**PIPELINE OPERATION AND MAINTENANCE**

**l. Read the** **text carefully and answer the** following **questions:**

**Row Monitoring and Maintenance**

Leak detection methods may be divided into two categories: direct and inferential. Direct methods detect leaking commodity outside the pipeline. Inferential methods deduce a leak by measuring and comparing the amount of product moving through various points on a line. Traditionally, pipelines have been inspected visually by walking along the line or patrolling the pipeline route from the air.

“Transportation of Hazardous Liquids by Pipeline” (GPO 2007), requires that hazardous natural gas pipelines be patrolled to observe surface conditions on and adjacent to the transmission line ROW for indications of leaks, construction activity, and other factors affecting safety and operation.. The frequency of patrols is determined by the size of the line, the operating pressures, the class location, terrain, weather, and other relevant factors.

During operations, the pipeline company conducts regular patrols of the pipeline ROW in accordance with the requirements. The patrol program would include periodic aerial and vehicle patrols of the pipeline facilities. These patrols are conducted to survey surface conditions on and adjacent to the pipeline ROW for evidence of leaks, unauthorized excavation activities, erosion and washout areas, areas of sparse vegetation, damage to permanent erosion control devices, exposed pipe, and other conditions that might affect the safety or operation of the pipeline.

The cathodic protection system is also inspected periodically to ensure that it is functioning properly. In addition, “smart” pigs are regularly sent through the pipeline to check for corrosion and irregularities in the pipe. Developed from earlier technology (mechanical pigs used for cleaning), smart pigs carry detection and logging tools that store data on the state of the pipeline, including data on metal loss, pits, gouges, and dents, while moving through the pipeline system. The smart pig is launched from a pig launcher (a spur off the mainline), run through the pipeline segment, trapped, and removed from the pipeline. The data is then downloaded from the smart pig data storage unit and analyzed. The pipeline company keeps detailed records of all inspections and supplements the corrosion protection system as necessary to meet the requirements.

Routine operation and maintenance are also performed at all aboveground facilities by qualified personnel. Safety equipment, such as pressure-relief devices, fire detection and suppression systems, and gas detection systems, are maintained throughout the life of each facility. Mainline valves are also inspected, serviced, and tested to ensure proper functioning. Vegetation management procedures during operation are performed in accordance with the pipeline’s plan and procedures and include regular mowing, cutting, and trimming along most of the permanent pipeline ROW.

Routine vegetative maintenance clearing would not be performed more frequently than every 3 years, unless requested and/or approved by appropriate state and local agencies. However, a corridor that does not exceed 10 feet in width centered on the pipeline could be maintained annually in a herbaceous state as required to facilitate periodic corrosion and leak detection surveys. In addition, routine vegetation maintenance may not occur between April 15 and August 1 of any year, to minimize the potential for impacts on migratory bird species that may use the permanent ROW for nesting.

(<http://corridoreis.anl.gov/documents/docs/technical/APT_61034_EVS_TM_08_5.pdf>)

1. What are differences between direct and inferential methods of Leak detection?
2. What direct methods are there?
3. What is the task of patrols?
4. What are “smart” pigs regularly sent through the pipeline for?
5. What operations are performed at all facilities and equipment in accordance the pipeline’s plan?

**2.Give English equivalents to the Russian words and words combinations:** плановый обход трубопровода, ремонт оборудования, устройства для сброса давления, гарантировать надлежащее функционирование оборудования, уменьшить коррозию, обнаружение утечек, поддерживаются в течение всего срока службы каждого объекта, отвечать требования, ведет подробные записи, не превышает.

**3. Translate the following sentences into Russian:**

Construction equipment requires repair and servicing at a maintenance facility or field location. This may include scheduled maintenance, unscheduled maintenance, major overhaul or repair due to breakdown.

Плановый ремонт scheduled maintenance

неплановый ремонт unscheduled maintenance

капитальный ремонт major overhaul

аварийный ремонт repair due to breakdown

**Get Talking**

1. **Find all the sentences where the professional terminology is used, read and translate them. Write the professional terminology.**
2. **Say some words about the Pipeline Row Monitoring and Maintenance. Your talk should last a minute.**