

UNIT 7

I. Learn to pronounce the following words:

| | |
|--------------|--------------|
| precaution | intermediate |
| avoid | permit |
| finally | continuous |
| unexpectedly | particular |
| commercial | insufficient |
| replacement | |

II. Read the following international words and give their Russian equivalents:

| | | |
|-----------|---------------|-------|
| potential | determination | fluid |
|-----------|---------------|-------|

III. Translate into Russian paying attention to the word "as":

1. Gas is valued as a chemical raw material just as highly as oil.
2. As matter is the basic working material in our world, we ought to learn as much as possible about it.
3. As the experiment was very interesting many people watched it.
4. As an engineer you must know this technological process.
5. The workers will take part in the conference as well.
6. As to my friend I'm sure that he will take part in this discussion.
7. As we know, science in the Russia occupies a prominent place.
8. As the years went by, the methods of drilling have been greatly improved.
9. Our country becomes richer as more new oil and gas pools are found.

IV. Translate the following sentences. Pay attention to the words "that (of), those (of)":

1. Regions where geological work is done for petroleum may be classified under two heads, those in which the strata have prevailing low dips (падение, наклон) and those in which the strata have prevailing high dips.
2. Cutting tools to be used in conjunction with core barrels (грунтоноски) are of three general types, those that employ black diamonds or a substitute as their cutting elements, those that are dressed to a tooth or narrow blade form, and the rolling cutter type.
3. The most porous sands are those that are made of comparatively uniform grains and free from clay.
4. In certain areas of flat lying beds, substantially greater weight than that of the drill collars may be carried on the bit and straight holes maintained.
5. The economic limit of cable tool drilling is about 5,000 ft while that of rotary drilling is considerably higher.

6. Pumping rates for limestone formations greatly exceed those for sandstone formations.

V. Translate the following sentences into Russian. Pay attention to the Conditional sentences:

1. If you have time, you will tell me about this article.
2. If you had asked me, I should have told you about it after the lesson.
3. We should have discussed this problem, if you had come.
4. If he were here, he would tell you all about this equipment.
5. Had he come, I should have asked him about the types of bits.
6. If you had read the article, you would have known much interesting about the use of this method.
7. He wouldn't have answered your questions unless he had been present at the lecture.
8. If you came tomorrow, I should give you a book about these very interesting phenomena.
9. Had you given me that book, my report would have been much better.
10. If you came in two days, I should show you all the articles on the discussed problem.
11. If he knows about this operation, he will tell you about the properties of these fluids.

VI. Read the text:

CASING

Crude oil and natural gas reservoirs are found in formations below the surface of the earth and the well is drilled to these formations.

During drilling special precautions have to be taken to prevent the hole caving in, or to avoid loss of drilling fluid when drilling through a porous formation. At intervals the hole is lined with steel pipe or casing which is inserted from top to the bottom and cemented into position. This casing gets smaller and smaller in diameter as the well is deepened, as does the drill bit. So, for example, a 15,000 ft well may start with 30 in casing and finish with 7 in casing. These casing strings are set in the well starting with the conductor pipe, then surface pipe, intermediate string, and finally the production or oil string. The depth that each string is set is determined by the particular conditions at the well site.

Once the first string of casing has been set, a blowout preventer (BOP) unit is fitted. This special valve closes off the well if the mud weight is insufficient when drilling unexpectedly reaches a high pressure zone.

When a potential oil or gas bearing formation is reached, tests may be made to establish whether the formation encountered is likely to prove commercial. To carry out these tests, the well is allowed to flow at different rates so that the quantities of oil and /or gas can be noted, together with resulting pressure changes.

As the casing must remain in a well for a long time and its repair or replacement would be costly, another string of pipe is placed in the well through which the oil is usually produced. This is called tubing. The tubing is suspended from the wellhead (surface) and usually reaches to within a few feet of the bottom of the well. Tubing is also used as the flow string because casing is usually too large to permit the well to flow efficiently, or, in some cases, to maintain continuous flow.

(Petroleum Technology).

