Brief overview of oil pipelines' ruptures and volumes of oil spills in Russia

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Land surface waters (rivers and lakes) are contaminated with oil products throughout the territory of the Russian Federation. Oil products are found almost in every water body (even in Baikal lake).

For the most part crude oil enters water bodies during oil production, transportation and overloading and primarily due to oil pipelines' ruptures and leaks. This is the way the major part of oil gets into Russian water bodies.

Almost all oil companies inform the local population about the oil leaks that occurred in the pipelines they operate and on the volumes of the oil spilled. However in general (except for JSC «Rosneft») the data on the quantity of oil pipelines' ruptures and leaks are either not displayed in oil companies information materials at all or provided in the form that makes it impossible to assess the overall status of oil pipelines ruptures and to make comparison with other companies data. The situation with the volumes of the oil spilled is even worse.

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Official statistical data on oil pipelines' ruptures on the territory of the Russian Federation

To put it mildly official statistics does not fully reflect the real situation with oil pipelines ruptures [1,2]. However these statistical data allow assessing the dynamics of oil pipelines ruptures.

The diagram provided below shows the data on pipelines ruptures and on oil volumes produced during the corresponding years [3-20]. According to the diagram, in the period from 2000 to 2003 the dynamics of the ruptures drastically changed. The decrease in the number of pipelines' ruptures that had started in the mid-1990s further changed to their increase. This fact is confirmed by the calculation of the correlation between the volume of the oil produced and the number of oil pipelines ruptures. Thus, for the whole period from 1994 to 2010 there is no any statistically significant correlation between these two parameters. At the same time in the period from 1994 thropugh 2001 we can observe negative correlation (i.e. oil production increases and the number of ruptures decreases), but in the period from 2001 to 2010 we can observe a truely1 positive correlation (i.e. oil production increases and the number of ruptures increases as well). This also reflects that the tendencies of the 1990s completely changed in the 2000s.

Thus, official data show that there have been no any decrease in ruptures for the last 10 years. The number of ruptures lowered in the period from 1995 to 2000. From 2003 onwards the number of pipelines ruptures started to increase; such increase has been continuing despite of fluctuations in 2006-2008.

Companies' information on pipelines ruptures

In publicly available materials there is almost no information about ruptures of the pipelines of different oil producing companies. Greenpeace Russia requested all oil producing companies to provide information on the number of oil spills and on the volumes of the oil dispersed into the environment due to these spills (the companies are not legally obliged to provide such information). Meaningful answers on the subject matter were received from «Rosneft» and from JSC «Gazpromneft» only. Table 1 indicates the information received from the «head» companies (neither of their territorial subdivisions provided any information; some of territorial subdivisions «re-sent» the required information to their head companies or to the state authorities), the major part of the companies did not answer at all. The same Table shows the number of oil pipelines ruptures according to the information submitted by the companies to the state authorities.

	Answer	Number of ruptures in 2010	Number of ruptures forecast for 2011
JSC 'Lukoil'	No	**6733**	**7122**
LLC 'Lukoil-Western Siberia '	No	3769	4338
LLC 'Lukoil - Komi'	No	1036	1044
JSC 'Rosneft'	Data on oil pipes ruptures and spilled oil volumes	**14134**	**10264**
JSC 'Rosneft-Purneftegaz'	No	1598	478
JSC 'Rosneft-Sakhalinmorneftegaz'	No	2479	818
JSC 'Yuganskneftegaz'	No	2286	1538
JSC 'Gazprom neft'	Data on oil pipes ruptures and spilled oil volumes	**2467**	**2154**
JSC 'Surgutneftegaz'	No	**24**	**12**
JSC 'TNK-BP Holding'	No	**1771**	**1552**
JSC "V.D. Shashin 'Tatneft'"	No	**2179**	**1736**
JSC 'Bashneft'	No	**311**	**328**
JSC 'NGK Slavneft'	No	**18**	**28**
JSC Oil Company 'Russ Neft'	*An extract from the company's answer: «The company is not in a position to repeatedly provide the information submitted to controlling state authorities to various non-governmental organizations».*	**22**	**26**

Information on pipelines' ruptures in various regions

Detailed data on pipelines ruptures in the RF regions revealed in publicly available statistical materials are very limited.

