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## **PREAMBLE**

As per the generally accepted definition, sustainable development is such a manner of development of mankind that allows compliance of economic and social progress with full-fledged conservation of the natural environment. The main goals of sustainable development include conservation of the natural environment for future generations in such a shape that is minimally ill-affected. The Czech Refining Company (CRC) pays enormous attention to the environmental issues, cooperation with the neighbourhood, occupational safety, the quality of the CRC products as well as a lot of other areas important both for the CRC business and all the involved parties in the neighbourhood. It is Czech Refining Company's goal to pay maximum attention to the development of the CRC business, environmental protection, occupational safety, personal development of the CRC staff and support to the neighbourhood.

Issuing sustainable development reports is an important part of Czech Refining Company's cooperation with the neighbourhood as one will find in it a great deal of such intelligence that will provide him/her with comprehensive insight into the activities of the Czech Refining Company and its sustainable development.





Czech Refining plc (hereinafter "Czech Refining Company" or "CRC") is a production company involved in crude oil (oftentimes only "crude") processing. It operates two refining sites; namely the Litvínov Refinery and the Kralupy nad Vltavou Refinery. The main portfolio of its products includes multiple kinds of mogases, diesel, aviation fuels, fuel oils, liquefied petroleum gases (LPG), bitumen, feedstuff for petrochemical and chemical production and for production of lube oils as well as other substances utilised for further industrial use.

From August 2003 the Czech Refining Company has been operating in processing mode, which means that the Czech Refining Company processes crude oil provided by its owners – in fact by their inland business affiliates. They carry out sale of the products within both inland and foreign markets – in ratios corresponding to their ownership shares.

In 2014 a major organisational change concerning the Czech Refining Company happened. At 31 January 2014 Unipetrol plc acquired 152 701 shares formerly owned by Shell Overseas Investments B.V. Hence, the Unipetrol's share in the Czech Refining Company rose from 51,220 % to 67,555 %.

In terms of production aspects, the performance in 2014 was better in comparison with 2013 as in 2014 the Czech Refining Company processed by 12.5 % more crude than in 2013. At the same time the operational availability of production units in both refining sites rose. Of 605 million CZK spent on capital projects in 2014, 165 million CZK was spent on environmental capital projects, in particular on reconstruction of wastewater treatment plant in the Kralupy Refinery.

In 2014 the Czech Refining Company managed to fulfil the set goals in the areas of occupational safety, operational safety and environmental protection ("HSE" – Health, Safety & Environment). The number of safe-atrisk behaviour observations, which indicates the efforts devoted to occupational safety and environmental safety, was 2 849 and in comparison with 2013 it almost doubled. In 2014 HSQ strategy for improvement of the situation in the Czech Refining Company in this particular area was introduced and its continuation for 2015 was presented to the Czech Refining Company Management and approved by it.

Within human resources strategy, in 2014 the Czech Refining Company continued to modify the organisational structure and the associated directives. The Czech Refining Company still managed to achieve the goal of being a good counterpart for the neighbourhood and within the conception of a community-responsible company it went on in development of relationships with the neighbourhood municipalities in the Most-Litvínov region and in the Kralupy nad Vltavou region.

The volume of processed crude oil (thousands of tonnes)	7 496
Staffing as at 31 December 2014	610

SHAREHOLDERS						
UNIPETROL plc	67.555%					
Eni International B.V.	32.445%					



The Czech Refining Company has implemented and has been operating a total management system. The total management system consists in integration of systems of management of occupational safety and environmental safety into one logical functional set.

The above management systems have been certified for the Czech Refining Company pursuant to the international standards ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007. The latest re-certification audit concerning compliance with the above standards took place in 2013, whereby the Czech Refining Company was awarded a certificate for a three-year period. The areas of assets security and prevention of serious accidents are inseparable parts of the Czech Refining Company total management system.





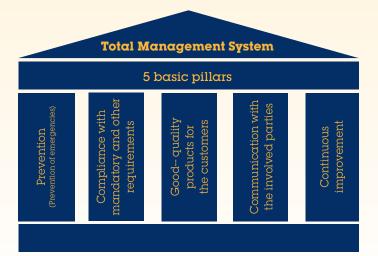


The Czech Refining Company exerts its best efforts so that the management systems might be integrated into current operation of the company and so that every established activity might be sensible. The goal of the Czech Refining Company is to create and maintain a flexible system that facilitates defining the tools for prevention; i.e. prevention of emergence of emergencies, and to utilise the tools in an effective manner with the aim to enhance the areas of occupational safety, environmental safety and customer satisfaction. The Czech Refining Company total management system relies on responsibilities of each employee and adherence to the established rules so that accident-free status might be achieved.

A process of identification and assessment of risks is instrumental for proactive approach in the areas of monitoring and control of ill effects of individual activities on the customers, occupational safety, prevention of serious accidents, environmental protection and assets security. This process also identifies measures for phasing out or minimisation of the risks and enhances the mechanisms through which the risks are controlled. What is also of major importance is the established process of reporting, registration and investigation of the causes of emergence of emergencies, including reporting near-misses and risky conditions. In 2014 the Czech Refining Company continued in further development of the process of process safety, which plays an important role in prevention of emergence of undesirable extraordinary events and, hence, it is an important part of the prevention "pillar".

The Czech Refining Company undertakes that it will exert its best efforts so that the targets of the total management system might be fulfilled; i.e. to ensure fulfilment of all requirements of the customers at the best possible quality level and within the requested deadlines at optimum utilisation of all resources, whilst all requirements might be adhered to in terms of quality, process and occupational safety, prevention of serious accidents environmental safety and assets security.

The Czech Refining Company total management system is supported with five basic "pillars":





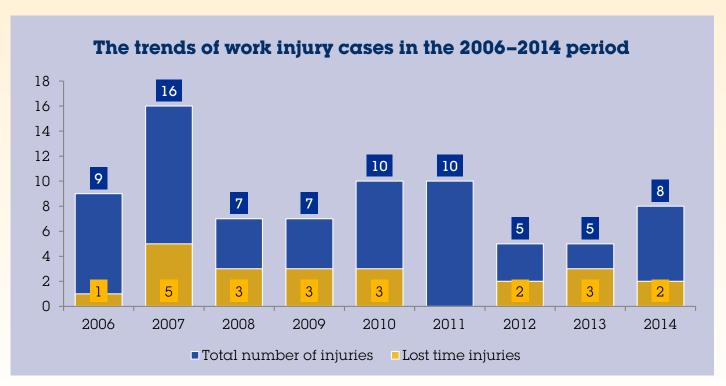
In 2014 eight work injuries were recorded in total. This concerned both the Czech Refining Company staff and the contractors. Of those eight injury cases, two were lost-time injuries (in both cases the lost time was three days). Taking into account the risk level of the operation and the overall complexity of the processes, this was very good performance – taking also into account the fact that both injury cases were ranked as minor-category cases and resulted from movements of the relevant staff within the field.

