

GATHERING AND TREATMENT OF CRUDE OIL

**Type of control:
credit (zalik)**




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Auditory 0513



Organization of our work

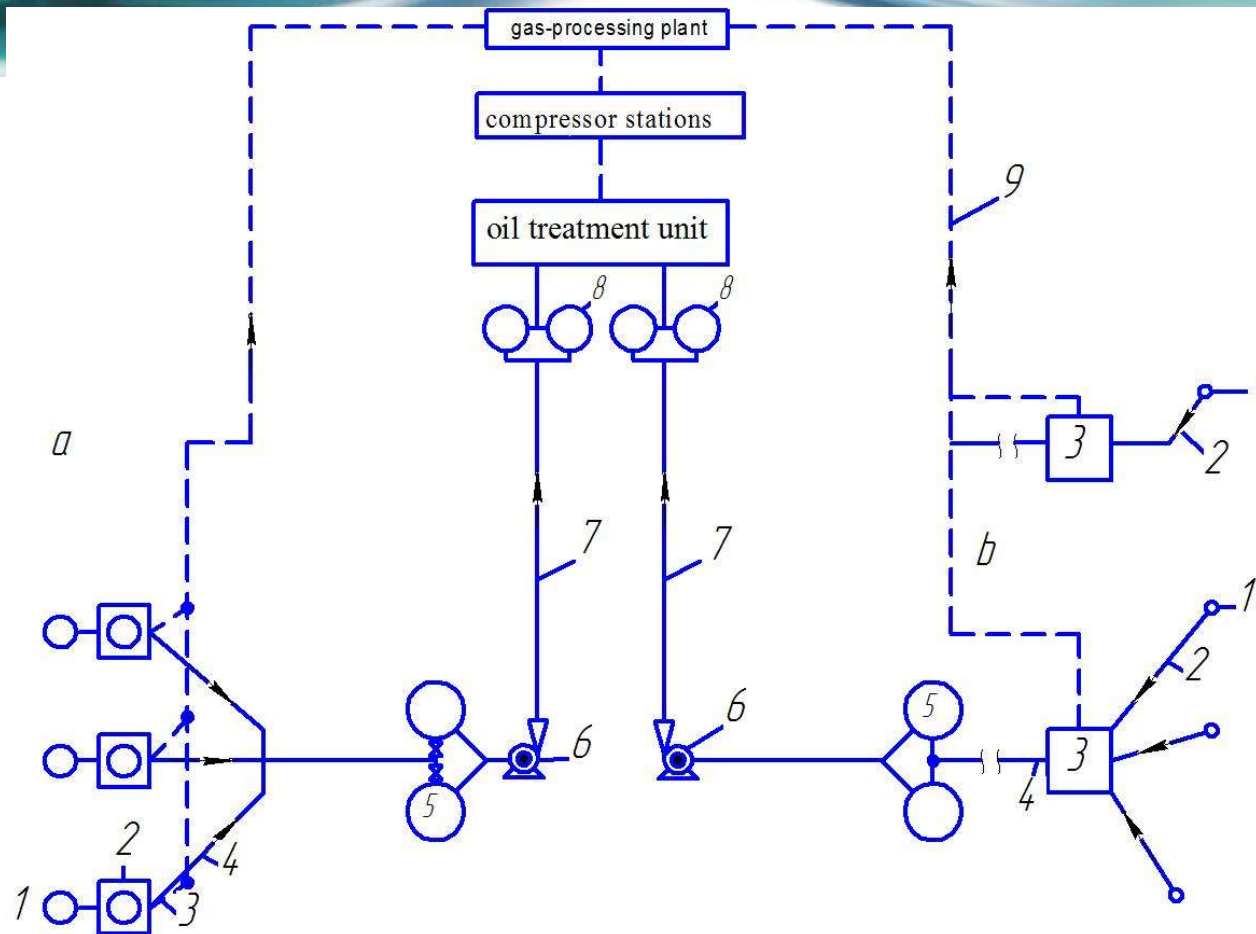
- **Max points are 100 for this subject.**
- **On lectures you will have two colloquiums (test) on 30 points each.**
- **On practices you will have minimum 2 control works on 20 points each.**
- **Before writing any test you need to rework all missed lessons.**