VII. Read and remember the following words and expressions:

| | |
|--------------------------|--|
| completion | - вскрытие нефтяного пласта |
| casing | - обсадная колонна, кожух |
| to insert | - спускать (трубы в скважину) |
| conductor (surface) pipe | - кондуктор, 1 ^{ая} колонна обсадных труб |
| intermediate string | - техническая колонна труб |
| production (oil) string | - эксплуатационная колонна труб |
| surface valve | - устьевого клапан |
| producing formation | - нефте/газо/носный пласт |
| producing pressure | - рабочее давление |
| producing well | - эксплуатационная скважина |
| close off = shut off | - перекрывать |
| tubing | - НКТ (насосно-компрессорные трубы) |
| flow string (column) | - колонна насосно-компрессорных труб |

VIII. Give Russian equivalents to the following phrases:

| | |
|------------------------------|--|
| 1. to take precautions | 1. определяться |
| 2. at intervals | 2. зона высокого давления |
| 3. to set in a casing string | 3. принимать меры предосторожности |
| 4. to be determined by | 4. в промежутки |
| 5. blowout preventer | 5. устанавливать колонну обсадных труб |
| 6. high pressure zone | 6. превентер выброса |

IX. Translate the following sentences into Russian:

1. Casing may be used to exclude fluids in other intervals than that from which it is desired to produce.
2. Casing also prevents escape of formation fluids through the well from one stratum to another.
3. Setting casing is an important job in drilling most wells.
4. Casing is run in the hole to shut off troublesome water sands, high pressure gas zones, prevent caving in and protect fresh water strata.

5. The water, if not prevented from entering the oil sand, will displace the oil due to its greater specific gravity and ruin the well.
6. The number and size of the casing strings used vary with the depth and choice of the operation.
7. Each casing string is cemented in place by a slurry pumped down the pipe and up the annulus between the casing and the open hole.
8. The cement is allowed to set for several hours before drilling or other operations are recommended.
9. When casing and cement have been set in the pay zone, there must be some opening made to allow the oil and gas to pass into the well bore.
10. In drilling into high-pressure formations, the well should always be equipped with a blowout preventer.

X. Find in the text English equivalents to the following Russian words and expressions:

Обсадные трубы, вскрытие (пласта), продуктивный пласт, техническая колонна труб, удельный вес бурового раствора, ремонт, насосно-компрессорные трубы, спускать трубы в скважину, обвал, предупреждать, перекрывать.

XI. Translate into English:

1. Чтобы предохранить стенки скважины от обвала, их крепили и теперь еще часто крепят специальными трубами, которые называются обсадными.
2. Обсадные трубы опускаются в скважину по мере того, как она углубляется.
3. Известно, что первые обсадные трубы были деревянные, затем стали применять стальные трубы.
4. Существует много способов добычи нефти и газа.
5. Прежде чем начать бурение скважины, необходимо установить вышку на месте, выбранном для бурения.
6. Нефтяной фонтан прекращается там, где не хватает давления в пласте, чтобы выталкивать нефть из скважины.
7. Если нефть не выталкивается из пласта, то необходимо поднять давление в пласте.
8. Известно, что нефтяники могут создавать искусственное давление, и пласты начнут снова давать нефть.
9. Существуют различные способы вскрытия продуктивного пласта.
10. Когда обсадная колонна перекрывает продуктивный пласт, то обсадку простреливают.
11. Простреливание обсадной колонны, которое называется «пулевой перфорацией», производится для притока жидкости к забою.

X. Find in the text English equivalents to the following Russian words and expressions:

Обсадные трубы, вскрытие (пласта), продуктивный пласт, техническая колонна труб, удельный вес бурового раствора, ремонт, насосно-компрессорные трубы, спускать трубы в скважину, обвал, предупреждать, перекрывать.

XI. Translate into English:

12. Чтобы предохранить стенки скважины от обвала, их крепили и теперь еще часто крепят специальными трубами, которые называются обсадными.
 13. Обсадные трубы опускаются в скважину по мере того, как она углубляется.
 14. Известно, что первые обсадные трубы были деревянные, затем стали применять стальные трубы.
 15. Существует много способов добычи нефти и газа.
 16. Прежде чем начать бурение скважины, необходимо установить вышку на месте, выбранном для бурения.
 17. Нефтяной фонтан прекращается там, где не хватает давления в пласте, чтобы выталкивать нефть из скважины.
 18. Если нефть не выталкивается из пласта, то необходимо поднять давление в пласте.
 19. Известно, что нефтяники могут создавать искусственное давление, и пласты начнут снова давать нефть.
 20. Существуют различные способы вскрытия продуктивного пласта.
 21. Когда обсадная колонна перекрывает продуктивный пласт, то обсадку простреливают.
- Простреливание обсадной колонны, которое называется «пулевой перфорацией», производится для притока жидкости к забою.