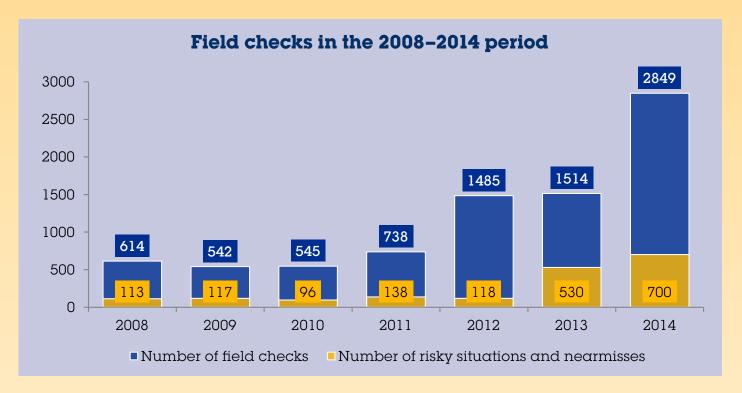
During 2014 the Czech Refining Company implemented multiple new procedures and projects to enhance the occupational safety system. The key procedures/projects included improvement of the system of reporting extraordinary events (feedback concerning the measures adopted and monitoring their fulfilment), establishment of a system of long-term work permits (resulting in decrease in unnecessary bureaucracy concerning work permits), establishment of short-term strategy in the area of occupational safety (enhancement

of awareness of staff, enhancement of the safety culture, improvement of the contractor management system etc.) and continuation in successfully launched ZERO project, thanks to which the Czech Refining Company managed to almost double the number of executed safe rounds and safe-at-risk behaviour observations-in comparison with 2013.

This way the Czech Refining Company orientates to maintaining and continuous enhancement of the occupational safety of both CRC staff and contractors. What is the result is improving trend in the area of occupational safety as well as drop in the number of undesirable events.

Last but not least, there was also questionnaire poll in the area of safety culture, in which well over 50 % of the staff were actively involved, and organisation of Safety Days for the staff of both refining sites, when in the Litvínov Refinery there was also a competition concerning knowledge in the area of safety between the Unipetrol Group staff. All these activities aimed at enhancement of safety awareness in both





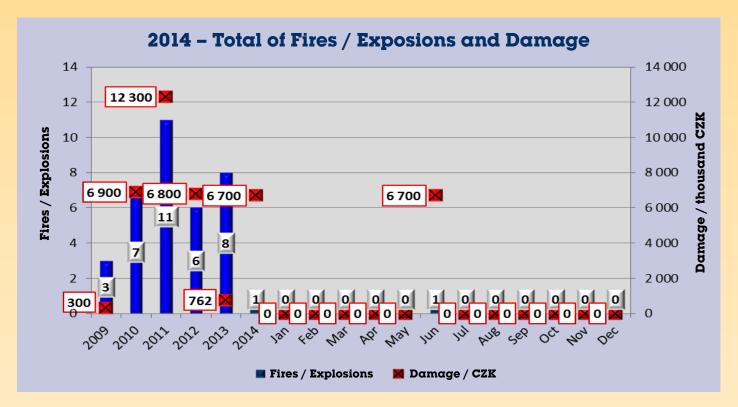
refining sites. The importance that is paid to safety was emphasized by the fact that the Top Management took part in the Safety Days.

#### **FIRE SAFETY**

The main goal of the fire safety efforts in the Czech Refining Company is to ensure protection of lives and health of people and protection of assets against the ill effects of fires. What is the important component and the basic principle is prevention of risks – hence general prevention. In general, the strategy of

preventive fire protection is based on the theory of fire and economic risks and is embodied, on the basis of legislation and associated standard requirements, in the organisational and management documentation of the Czech Refining Company. The aim of fire prevention is to ensure fire safety at use of the facilities and their operation through their entire lifetimes, at concurrent ensuring the fire safety of all activities as per ranking of their fire risks. The activities associated with such production facilities that are risky due to their nature and due to accommodation of great amounts of flammable,





explosive and/or toxic substances are ranked in category of high/enhanced fire risk. For these activities it is stipulated that thorough adherence must be exercised to stipulated requirements on the basis of developed documentation. The fire safety of the operated facilities is ensured through systems of fire safety equipment. Despite all the established organisational and technical measures, in 2014 one fire was recorded. As far as this fire was concerned, its root causes were analysed pursuant to the pre-defined LOPC descriptors.

In case of emergence of a fire it is rather important to respond properly and in time. Through establishment of ready scenarios for various situations, practical training of preventive fire guards and practice at mock interventions, it was verified that proper preparedness of operators for emergency situations, including communication with company firebrigade, other entities operating in the industrial complex and external institutions, was not an accidental result, but, a result of long-term enhancement of knowledge and skills.

### **EMERGENCY PREPAREDNESS**

The way to ensure protection of the staff, neighbourhood inhabitants, the natural environment and the assets runs via the process of emergency planning. The process of emergency planning consists not only in development of specific documentation, but also in determination of goals and targets for ensuring safety, checking the determined tasks and exercising the determined procedures of emergency preparedness.

In the Czech Refining Company the prevention of serious accidents is firmly embodied in the total management system. The Czech Refining Company internal emergency and crisis plans are checked in terms of their up-to-dateness annually in the form of emergency drills. In 2014 40 emergency

drills were carried out in total. In terms of their themes, some drills are similar to one another as they all concern securing the technological hardware necessary for the operation of the refinery. The above number of drills also includes emergency scenarios for summoning 2nd and 3rd level emergency management teams – with the aim to check the coordination and cooperation of all the parties that are involved in rescue and intervention activities within the industrial complex and beyond it. The scenarios are always chosen in such a way to take into account the goals of the drills so that the measures might be checked concerning averting the ill effects of accidents or, at least, alleviation.





Process safety, jointly with occupational safety, fire safety, quality management system, crisis and emergency management, environmental protection and assets security, is a part of the Czech Refining Company total management system.

The process safety management is application of the principles of management and systems for identification, comprehension and management of process risks and their prevention. The goal consists in establishment of appropriate means (systems, processes and programmes/ schemes), through which emergence of undesirable events is prevented and ill effects are diminished of the events which are associated with the chemical-physical nature of the production processes (e.g. leaks of substances and energy, breaks of facilities, overpressuring, corrosion, material fatigue, failures of control systems etc.). The events associated with process safety feature high potential risks concerning health and lives of people as well as the natural environment and assets and (depending on the degree of failure of control/safeguarding and mitigating mechanisms) they can escalate into so called serious industrial accidents.