Khanty-Mansiysk Autonomous District

In 2009 in Yugra 4 797 accidents were registered. Among them 3427 ruptures happened on JSC «Rosneft» pipelines. According to official data no significant change was observed in the first half of 2010

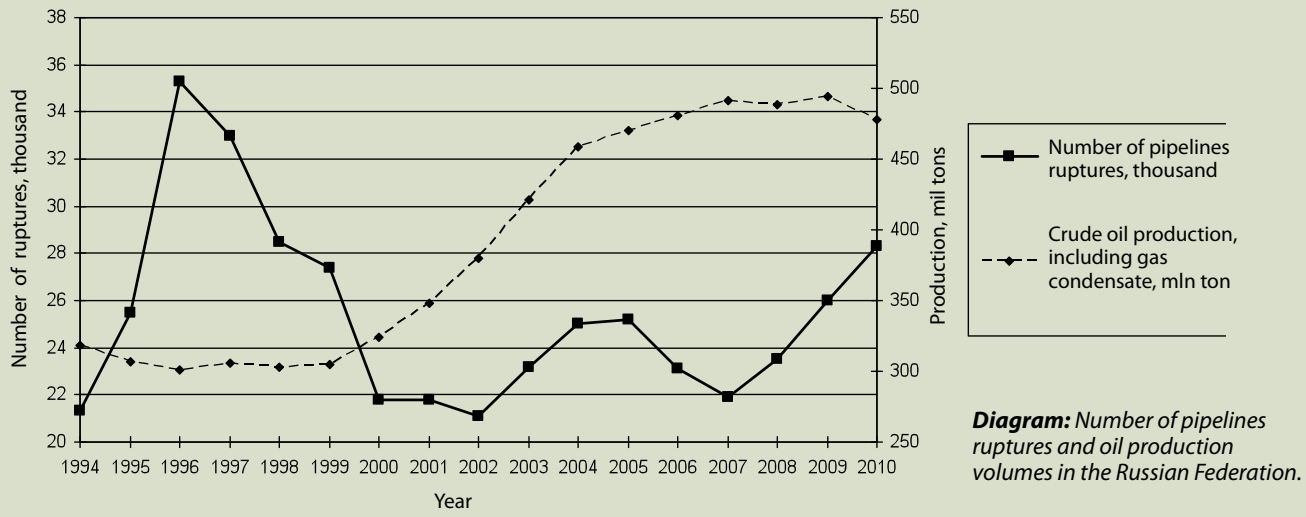

Diagram: *Number of pipelines ruptures and oil production volumes in the Russian Federation.*

1 Error probability is 0,05.

(1653 accidents). According to official information during the period from 2004 through2005 about 1700 – 2000 ruptures happened in Yugra; the company's objective was to achieve the number of 600 – 700 [21] per year. Instead, the number of ruptures has increased up to 3 000. TNK-BP management «takes responsibility» for 1102 accidents in Khanty-Mansiysk Autonomous District in 2009. No significant decrease in accident rate was observed in 2010 as well.

According to official information, in 2009 about 20% of all pipelines' ruptures happened in the Khanty-Mansiysk Autonomous District. It roughly corresponds to the share of the Russian oil industry[22, 23] located in the Khanty-Mansiysk Autonomous District (about 25%) [24]. At the same time approximately a half of all Russian oil was produced in the Khanty-Mansiysk Autonomous District (54,8 %) [25, 26] in 2009.

The Komi Republic

It should be noted that a lot of companies significantly minimize the information on their pipelines' ruptures and oil spills. For example, let us consider the information about the situation in the Komi Republic.

The "Official" information on oil pipelines' ruptures in the Komi Republic is contradictory and does not correspond with the. Official reports[1] state about 5 accidents connected with oil spills in 2009, about 6 [27] incidents and about 70 [28] incidents of the unsealing which led to oil spills. Press reports (with a reference to the official authorities) provide some other numbers, for example, 50 oil spills and burnings [29].

Actually the number of spills is much higher. For example the Chairman of Usinsk Nature Conservation Committee gives the number about 80 spills per month only on the oil pipelines of JSC "Lukoil-Komi"[30]. Director of LLC "SPASF 'PRIRODA'", A.B. Kurchenko [31] also confirms the fact that spills occur every day.

