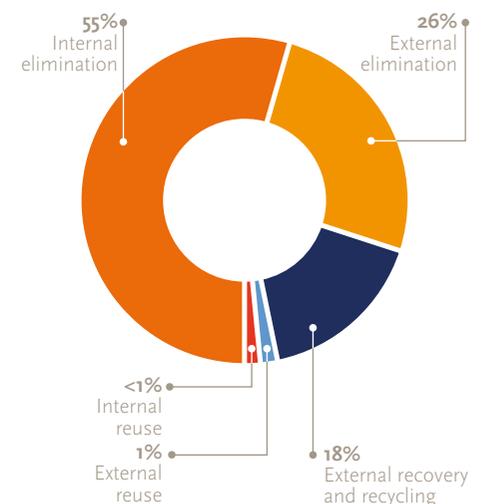
HAZARDOUS WASTE TREATED

Percentage



NON-HAZARDOUS WASTE TREATED

Percentage



Protection of the soil and underground water

Our efforts in this regard involve using the most advanced techniques to prevent and remedy pollution, manage accidental spills, carry out maintenance of facilities and make optimal use of logistics activities.



Most spills that take place in the oil and gas industry result from exploration and production activity. For years we have implemented measures aimed primarily at improving oil lines in exploration and production fields and at detecting, reporting and acting immediately when spills take place.

In 2009, we achieved a 69% reduction in the amount of hydrocarbons spilled, mainly due to the lower incidence of spills deriving from external actions. Without taking these actions into account, the amount spilled decreased by 11%, although the number of spills increased around 11%.

Environmental engineering unit

We have an environmental engineering unit. It provides the business units with specialist advice on preventing and cleaning up after soil contamination and evaluates new techniques for cleaning up contaminated soils together with the Repsol Technology Centre.

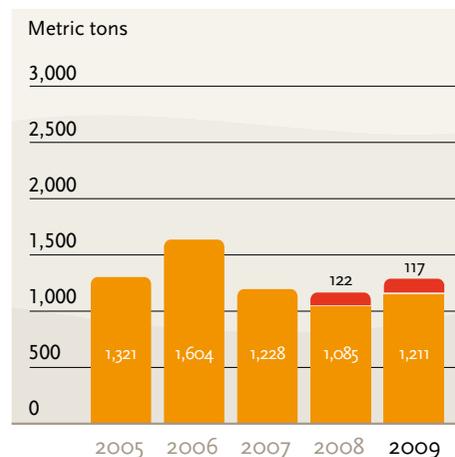
In 2009, we completed cleanups at 52 sites in Spain and Argentina: 48 at service stations, two at diesel distribution bases, one within the lubricants and specialties area, and one within direct sales. These cleanups basically use onsite techniques (not involving excavation): emptying, pumping, air injection into wells and vapour extraction (air sparging) and bioremediation; and in some cases,

usually involving refurbishment or abandonment of facilities, offsite techniques: excavation and proper management of soils and products.

From the prevention viewpoint, we also continued with the project in 2009 to implement an early leak alert system in tanks, called Statistical Inventory Reconciliation (SIR), at company-owned service stations in Spain. This system has been certified by the United States Environmental Protection Agency (EPA)

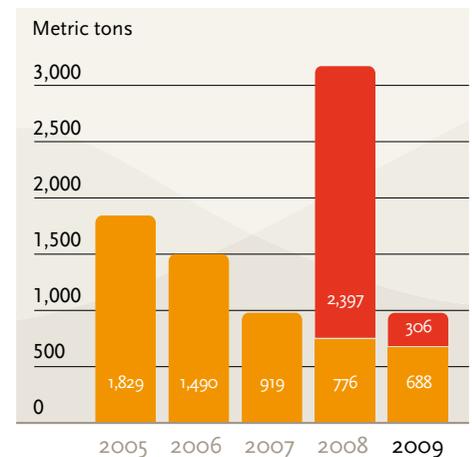
and has been implemented at 150 facilities. We aim to continue to introduce it progressively throughout the rest of the company-owned service station network as a tool to boost efforts to prevent damage to the soil and underground water as a result of accidental fuel spills.

EVOLUTION OF THE NUMBER OF HYDROCARBON SPILLS THAT AFFECT THE SOIL



● Spills caused by actions beyond the company's control

EVOLUTION OF THE QUANTITY OF HYDROCARBON SPILLS THAT AFFECT THE SOIL



Spills greater than one barrel affecting the soil have been included. In 2009, we have broken down the spills resulting from external causes which accounted for 117 spills and 306 metric tons of hydrocarbons spilled.

Analysis of environmental risks

Improving the identification, evaluation and management of environmental risk throughout the company as a whole is a key factor for preventing environmental impacts.



We have been working steadily for several years to develop quantitative methods to evaluate the environmental risks of our operations as a tool to improve our ability to assess and prevent them.

In 2009, risk evaluations took place at several of our industrial complexes, using these recently-developed methodological tools. In the refining business significant developments have been made at the Tarragona and Muskiz industrial complexes (Spain), which will serve as a basis for implementing management tools that will help to better understand risks, prioritise preventive actions and consolidate the experience acquired in our day-to-day operations. The initial evaluation stages have already got underway in the other centres.