Hence, the Czech Refining Company process safety means are focused on the following:

- Design
- Testing, maintenance and inspection (integrity checks) of the facilities
- Effective alarm systems
- Effective checks and safe control of the production processes
- Safe operation procedures (including start-ups, shutdowns and emergency shutdowns/trips)
- Specialised training and education of the staff
- Evaluation of process risks
- Registration and investigation of the causes of extraordinary events
- Change management

The monitored Czech Refining Company key indicators for evaluation of performance of process safety (established plans and programmes) are in compliance with good practice within the crude refining industry. From 2008 selected reactive and proactive key indicators of process safety performance have been internally monitored, reported and controlled (such as the numbers of LOPC (loss of primary containment) incidents, numbers and frequencies of process safety events, the status of plant/technology changes, numbers of delayed inspections of critical facilities, numbers of alarms, numbers of emergency drills, field checks etc.).

- Within monitoring of several proactive and target indicators of process safety, since 2011 so called the 1<sup>st</sup> and the 2<sup>nd</sup> level process safety events have been monitored and registered, in compliance with internationally recognised and recommended ANSI/API RP 754 practice. These events are unplanned or uncontrolled loses of any substance from the primary containment in the process (LOPC's) with defined criteria of limits and ill effects.
- In 2014 the number of events of this kind dropped. One 1st level process safety event occurred (LOPC with a fire, whose direct damage exceeded the defined criteria) and one 2nd level process safety event (exceeding the defined amount of leaked medium without further safety ill effects). Together with the numbers, the frequencies of these events are also monitored (ratio of the number of process safety events and the overall number of hours worked by the CRC staff and the contractors in the relevant year).
- Within the established system of execution of field checks of process safety, check themes were announced for each month. In total, 47 checks of critical activities of process safety were carried out, whilst 91 CRC employees took part in these checks.

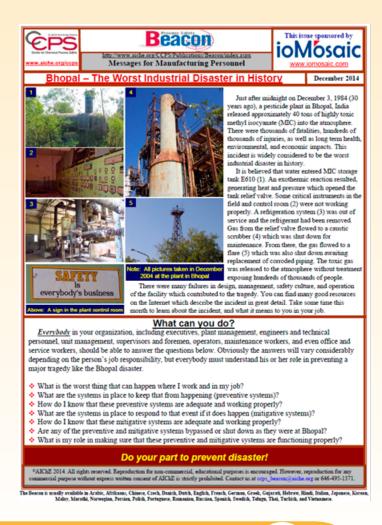
THE DEVELOPMENT OF PROCESS SAFETY EVENTS AS PER ANSI/API RP 754 IN THE 2011-2014 PERIOD

Process safety eve	2011	2012	2013	2014	
Number of PSE's	1st level PSE	2	5	2	1
Nullibel of Fac a	2 <sup>nd</sup> level PSE	8	4	7	1
	As per ANSI/API RP 754 (per 200 000 hours	s worked)			
	1st level PSE rate	0.2	0.6	0.2	0.1
	2 <sup>nd</sup> level PSE rate	0.7	0.5	0.7	0.1
PSE rate	Total PSE rate	0.9	1.1	0.9	0.2
PSE IGIE	As per CONCAWE (per 1 000 000 hours wo	orked)			
	1st level PSE rate	0.93	3.04	1.04	0.60
	2 <sup>nd</sup> level PSE rate	3.73	2.43	3.65	0.60
	Total PSE rate	4.66	5.47	4.69	1.19

In 2014 the following took place within necessary enhancement of awareness and knowledge in the area of process safety (in fact awareness and knowledge of process risks, the environment, the activities and processes important for safe planning and execution of the activities without any ill effects):

- Internal audit aimed at the area of process safety (audit recommendations support continuous improvement of the control system). Instruction of selected staff (investigators of extraordinary events) on the system of registration, reporting and investigation of extraordinary events.
- The Safety Days in both refining sites also included themes related to process safety (in Litvínov jointly with Unipetrol Group staff).
- Several learnings from the accidents that had happened in CRC were developed for CRC staff and the contractors and, at the same time, learnings were provided from the accidents that had happened within the Orlen Group.
- What was disseminated on a regular basis together with English originals were Czech translations of monthly titled Process Safety Beacon (issued by non-profit organisation titled Centre for Chemical Process Safety), which highlights some specific problems in process safety, describes gained learning/ experience and offers practical advice for avoiding similar problems.

In 2014 the Czech Refining Company continued with implementation of the projects focused on effective alarm systems (optimisation of the system and reduction of the nuisance alarm for the operators), management of technological/plant changes, investigation of the causes of extraordinary events, execution of safety studies within the process of maintenance and development/upgrade of facilities, including revision and issuing of internal safety documents (plans, directives, regulations and manuals), which take into account the legislative and standard requirements and the best available practices.





In accordance with the commitments listed in the Czech Refining Company TMS Policy, during the year of 2014 the Czech Refining Company continued in its efforts to minimise environmental pollution caused due to the Czech Refining Company's business activities. The commitments consist mainly in compliance with the legislative requirements and fulfilment of voluntary targets in the area of environmental protection, nevertheless, what is not neglected either is the manner of operation of the refining facilities, the quality of products produced, education and enhancement of awareness concerning environmental protection - for the CRC staff and the contractors' staff. In June 2014 the Czech Refining Company was subject to supervision audit of the total environmental protection management system pursuant to the international standard ISO 14001:2004. The Czech Refining Company had been awarded the first certificate concerning the environmental management system as early as 2001.

#### ATMOSPHERIC ENVIRONMENT PROTECTION

Protection of the ambient atmosphere against emission of pollutants is ensured through proper operation of the air pollution sources as well as proper operation of the air pollution abatement equipment, such as incinerators at the sulphur production facilities, recovery units earmarked for capture and recovery of hydrocarbon gases and vapours, floating roofs of storage tanks provided with double seals, vapour recovery systems at loading facilities, incinerator at the bitumen blowing unit, electrostatic precipitator at the fluid catalytic cracking unit etc. The operation of all the facilities takes place pursuant to the conditions stipulated in permits for their operation.

The amount of reported pollutants for 2014 is influenced by a change in the methodology stipulated through a legislative regulation. In case of execution of one-off measurements, the calculation of the amount of emissions is influenced by the values of emission factors. Reduction in emissions of  $SO_{\circ}$ 

Overall emissions into the ambient atmosphere – Litvínov Refinery:

	SO <sub>2</sub>	NOx	со	TL	VOC	H <sub>2</sub> S	CO <sub>2</sub>
Year				(t/year)			
2010	2920.8	447.7	146.1	3.6	56.2	0.512	409891
2011	5766.6	769.4	164.2	3.5	54.2	0.585	374148
2012	6113.2	525.6	251.2	3.0	56.4	0.447	392690
2013	2396.2	357.4	171.4	1.6	53.1	0.376	405935
2014	991.8	282.9	130.1	5.1	55.9	0.459	394512