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- **A student should re-work his missed classes at consultation time only at particular day – Monday (pair week) from 2.35 p.m. till 3.35 p.m. room 0513.**
 - **A student can re-work max 2 classes during 1 consultation (not more).**
 - **Your main responsibilities are to come in time for the lessons and keep silence.**
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Abbreviation

| | |
|-------------|--------------------------------------|
| IMSU | individual measuring separation unit |
| GMSU | group measuring separation unit |
| OTU | oil treatment unit |
| CS | compressor stations |
| GPP | gas-processing plant |
| GS | gathering station |
| PS | pump station |
| SU | separation unit |



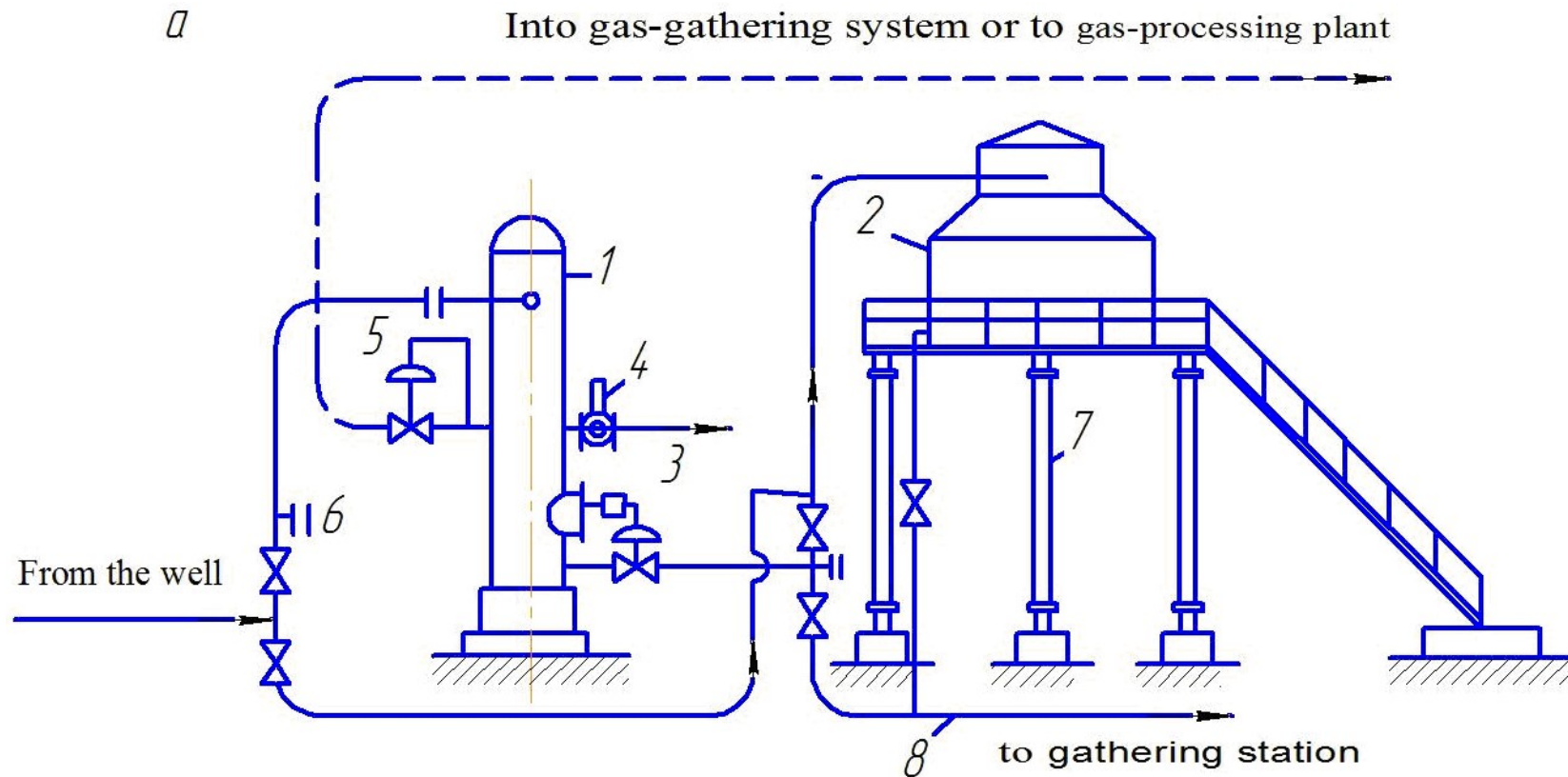
- a) 1-well; 2-IMSU; 3-gas lines; 4-gravity flow lines; 5-non-pressure-sealed tanks; 6-pump; 7-gathering line; 8-charging stock tanks
- b) 1-well; 2-flow lines; 3-GMSU; 4-gravity flow lines; 5-non-pressure-sealed tanks; 6-pump; 7-gathering main; 8-charging stock tanks; 9-gas gathering line