With the help of the Environmental Engineering unit, the Spain Direct Sales business unit has carried out risk evaluations at all the diesel distribution centres within the sales department in their corresponding regional offices. A tool has also been provided which not only allows calculations to be made, but which can also be used to re-evaluate

risk in the event of modifications made at the facilities or changes in the surrounding area. It also helps to provide the information required by the current regulations in terms of quantitative analysis of environmental risks and establishment of the financial guarantee.

Environmental Responsibility

Progress is being made to evaluate the environmental risks of industrial complexes in Spain by using the principles established in Regulation 2092/2008 of Act 26/2001 on Environmental Responsibility. This work is part of a programme that will conclude in 2010, and which was completed at the Repsol Chemicals Tarragona and Puertollano centres in Spain in 2009. The evaluation process used takes into

account main danger areas, the channels by which contaminants could flow and environmental features that may potentially be affected by our activity. We use the detailed information about these three areas of activity to come up with accident scenarios, and those considered to be critical are selected for detailed evaluation, using a semi-quantitative evaluation with particular weighting given to aspects such as the volume and type of substance involved, characteristics of the main danger areas and their primary control systems, migration speed and potentially affected environmental features. This analysis provides greater insight into the main risks and most-heavily weighted factors, and helps in prevention work. For example, 76 scenarios were postulated at Chemicals Tarragona and 23 selected for further development and detailed evaluation. This all gives rise to the information needed to comply with the related legal obligations.

Our data

As a general criterion, 100% of emissions into air, water and soil are recorded for subsidiary companies in which Repsol YPF has a majority interest and/or operating responsibility (control).

We have our own computer tool for recording, analysing, monitoring and consolidating environmental information, which is accessible to all of the company's centres by means of the intranet, enabling environmental indicators to be uploaded

and validated. To this end, we use a common methodology throughout all the lines of business, which is included in the company's Environmental Parameters Guide and is based on internationally recognised documents and guides used in the sector.

	2005	2006	2007	2008	2009
Emissions into the atmosphere (metric tons)					
SO ₂	102,292	101,571	102,003	89,872	72,167
NO _x	85,052	87,799	95,823	89,785	89,099
COVNM	44,937	39,045	42,375	41,328	37,191
CO	24,170	25,259	25,726	23,442	21,839
Particles	10,068	10,767	9,986	9,254	7,064
TOTAL	266,520	264,441	275,913	253,681	227,360
Water management (metric kilotons)					
Water withdrawal (surface water, ground water, municipal supply)	124,829	124,320	125,167	118,815	115,266
Other water sources	554	148	147	91	57
Total water withdrawal	125,384	124,468	125,314	118,906	115,323
Discharged	51,173	52,109	58,972	63,606	60,899
Reused	20,818	22,073	20,915	19,571	18,127
Produced	163,314	183,159	191,589	189,365	177,902
Injected	178,973	192,775	196,413	193,580	181,762
Discharges (metric tons)					
Hydrocarbons	149	108	170	187	230
Suspended solids	1,479	1,865	1,621	1,756	1,552
COD	7,847	6,133	9,839	6,087	5,787
Waste management (metric tons)					
Hazardous waste (including contaminated soil)	204,796	496,128	498,236	381,813	218,738
Non-hazardous waste	148,528	198,038	202,833	188,068	152,937
Spills⁽⁸⁾					
Number of hydrocarbon spills that affect the soil	1,321	1,604	1,228	1,085	1,211
Spilled hydrocarbon that affect the soil (metric tons)	1,829	1,490	919	776	688
IEEnvironmental investment and expenditure (million euros)					
Environmental investment (excluding environmental quality of products)	127	116	152	207	205
Investments in environmental quality of products	186	64	43	56	41
Environmental expenditure	153	180	126	145	146
Environmental fines/sanctions⁽⁹⁾ (million euros)					
					0.3

(8) 2008 and 2009 data do not include spills caused by actions beyond the company's control. For further information, please see the section on spills in this chapter.

(9) Includes legal cases or administrative proceedings in excess of €100,000 that were concluded and fines paid in 2009. For further details, see notes 35 and 36 of the Consolidated Annual Accounts Report, "Liabilities, contingencies and commitments" and "Environmental information", respectively.



2009 Awards

In 2009 we obtained the maximum score awarded for the oil and gas sector in the Dow Jones Sustainability World and Dow Jones Sustainability STOXX indexes for our environmental management policy and system.

Repsol Technology
Centre in Móstoles
(Spain).

2010 objectives



Planned activities

Reduction of volatile organic compounds (VOCs).

Reduction of hydrocarbon spills.

Optimisation of water use.

Ongoing improvement of the environmental management system.

Objectives

To continue implementing the programmes in the company's different activities.

To continue with our actions for reducing hydrocarbon spills.

To continue implementing the water optimisation programmes in other company centres.

To continue with ongoing reviews and improvements to the company's environmental management system.