## Overall emissions into the ambient atmosphere – Kralupy Refinery:

	SO <sub>2</sub>	NOx	со	TL	VOC	$\mathrm{H_{_2}S}$	CO <sub>2</sub>
Year				(t/year)			
2010	1313.2	164.7	83.7	10.2	61.1	0.039	473414
2011	1453.6	136.5	74.2	8.9	63.9	0.023	466156
2012	1367.9	139.1	54.5	16.5	64.9	0.026	463962
2013	979.2	175.1	59.3	20.0	66.3	0.017	366165
2014	1342.0	279.7	57.2	45.1	68.4	0.039	482653

PM = particulate matter VOC = volatile organic compounds

## **EMISSIONS OF VOLATILE ORGANIC COMPOUNDS (VOC)**

		Kralupy	(t/year)		Litvínov (t/year)			
	Vessels	Combustion	Other	Total	Vessels	Combustion	Other	Total
2010	44,8	2,7	13,6	61,1	46,3	4,6	5,3	56,2
2011	47,5	2,5	13,9	63,9	44,6	4,6	5,0	54,2
2012	48,3	2,2	14,4	64,9	44,2	4,2	8,0	56,4
2013	50,4	1,9	13,9	66,3	45,3	0,6	7,2	53,1
2014	52,4	0,0	16,0	68,4	48,4	0,0	7,5	55,9

in the Litvínov Refinery during recent years (in comparison with the previous period) has taken place due to execution of extensive repairs of sulphur production facilities and their failure-free operation. Lower  $\mathrm{SO}_2$  emissions generation in the Kralupy Refinery in 2013 was due to scheduled turnaround. Carbon dioxide emissions are reported as per the methodology of the European trade with greenhouse gases emission permits (EU ETS). Emissions of greenhouse gases are significantly influenced by turnaround cycles of the refining sites. The data on emissions for the last 5 years is to be found in the following tables.

## **EMISSIONS OF VOLATILE ORGANIC COMPOUNDS (VOC)**

The table below states data on emissions of hydrocarbon gases and vapours into the ambient atmosphere broken down into individual types of sources – vessels, combustion (heaters and flares) and other sources - for the last five years. In comparison with 2013 no major changes in the amounts of emissions of hydrocarbon gases and vapours occurred in either CRC refining site. The data on the emissions from fired equipment is influenced by a change in reporting stipulated by new legislative requirements. The amounts of emissions from individual types of sources remain virtually unchanged and depend mainly on the manner of lifting of individual products; in fact on the share of their transportation via long distance product lines, the throughputs, logistics conditions and utilisation of storage capacities. Due to legislative changes, hydrocarbon emissions from combustion processes are no longer reported.

## FUGITIVE EMISSIONS FROM SCATTERED SOURCES - APPLICATION OF THE LDAR METHODOLOG

The leak detection and repair (LDAR) methodology has been utilised for a longish time as a tool for detection of leaks at the facilities and for reduction of losses of volatile hydrocarbons. The systematic detection (search) of leaks of process

## Litvínov Refinery

	2010	2011	2012	2013	2014
Fractions of leaky components after repairs [%]	0,43	0,35	0,49	0,38	0,59
Reduction of emissions from scattered sources [t/year]	153	218	115	82	102

mediums from so called scattered sources (common denomination for leaky components of process, storage and handling facilities of the refineries) and their immediate repairs on-therun have been employed in the Czech Refining Company for almost twenty years. This particular methodology had been applied in the Litvínov Refinery even before incorporation of the Czech Refining Company and in the Kralupy Refinery it was launched several years later. In 2014 too, in both Czech Refining Company refining sites detection of fugitive emissions through direct measurements (from so called scattered sources) took place.

In the Kralupy Refinery the following facilities were measured: batteries (Translator's note: The Shell term "battery" is occasionally used in the meaning of "unit" and it has nothing to do with electrical battery etc.") of the New Refinery Compact Block, the fuel gas pipelines at the fluid catalytic cracking complex, propylene production unit, gas splitting unit and lines of circulating gas. Almost 30 000 different components were measured and 234 leaks were detected, of which almost one half were repaired on-the-run. This way, annual emissions were reduced by 220 tones. In the Litvínov Refinery almost 32 000 components were measured at the batteries of the New Refinery Compact Block, continuous catalytic reformer, Jiřetín tankfarm, road mogas loading facilities and rail car mogas loading facilities, whereby 289 leaks were detected, of which 100 were repaired on-the-run, whereby annual emissions were reduced by 102 tones. Repairs of such leaks that could not be carried out due to technical reasons promptly after measurements were scheduled and will be carried out on the nearest possible occasions.

The trends of occurrence of leaks after repairs are monitored through comparison of the percentage of leaky components per one thousand of measured ones and the results for both refining sites for the last five-year period are to be found in the following tables, including reduction of emissions from scattered sources in the relevant years.

### **Kralupy Refinery**

	2010	2011	2012	2013	2014
Fractions of leaky components after repairs [%]	0,61	0,76	0,83	0,43	0,45
Reduction of emissions from scattered sources [t/year]	121	129	218	220	104



## SURFACE AND UNDERGROUND WATER ENVIRONMENT PROTECTION

In the Kralupy Refinery enhancement of the protection of the quality of underground water (in fact reduction of the risk of endangerment of its quality) consisted mainly in repairs of drainage systems, decontamination of underground water and wastewater treatment. After reconstruction of the selected part of the drainage system that serves for MTBE-containing products a project was initiated of reconstruction of the remaining part of the refinery drainage system, whilst the envisaged completion is to be in 2015. As far as wastewater treatment is concerned, Kralupy Refinery wastewater treatment plant reconstruction continued. In the Litvínov Refinery measures were being implemented for reduction of the risk of endangerment of the quality of underground water. Within this project, repairs and replacements of wastewater drainage lines and slops systems are gradually carried out. Repair of the drainage system of Visbreaker was initiated in 2014.

In the Kralupy industrial complex protection of underground aquatic environment is ensured mainly by means of hydraulic barrier (hydraulic protection of underground water – HPUW). Operation of the northern branch of HPUW (so called Refinery HPUW branch) is contractually ensured and the relevant contracted operator also ensures supervision guaranteeing optimum setting and adherence to the technical and technological parameters of the system. In 2014 activities also continued focused on enhancement of the reliability of the remedial and monitoring system. Frequency and scope were optimised of monitoring of pollutants in the underground aquatic environment.

Operation of extended equipment earmarked for pumping out the underground water and operation of newly built

facility earmarked for treatment of a part of the pumped out underground water focusing on removal of MTBE contributed significantly to improvement of the quality of the underground aquatic environment.

Production of wastewater is also influenced by turnaround work, when cleaning and other tasks take place, due to which pure water is consumed and wastewater generated even during the time when the refinery process hardware is idle. The overall amount of the wastewater is also influenced by the atmospheric precipitation, which applies in particular for the Kralupy Refinery, where all water streams, including precipitation water, are introduced to the wastewater treatment plant. In the Litvínov Refinery there is a separate system earmarked for precipitation water.