Figure 1 – Two-Line Gravity System for Oil Gathering



Two-Line System for Oil, Gas, and Water Gathering

Fig. 1a shows a diagram of an individual measuring separation unit (IMSU) of the gravity system and fig. 1b depicts a diagram of a group measuring separation unit (GMSU).

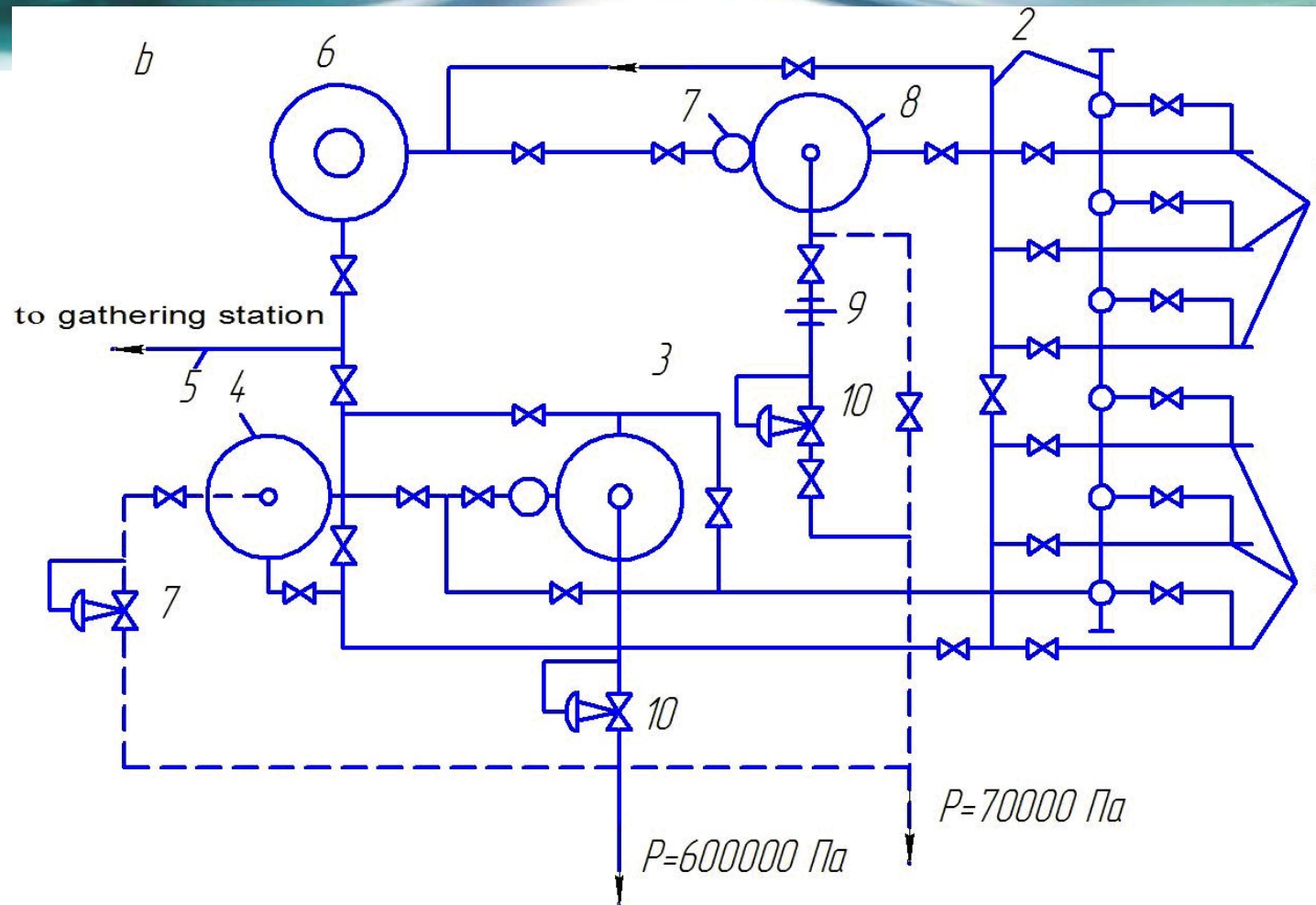


- a) 1-trap (separator); 2-measurer; 3-level regulator; 4-safety valve; 5-pressure regulator; 6-plug for flow line and trap paraffin steaming; 7-elevation for measurer; 8-gravity flow line