Data provided by oil production companies, e.g. JSC "Lukoil-Komi", far less correspond to the data of reports furnished to the state authorities than data specified by non-governmental organizations.

Herewith, according to officials, the non-disclosure of information on spills [32] is taking place on a constant basis. Also, problems with the "access" of the controlling bodies' representatives to the territories which legally are the territories open to public access (being at the same time the so-called companies' activity areas) remain as well [28].

Assessments of the volumes of spilled oil

There are no reliable data on overall volumes of oil spilled in Russia. Official authorities do not gather statistical information on the volumes of spilled oil. They collect data on oil "shortage" due to the ruptures of oil pipelines only.

In 2000 (State report, 2001 [10]) "only" about 2 thousand tons of oil losses were assessed by the state authorities due to accidents. Further on such data for the whole Russia were not indicated in the state reports. Some assessments of the annual volumes of oil spills (stated or quoted by the experts) are specified in Table 2. This table is made on the basis of the professional publications, publications of field-specific commercial companies and opinions of the respected specialists expressed in non-specialized editions.

Thus it is impossible to make a trustworthy conclusion on the assessment of spilled oil volumes on the basis of the existing data. However the following conclusion will be sound: several million tons of oil are spilled into the environment of Russia every year. This is proved to a great extent by the data on oil products' outflow by the rivers indicated hereafter.

The total oil outflow by the rivers into the Arctic Ocean can constitute 500 thousand tons per year and more. For example, the total oil products' outflow by the rivers into the basins of the Arctic seas makes 510 thousand tons (due to the data for the beginning of the 2000s) [48] according to the Murmansk Marine Biological Institute. It is necessary to specify that there is no significant improvement of the northern rivers' water quality including the oil products contamination in regard to the state reports (both national and regional) issued in 2006-2011 [49-52].

Table 2

Source	Year	Spilled oil volume (thousand tons)
Vorobiev and others [22]	2000	17 000 – 20 000
Filippenko [33]	2000	More than 1 500 (only the Khanty-Mansiysk autonomous district)
State report on the protection of environment [10]	2001	2
Tokmakova [34]	2003	10 000 – 20 0000
Ilyinichev, Chernonozhkin [35]	2004	5 000
Davydova [36]	2004	More than 4 000 – 5000
Konseysao [37]	2007	1 000
Ivshina[38]	2009	5 000
Nechaeva [39]	2009	8 000 – 9 000
Znobiscshev [40]	2009	Not less than 4 500
Mkhitarov [41]	2010	More than 20 000
Rybakov and others [42]	2010	Not less than 60 - 400
Pleshakova [43]	2010	Up to 8 000 – 9 000
Malyshev [44]	2010	Up to 8 000 – 9 000
"Expert" Group of companies [45]	2011	4 000
Golubchikov [46]	2011	10 000 (only Western Siberia)
RF Ministry of Economic Development [47]	2011	17 000 – 20 000

Pipelines status

Publicly accessible sources do not contain detailed data on the age of inter-oilfields' oil pipelines in Russia. One can get some information about the existing pipelines' conditions on the basis of indirect and fragmentary data (indicated by researchers, state authorities and oil companies).

Thus, according to the data of the Russian Federal Communications Agency (FCA, 2004) [53] in 2002 «…the average service life of pipelines increased 22 years with pipelines' normative operating life of 33 years … the normative operating life of more than 16% of existing pipelines has already finished". Herewith it is possible to assume that the average service life of oil pipelines will exceed 30 years by 2012 taking into account the replacement rate of oil pipelines by main companies operating the inter-oilfield oil pipelines.

Some conclusions

1. During the recent years oil losses and spills on the on-land territory of the Russian Federation are probably **several million tons of oil per year.** Herewith there are no obvious indicators of this volume decrease.

2. The bigger part of oil leakages is connected with the pipelines' age that is worsened by the oil companies' attempts to save funds required for oil pipelines replacement.

3. The **number of oil pipelines' ruptures per year** (with environmental impact) significantly exceeds **10 thousand** and instead of going down rather increases during the recent years. Herewith pretty frequently oil companies either do not have the actual data on spilled oil volumes or hide it.

4. The total oil outflow by the rivers into the Arctic Ocean can constitute **500 thousand tons per year and more**.

1 22 April 2010, State Duma Committee on Natural resources

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