The below table states the development of pumping underground water from the wells of the hydro-geological protection system of the Kralupy industrial complex. The operator of the hydraulic barrier optimises pumping out the underground water on the basis of the development of the basic parameters of the system; e.g. as per the amounts and direction of flow of the underground water, water table levels etc.

# VOLUMES OF UNDERGROUND WATER PUMPED OUT OF THE KRALUPY HPUW

Year	103 m³/year
2010	1296.1
2011	1373.8
2012	1324.2
2013	1352.7
2014	1229.7

## Generation of wastewater in both refining sites and amounts per one thousand tonnes of processed crude oil for the last 5-year period:

	Kral	иру	Litv	ínov
Year	Wastewater (103 m³/year)	Per throughput (m3/1 kt of crude)	Wastewater (103 m³/year)	Per throughput (m3/1 kt of crude)
2010	769.9	285.8	1750.6	374.2
2011	599.0	226.1	1729.4	421.3
2012	525.2	203.1	1627.4	356.2
2013	690.1	319.6	1681.6	373.2
2014	654.1	232.5	1640.7	350.3

#### Waste generated in the Litvinov Refinery:

	Production			Production Capital projects				Refinery	
Year	Total	H	0	Total	H	0	Total	H	0
2010	612	187	425	11	0	11	623	187	436
2011	1917	1371	546	306	0	306	2223	1371	852
2012	1378	831	547	316	0	316	1694	831	863
2013	648	179	468	158	0	158	805	179	626
2014	814	342	472	205	0	205	1019	342	677

H = Hazardous, O = Other

## Waste generated in the Kralupy Refinery:

	Production			Production Capital projects				Refinery	
Year	Total	H	0	Total	H	0	Total	H	0
2010	1803	466	1337	677	425	252	2480	891	1589
2011	1890	565	1325	0	0	0	1890	565	1325
2012	2077	703	1374	40	0	40	2117	703	1414
2013	2185	627	1558	117	0	117	2232	627	1605
2014	2540	732	1808	6	0	6	2546	732	1814

H = Hazardous, O = Other

In both refining sites tests are carried out of tightness of the facilities, in particular storage tanks, pits, wastewater lines and the other equipment in which hazardous substances are handled. Inspections of storage vessels and repairs of wastewater drainage system are carried out as per an approved schedule.

### WASTE

The system of waste management is based on the basic requirements concerning prevention and reduction of waste generation, waste assorting and utilisation as materials or as a source of energy. Registration of the amount of waste is run pursuant to the wastewater management legislation. The share of waste generated due to capital projects corresponds to the scope of investment activities in the relevant periods, in particular the scope of earthwork and projects implemented within turnarounds of the refining sites. The overall amount of waste as well as its types (other, dangerous and recycled) is significantly influenced by turnaround activities and by activities carried out as per long-term plans; e.g. shutdowns and cleaning of storage tanks etc. The following summary provides the amounts of waste generated by the Czech Refining Company.

### **ENVIRONMENTAL PROTECTION OPEX**

Environmental protection OPEX (operation expenditures) are reported as per the items that are routinely used in the reports on the Czech Refining Company environmental performance. The largest item consists in costs of treatment and discharging wastewater in the Litvínov Refinery, which constitute almost 70 % of the overall Czech Refining Company environmental protection OPEX. Costs of treatment of sour hydrogen sulphide gases employing Claus technology and costs of waste disposal are also significant cost items. The costs of monitoring of pollution of ambient air, aquatic environment and bedrock environment also include costs of detection of

leaks of gases and vapours of hydrocarbons from scattered sources, certified measurement of emissions of pollutants released into the ambient atmosphere and surface water environment, sampling and analyses of wastewater streams etc.

## Environmental OPEX (K CZK):

Operation of the Claus units	17 706.9
-	
Operation and maintenance	5 431.4
of wastewater treatment plant	
Treatment and discharging	127 818.4
of wastewater – Litvínov	
Operation of HPUW	4 569.4
Remedy of pollution - Litvínov	706.0
Monitoring of the ambient atmosphere,	3 833.6
aquatic environment and bedrock	
environment	
Fees for air and water pollution	1 757.7
Waste disposal	15 146.5
Operation of environmental centres	600.0
in Most and in Kralupy	
Maintenance and repairs of equipment	5 985.4
Other	2 458.3
Total	186 013.6

## **CAPITAL PROJECTS**

The project of the repairs of drainage system in both refining sites and the project of reconstruction of wastewater treatment plant in the Kralupy were included into capital projects important in terms of abatement of the risk of endangerment of the quality of underground aquatic environment and in terms of achieving of the parameters of the best available techniques (BAT) in association with wastewater treatment. In the Kralupy Refinery projects went on that were aimed at reduction of the risk of endangerment of the quality of the underground aquatic environment and at achieving the parameters of the best available techniques in

association with wastewater treatment. This group of projects includes in particular a repair of the drainage system and reconstruction of the wastewater treatment plant. It is envisaged that both projects will be completed in 2015. The project of reconstruction of the wastewater treatment plant will ensure achieving the parameters of pollution of wastewater at the point at the outlet from the wastewater treatment plant at the level of the parameters of the best available techniques. In the Litvínov Refinery a project was implemented of optimisation of the remedial systems at the Jiřetín tankfarm and at the road loading terminal. In 2014 preparation went on of repair of collection channels and pipelines at the atmospheric-vacuum distillation unit and repair was initiated of the drainage system of Visbreaker.

## Overall amount of capital expenditure (CAPEX) spent on environmental protection:

Capital project	K CZK
Reconstruction of oil drainage system – Kralupy	89 999.9
Reconstruction of wastewater treatment plant	73 276.3
Upgrade of reliability of Claus units	1 348.5
Optimisation of the environment remedy system – Litvínov	249.7
Modification of the flare system at NRL	271.9
Reconstruction of the drainage system of Visbreaker	210.8
Reconstruction of pipelines of the distillation unit	965.5
Upgrade of the system of purification of gases	448.0
Reconstruction of gas-fired boiler room	1 989.7
Floating roof of tank	4 400.0
Refurbishment of the leak capture system of tankfarms	269.0
Replacement of the slops system	384.6
Installation of continuous measurement of emissions at the Claus unit	251.9
The other environmental protection capital projects	2 991.1
Total	177 056.9

#### THE QUALITY OF PRODUCTS

The Czech Refining Company is a company involved in crude oil processing and production of petroleum-based products. The Czech Refining Company operates two refining sites – in Kralupy nad Vltavou and in Litvínov. Permanent care of the quality of products supplied to the market is one of the main priorities of the Czech Refining Company. Motor fuels are the most important group of products in terms of volume of production as well as in terms of prospective ill effects on the natural environment. The sulphur content in all

produced motor fuels complied with the legislative requirements on low-sulphur fuels; i.e. fuels containing less than 10 mg of S/kg.