Figure 2 – Individual Measuring Separation Units of the Gravity Gathering System



Fig. 2 shows the equipment and devices that are used respectively in individual and group measuring separation units of the gravity system for oil, gas, and water gathering.



- b) 1-flow line; 2-distribution manifold; 3-first stage trap; 4-second stage trap; 5-gravity line; 6-measurer; 7-level regulator; 8-measuring trap; 9-measuring orifice plate; 10-pressure regulator
- Fig. 3 – **Group measuring Separation Units of the Gravity Gathering System**

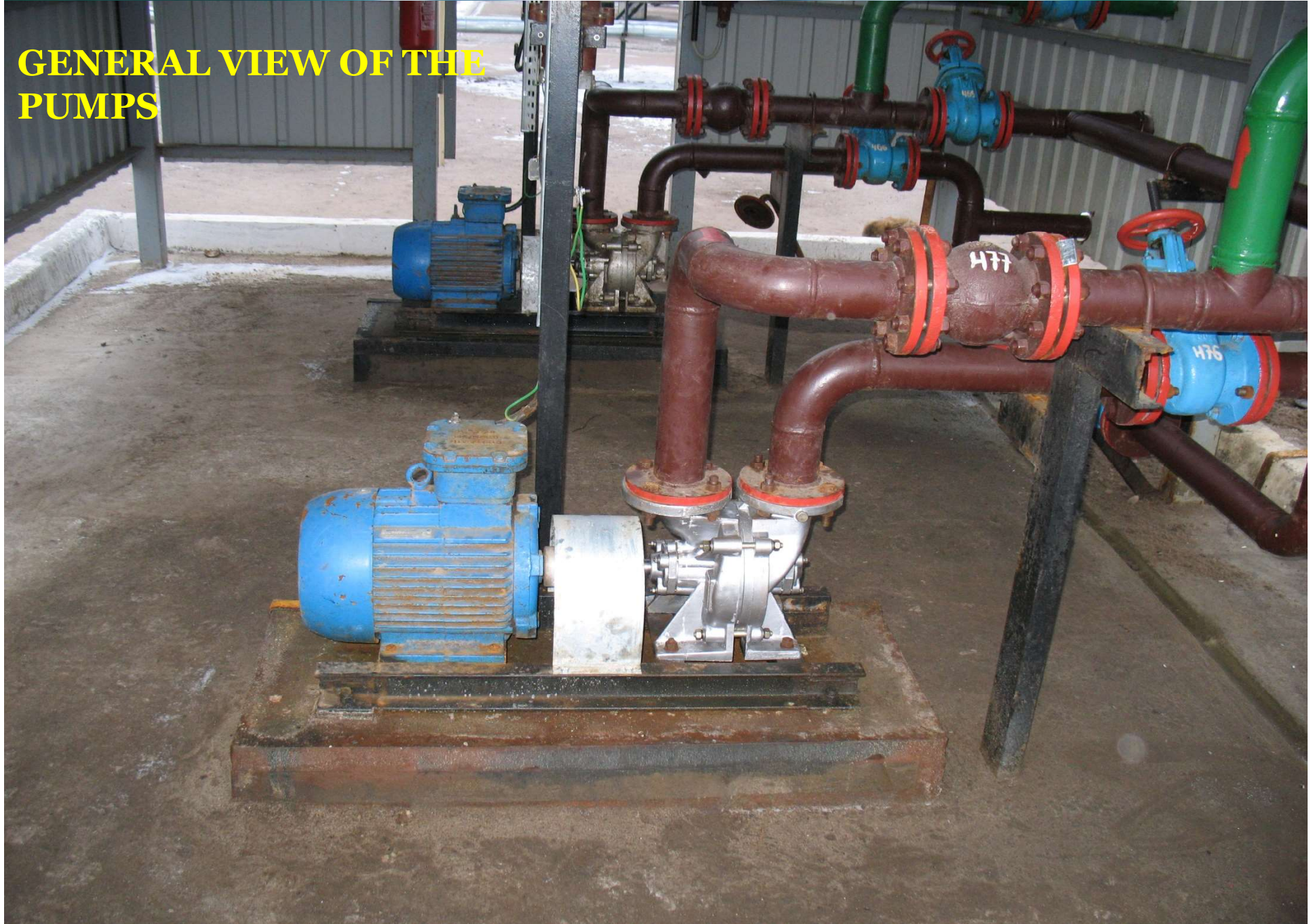
GENERAL VIEW OF THE TRAP (SEPARATOR)



