

Water

The operations of Grupa LOTOS do not significantly affect surface or underground water sources.

Total water withdrawal of Grupa LOTOS by source [m³]

	2009	2010	2011
Underground water	209,147	195,024	202,429
Surface water	3,557,093	3,766,470	3,607,427
Total	3,766,240	3,961,494	3,809,856

The implemented technological solutions allow the Company to reuse water. The percentage of recycled water is calculated by dividing the sum of process water obtained from treated wastewater and condensate by its total process water requirement.

Percentage and total volume of water recycled and reused by Grupa LOTOS [m³]

	2009	2010	2011
Process water obtained from treated wastewater	870,230	1,555,969	1,179,317
Treated condensate	1,118,213	1,546,726	2,030,131
Percentage of recycled water	34.6%	43.9%	45.7%

After being treated, process, sanitary and oily wastewater is released directly to the Martwa Wisła River. Stormwater and water which has passed through the drainage system is released to the Martwa Wisła through the Rozwójka River.

The volumes of treated wastewater discharged to receiving waters by Grupa LOTOS over the years were as follows:

Total wastewater discharge by quality and destination [m³]

	2009	2010	2011
Rozwójka	4,083,604	3,880,741	3,874,089
Martwa Wisła	1,094,220	1,306,041	1,354,015
Total	5,177,824	5,186,782	5,228,104

Material parameters of treated wastewater discharged to receiving waters by Grupa LOTOS over the years were as follows:

Rozwójka

Contaminants	2009	2010	2011
total suspended solids [mg /dm ³]	10	10	12
permitted value	35	35	35
hydrocarbons of petroleum origin [mg /dm ³]	2	1	2
permitted value	5	5	5

Martwa Wisła

Contaminants	2009	2010	2011
BZT [mg O ₂ / dm ³]	6	5	3
permitted value	25	25	25
COD [mg O ₂ / dm ³]	52	51	34
permitted value	125	125	125
total suspended solids [mg / dm ³]	13	6	8
permitted value	35	35	35
volatile phenols [mg/ dm ³]	0.005	0.006	0.001
permitted value	0.1	0.1	0.1
hydrocarbons of petroleum origin [mg / dm ³]	0.7	0.4	0.8
permitted value	5	5	5
total nitrogen [mg N/ dm ³]	4	4	3
permitted value	30	30	30
total phosphorus [mg P/ dm ³]	0.9	1	1
permitted value	3	3	3

The land occupied by Grupa LOTOS is of no special natural value and is not subject to any form of nature protection. The Rozwójka and Martwa Wisła rivers, the two receiving bodies for water and wastewater generated by Grupa LOTOS, do not have the protected status, either. The discharge of water and wastewater does not materially affect biodiversity of the water bodies or related habitats. No adverse impact of Grupa LOTOS' production operations on the level of biodiversity in land, freshwater and marine environments was found to exist.

The Company's operations pose no risk to any of the species included in the IUCN Red List or national lists of endangered species. In areas surrounding the Gdańsk refinery, there are no known habitats of conservation list species and no risk of their extinction.

However, because Grupa LOTOS withdraws surface water from the Motława River, it has committed to support the biodiversity of the region by co-financing work aimed at restoring fish population within Motława fishing district No. 3. Moreover, a protective belt of trees was planted on the side of national road No. 7, which is exposed to heavy traffic, and on the perimeter of the refinery's wastewater treatment plant.

Out of 10 emergency cases reported at the refinery of Grupa LOTOS in 2011, no spills were identified with a material environmental impact.

In 2009–2010, only one out of 23 incidents had a material impact on the natural environment. It was a diesel oil spillage occurring for reasons not attributable to the Company, but caused by illegal drilling in the pipelines transporting the oil to the port.