Abatement of emissions of greenhouse gases is one of the worldwide goals. Implementation of measures aimed at abatement of emissions of greenhouse gases is also a part of the global efforts of the European Union. The Atmospheric Environment Protection Act (the 201/2012 Act), as amended, is the most important inland legislative tool for inclusion of bio-fuels at production of motor fuels. This act imposes two basic duties:

- Motor fuels supplied to the Czech Republic market must contain the stipulated share of bio-fuels. Currently this share is 4.1% by volume of bio-ethanol in the overall amount of mogases and 6.0% by volume of FAME in the overall amount of diesel.
- 2. The suppliers of propulsion fuels are bound to gradually reduce the emissions of greenhouse gases related to a unit of energy contained in the propulsion fuels within the entire lifetime of the relevant propulsion fuel. This reduction must achieve 2% no later than 31 December 2014.

In 2014 the Czech Refining Company fulfilled this duty. It managed to produce mogas with 4.33% bio-ethanol share and diesel with 6.05% share of FAME. At the same time, in 2014 generation of greenhouse gases was with 2.383% margin, which was also confirmed by a certification audit.

In 2014 the Czech Refining Company was granted prestigious ISCC certificate, which enables to issue own declaration on bio-fuel sustainability for ensuing users of CRC-produced propulsion fuels containing bio-components.

Reduction of emissions should go on and the commitment for 2017 is reduction by 4%. Nevertheless, under the current conditions, it will not be easy to achieve this target and its fulfilment will necessitate adoption of major measures. At the same time it will be necessary to meet the envisaged changes in the European legislation in the area of use of bio-fuels, which can make the situation complicated even more.





On the basis of requirements from its customers, in 2007 Czech Refining Company Management decided to introduce system and certification of the laboratories as per the ČSN EN ISO 17025 standard.

In 2008 the National Certification Authority (NCA) carried out a certification audit, during which methods were certified in the Czech Refining Company's laboratories for analyses of fuel gases and for calorific value of heavy fuel oil. This certification is stipulated through the 696/2004 Regulation, which regulation stipulates the procedures for determination, reporting and verification of the amounts of emissions of greenhouse gases. The Czech Refining Company was granted the certification by the National Certification Authority in 2008.

In the 2009–2013 period the certification was extended with certification of analyses of crude oil, wastewater, underground water and fuels – on the basis of checking visits paid by the National Certification Authority.

In 2014 the certification of the laboratories was further extended with methods which were requested on the basis of the outcome of the JET Al shareholder audit of 2013, namely: Determination of crystallisation of aviation kerosene. Determination of the flash point of aviation kerosene using the methodology as per Taag. During 2014 the Litvínov laboratories were getting ready for certification of another method, namely determination of the calorific value of the heavy fuel oil, which ensued from the request of Unipetrol RPA laboratories for the purpose of reporting emissions of greenhouse gases.

#### **NEW METHODS**

In 2014 the Czech Refining Company laboratories introduced and tested two new methods of analyses, with which analyses external laboratory had been entrusted. Namely:  $H_2S$  determination in heavy fuel oil and TSA (total sediment accelerated) in heavy fuel oil. These analyses are now employed in Litvínov laboratories.

## **PURCHASES OF NEW LABORATORY APPARATUSES**

In 2014the Czech Refining Company spent 5 million CZK on equipment of laboratories, in particular purchases of new

laboratory apparatuses. The Czech Refining Company has bought modern apparatuses for analyses of parameters of fuels such as determination of mogas vapour pressure, determination of petroleum-based substances in water, determination of  $\rm H_2S$  in heavy fuel oil, determination of oxidation stability of diesel, determination of content of salts in crude and the operators' laboratories were provided with density meters.

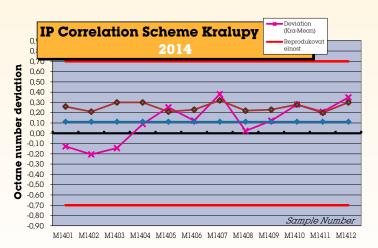
## LABORATORY ROUND ROBIN TESTS

In 2014 the Czech Refining Company laboratories took part in multiple types of round robin tests. As usual, the Czech Refining Company laboratories were involved in round robin tests of fuels organised by Dutch company IIS (International Interlaboratory Studies), round robin tests of wastewater organised by ASLAP, CSLAB and Aquacheck, round robin tests focused on bitumen and round robin tests focused on determination of octane and cetane numbers.

The graph below shows deviations of the results of determination of research octane number in the course of 2014.

In 2014 the success rate of round robin tests for both Czech Refining Company refining sites was 98%.

## Deviations of the measurements of research octane number in the Kralupy laboratories





In the Czech Refining Company the internal audits are of major significance and they are instrumental in evaluation of the checking environment of individual processes and they provide assurance and consultancy, whereby they contribute to fulfilment of the Czech Refining Company goals. Close relationships were again maintained between the staff, the Czech Refining Company Management, Audit Committee, Board of Directors, Supervisory Board, processors and shareholders.

In 2014 activities continued of the Audit Committee and the Shareholder Audit and Finances Committee. The activities of the Audit Commission are governed by the Board of Directors' Resolution No. 01/2011 (titled Charter of the Audit Committee) which was updated in 2014. The Audit Commission is to provide support for the Board of Directors at fulfilment of its responsibilities in the area of supervision over the process of risk management, checking mechanisms system, process of audit and ethical behaviour in the Czech Refining Company. The members of the Audit Committee act as representatives of the Czech Refining Company Board of Directors. The members of the Shareholder Audit and Finances Commission for act as representatives of the Czech Refining Company shareholder.

## The dates of the sessions of the Audit Committee and Shareholder Audit and Finances Committee:

Sessions of the Shareholder Audit and Finances Committee	Sessions of the Audit Committee
21 March 2014	21 January 2014
	8 April 2014
9 July 2014	3 June 2014
8 October 2014	9 September 2014
19 December 2014	11 November 2014

#### **INTERNAL AUDITS**

The purpose of internal audits is to assure the Czech Refining Company Management that the Czech Refining Company strategic goals and intents are being fulfilled, that the risks of individual processes are adequately controlled and managed and that processes take place properly, purposefully and effectively. The Czech Refining Company plans of internal audits are always determined for one calendar year and include audits of both primary and auxiliary processes. The plans of internal audits are approved by the Audit Committee and are compiled taking into account the Czech Refining Company's priorities as well as on the basis of outcomes of regular assessments of risks. In 2014, in total 6 internal audits were carried out in the Czech Refining Company as per the approved plan of internal audits.