GENERAL VIEW OF THE DISTRIBUTION MANIFOLD



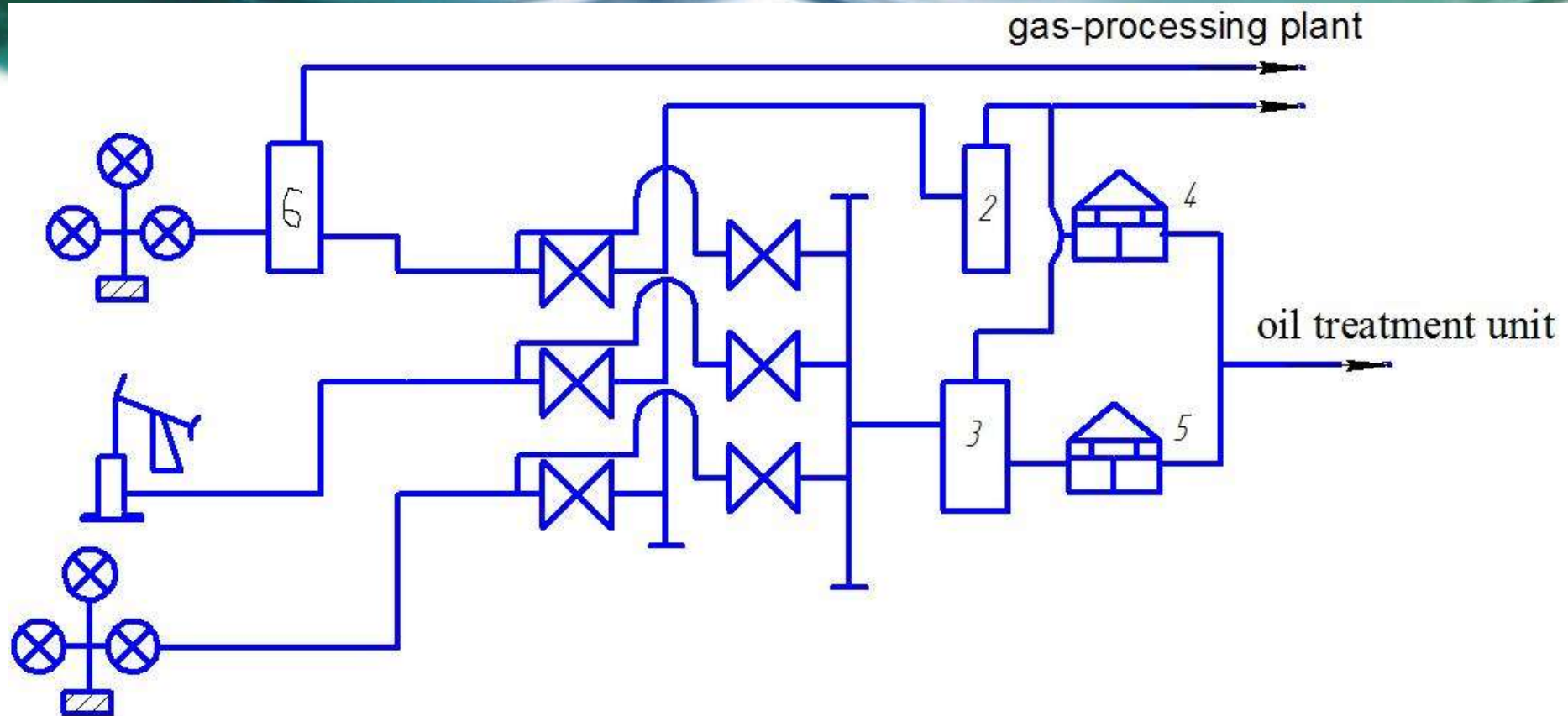
GENERAL VIEW OF THE PUMPS





Orifice Meter Station Fundamentals - Sample

- [..\Презентации\ - Sample.mp4](#)
- [..\Презентации\ Explained.mp4](#)