## Internal audits carried out in 2014:

Date	Process audited
April 2014	Process safety
May-June 2014	Procurement
August - November 2014	Maintenance of apparatuses and equipment
October 2014	Verification of CO <sub>2</sub> emissions
November 2014	Activities of the B-type inspection body
November 2014	Certified laboratories

#### **EXTERNAL AUDITS**

#### External audits carried out in CRC in 2014:

Date	Auditor	Area audited
February 2014	National Certification Authority	Certified methods of the B-type inspection body–check as per ČSN EN ISO IEC 17020:2012
February 2014	National Certification Authority	Certified laboratory methods – check as per ČSN EN ISO IEC 17025:2005
May 2014	UNIPETROL, plc	Check of the rules and management of processes in the area of protection of industrial intellectual property/ rights – Phase II – Czech Refining Company
June 2014	Lloyd's Register Quality Assurance	Recertification audit as per ISO 9001:2008, ISO 14001:2004, ČSN OHSAS 18001:2007
July 2013	Representatives of processors	Production and quality of the JET A1 product
September 2014	Shell Czech Republic, plc	Road transport focused on contracted transporters of Shell Czech Republic, plc

Note: In the Czech Refining Company a number of other external audits take place as per the requirements of the processors or shareholders as well as checks by the national authorities, inspections, accountancy closing audits, audits carried out by the National Certification Authority, various verifications etc. and, therefore, the list of external audits need not be complete.

#### **EXTRAORDINARY AUDITS**

Besides the internal and external audits carried out in 2014 some extraordinary audits or investigations were carried out on the basis of the requirements of the Czech Refining Company Management and/or the Audit Commission.

### **RISK MANAGEMENT**

Risk management is an inseparable part of all processes and activities within the Czech Refining Company. The main purpose is prevention; i.e. to identify the risks in time, to assesses their likelihood and prospective consequences, and to adopt such measures that will enhance the checking mechanisms. The purpose of the checking mechanisms is mainly elimination or abatement of the risks.

The Czech Refining Company assesses the risks mainly in terms of the effects on the business continuity, general safety, occupational safety and environmental protection. All the risks are documented in relevant risk registers.

The risk registers are updated on a regular basis, which was also the case in 2014. A number of new risks were identified and within their assessment we dealt with the level of their management and possibilities of enhancement of the checking mechanisms through determination of appropriate measures. With the existing risks, their up-to-dateness was assessed, risk levels were re-assessed and the effectiveness of the checking mechanisms was evaluated.

#### **ETHICS**

In the Czech Refining Company environment the business ethics concern mainly business culture, advocating of, and compliance with, ethical behaviour and decision making, which should result in general safety, occupational safety and social, moral and environmental responsibility. The Czech Refining Company employees, contractors, members of the Supervisory Board, members of the Board of Directors and executive directors are obliged to comply with and fulfil the Czech Refining Company ethical values, which values are stated in the Czech Refining Company Code of Ethics.

The ethics of Czech Refining Company business and ethical behaviour of all employees and members of the Management are long term priorities of the Czech Refining Company.

Mainly due to the fact that in actions and decision making multiple people are oftentimes involved (CRC staff, contractors and other involved parties), the Czech Refining Company has established tools and implements such conceptions as per which the ethical climate can be monitored and, in particular, improved. Also in 2004, the Sponsor of the Ethical Code performed his role, checks were carried out of adherence to the principles and procedures of business ethics by all CRC staff and some contractors and instructions were carried out of new recruits. Great emphasis was also paid to enhancement of awareness about the principles and procedures of business ethics.



Due to dense spatial arrangement of the tangible and intangible assets, there is a possibility that after prospective malicious action by either internal or external perpetuator, major damage to the batteries of individual process complexes can happen, as well as triggering process accidents, environmental damage, consequential harm suffered within the market due to outages of production and lifting petroleum products. Hence, in its industrial complexes in Litvínov in Kralupy nad Vltavou the Czech Refining Company carries out systematic activities aimed at ensuring security of the technical equipment of buildings and security of products. This also includes permanent check of the established security systems and proposing preventive measures with the aim to minimise the danger of alienation of the shareholders' assets.

## SECURITY OF THE INDUSTRIAL COMPLEX, BUILDINGS AND THE TECHNICAL EQUIPMENT

Security of the Litvínov and Kralupy refining sites was contractually ensured by the custodians of the relevant complexes (Unipetrol RPA in Litvínov and, until mid-2014, Synthos in the Kralupy complex - and then by CRC-hired security agency). On the part of the refining sites, the activities consisted mainly in checking activities focused on execution of guarding service, checks of adherence to the regime of pass (entry) regulations and material passes through the gates of the industrial complexes. As far as the technical security of structures and the technological hardware was concerned, security camera systems were permanently used, which systems included 30 cameras in each refining site. In the Litvínov Refinery the system of safety cameras of the process facilities was subject to extensive reconstruction and update. Selected buildings and structures in both refining sites were secured through electronic safeguarding systems. Further safeguarding consists of fixed barriers (grids, fences etc.).

### **SECURITY OF PRODUCTS**

In both refining sites security of products is ensured through combination of physical and technical protection. In the Kralupy Refinery security camera system is utilised. 18 cameras monitor such places that are risky in terms of prospective thefts of propulsion fuels, including the road loading terminal where the cameras monitor the processes of road tank loading. In the Litvínov Refinery, in the tankfarm and in Jiřetín loading terminal, 30 stationary cameras are permanently in operation to assist at protection of the inventory of propulsion fuels and crude oil and checks of loading fuels into road tanks. These security systems enabled permanent supervision by the security agency either from the field posts of the guards or via consoles of the centralised security system. Within cooperation within the industrial complexes, concerning assets security, regular contacts were maintained with the responsible employees of Unipetrol RPA and Synthos, in Litvínov and in Kralupy, respectively. Regular consultation sessions were held with relevant departments of the Czech Republic police.

In future the Czech Refining Company will go on enhancing the preventive and checking activities through introduction of new regimes and modern technical and electronic items earmarked for security of the Czech Refining Company assets. The Czech Refining Company will focus in particular on those areas that ensued from analyses of safety risks. They include in particular fuel lifting facilities.



The Czech Refining Company is a major employer in both sites. Of course, this was also the case in 2014. Care of the employees is essential part of the Czech Refining Company's strategy and culture.

## Staffing as per individual categories as at 31 December 2014



#### **EDUCATION**

The Czech Refining Company recognises that educated staff pose high potential of any company, which enhances its prospects of success and competitiveness. Hence, permanent attention is paid to the development of working skills and education of the staff.

The education of the staff takes place on the basis of education plans and Czech Refining Company development projects. In 2014the Czech Refining Company implemented two major education projects. These projects were focussed on familiarisation with the content of the new Civil Code and Labour Code (Translator's note: Nation-wide legislation). These projects were earmarked mainly for the supervisory staff, including shiftmasters and their deputies. As far as education of operators is concerned, emphasis is paid on learning from the risky situations (near-misses) emerged during the production processes, which takes place e.g. through organisation of so called sub-teams, both in the Czech Refining Company and the companies of

the Czech Refining Company shareholder. What is also of major importance is personal sharing of experience and the best practices.

In 2014 the Czech Refining Company organised 283 training sessions and, in total, 9 891 hours were devoted to training/instructions.

What was also developed was competency matrixes, which identify optimum combinations of knowledge and skills for mastering relevant working activities (jobs). The competency matrixes serve as the basis for education plans, substitutability and long-term development of competencies.

### THE TRAINING AND COMPETENCY CENTRE

The Training and Competency Centre (TCC) ensures education events for operators, laboratory assistants and technical and economy staff.

This means organisation of instruction sessions aimed at familiarisation with nation-wide legislation and mandatory training, familiarisation with changes in legislation and instructions devoted to enhancement of the expertise of the staff. In 2014 education took place as per the education plans and individual development projects of the employees. Moreover, education was also necessary due to implementation of capital projects in the Kralupy Refinery.

The programme of intensive education of trainee operators, carried out under the guidance of relevant specialists of the Training and Competency Centre, took place as per pre-approved procedures and enabled easier acquisition (mastering) of competencies and it also enabled more flexible inclusion of the trainees into the Operator System even after acquisition/mastering of mere 3 competencies. The same procedure is exercised in the laboratories, where cooperation with the Training and Competency Centre enables smooth replacements of retiring laboratory assistants. For the operators that ensure blending and registration

of fuels special education activities were provided. This education focussed on enhancement of measurement of the inventory. Due to enhancement of the accuracy of measurement and ensuing training of 44 operators the process safety improved.

In the Litvínov laboratory a method was introduced concerning filtration properties of diesel and 85 operators underwent training for this method. Moreover, in the Litvínov Refinery practical drills of fire watches took place, which drills were attended by 220 operators and laboratory assistants.

In 2014 checks of knowledge of operators took place in cooperation with the Refinery Management and shift managers. 60 operators took part in the verification scheme.

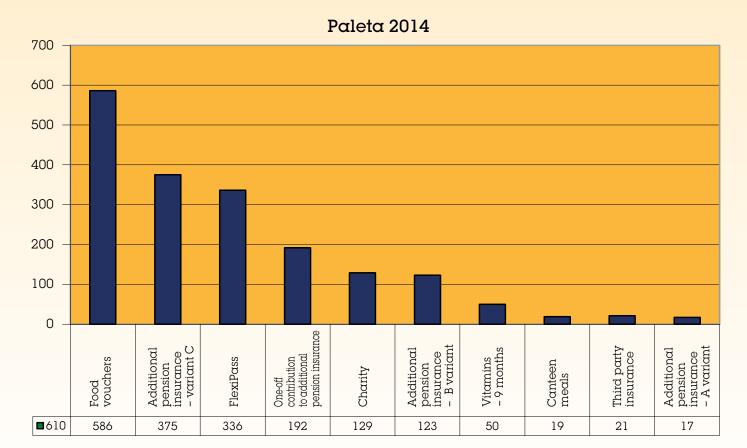
### **HEALTH PROMOTION SCHEME**

Care of health and health promotion have been among the priorities of the Czech Refining Company since its establishment. As a part of care of human resources, the scheme includes preventive medical examinations of the employees, checks of workplaces in terms of health safety, monitoring thickness rates, theoretical and practical training in providing medical first aid as well as other activities associated with occupational safety both at production and non-production sections/departments of the Czech Refining Company. What must also be mentioned are the forms of health care that are guaranteed through the Collective Bargaining Agreement. Further assistance consists

in providing vitamin agents for the staff during three month in the winter season, social assistance during long sickness, contributions to costs of above-standard medical treatment and drugs, contributions to recreational stays of employees' children and periods when pupils are taught outside school premises – in country-side facilities.

#### **EMPLOYEE NON-MONETARY BENEFITS**

In the Czech Refining Company there has been in existence, for 15 years, a system of optional benefits for the employees - titled "Paleta". Employee benefits assist in balancing the professional and personal lives of the employees and, therefore, they contribute to their satisfaction and motivation. Hence, they are perceived as effective tools of HR management. This scheme enables the employees to choose from great number of employee benefits as per individual needs and preferences. Hence, it extends the options concerning leisure time activities and the elements of health promotion. In 2004 contributions to services provided by catering, contributions to additional pension insurance and FlexiPass vouchers were the benefits that the employees opted for most frequently. In comparison with 2013 no major changes happened concerning the offer and drawing individual benefits. Almost 130 employees also opted for a special type of employee benefit earmarked for the possibility to provide contribution to CRC-listed non-profit organisations.





Since its establishment the Czech Refining Company has been paying attention to the principles of social responsibility. It has established modern employment standards and above-standard care of the staff and it pays extraordinary attention to health protection/promotion, occupational safety and environmental protection, which all is reflected in the level of spent finances and reconciliation of individual system measures. The Czech Refining Company cooperates with municipalities in the neighbourhood, applies open communication with the general public and media and is perceptive towards the needs of the neighbourhood.

Balanced relationships with municipalities in the neighbourhood, cooperation and assistance at fulfilment of the goals of local governments and receptiveness towards the needs of other entities in the relevant regions have been long-term basis of public relations policy of the Czech Refining Company. In 2014 too, intensive cooperation continued with the municipalities in the neighbourhoods of both refining sites – both in terms of providing intelligence and in terms of financial assistance.

The Czech Refining Company has been providing financial donations to municipalities on the basis of long-term framework agreements on cooperation. Within particular contracts, the Czech Refining Company donated 1 200 000 CZK, which finances were earmarked in particular for assistance at activities organised by relevant municipal offices or entities operating in relevant municipalities. The following towns were recipients of the financial assistance: Litvínov, Most, Meziboří, Kralupy nad Vltavou and Chvatěruby. On the basis of long term cooperation, the Czech Refining Company also provided 205 000 CZK to the following four entities: Veltrusy Basic School, Veltrusy

Nursery School, Alergia – Kralupy nad Vltavou and Solidarity Foundation.

#### **VOLUNTARY ACTIVITIES**

Voluntary activities are perceived by the employees as a favourite possibility to do something for their neighbourhood and also as a manner of enhancement of the feeling of affiliation with the mother company. In 2014 the Czech Refining Company organised, in cooperation with Unipetrol, a "Day for Voluntary Activities". Within this event any employee had the option to be freed from his/her occupational duties for one day and could work for a non-profit organisation. In April the employees assisted at cleaning the shores of the Nechranice lake jointly with the members of the National Anglers Union and, in cooperation with the members of the Krušné Mountains Remedy Foundation, they assisted during tidying up the Krušné Mountains area.

# PROVIDING INFORMATION FOR THE NEIGHBOURHOOD

Openness is the basis of communication with the involved parties. The Czech Refining Company takes pride in fast and proactive informing of the neighbourhood on the goings on in both refining sites, which takes place through an e-mail information system, its Internet pages, e-mail or hardcopy communication, printed matter or personal meetings. The Environmental Centre in Most and the Environmental Centre in Kralupy nad Vltavou also play major roles in terms of providing information for the relevant neighbourhoods.