1-distribution manifold; 2-measuring gas separator; 3-active gas separator; 4-measuring tank; 5-active charging stock tanks; 6-high-pressure separator

Figure 3 – Group High-Pressure Pressure-Sealed Gathering System

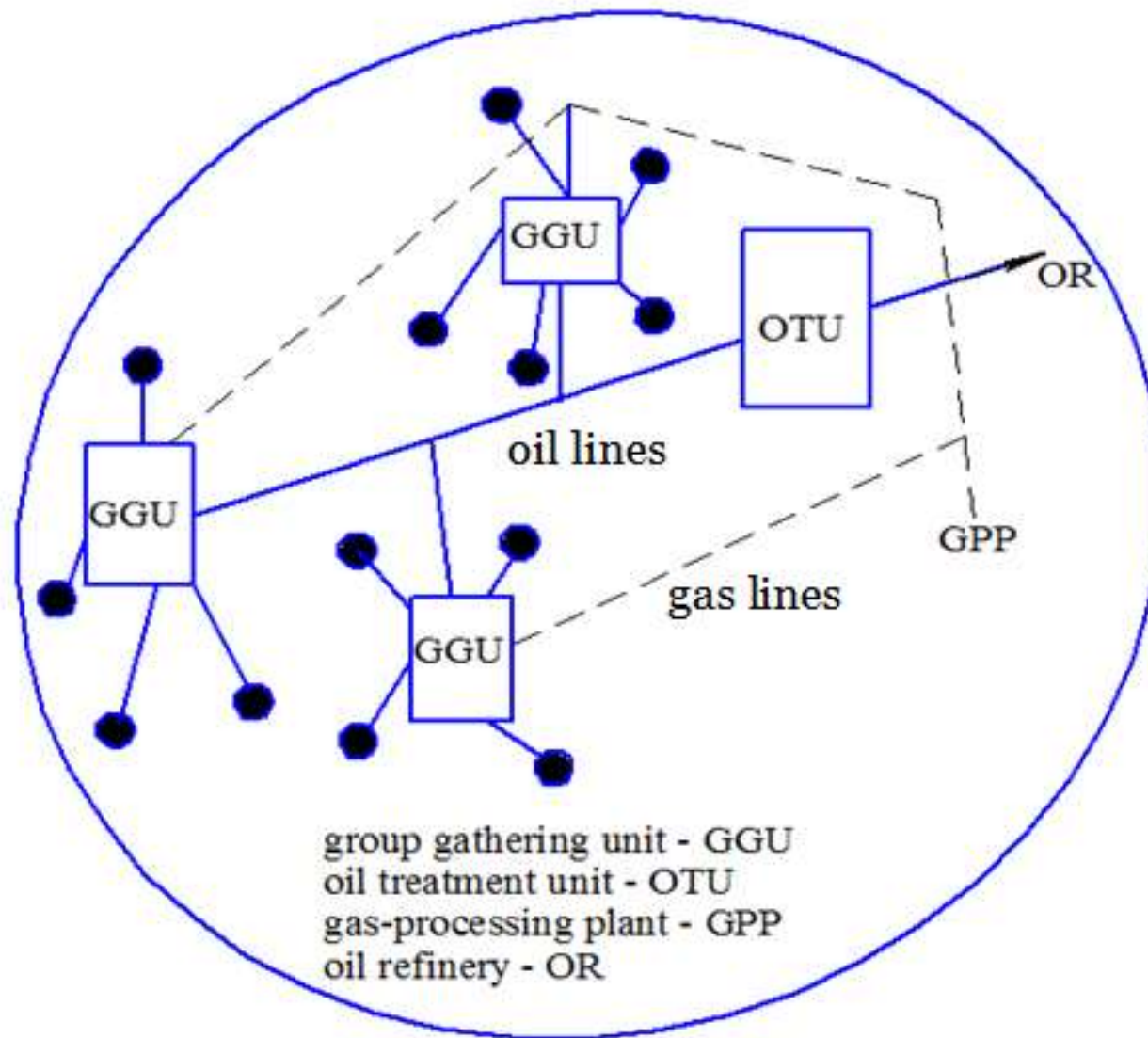
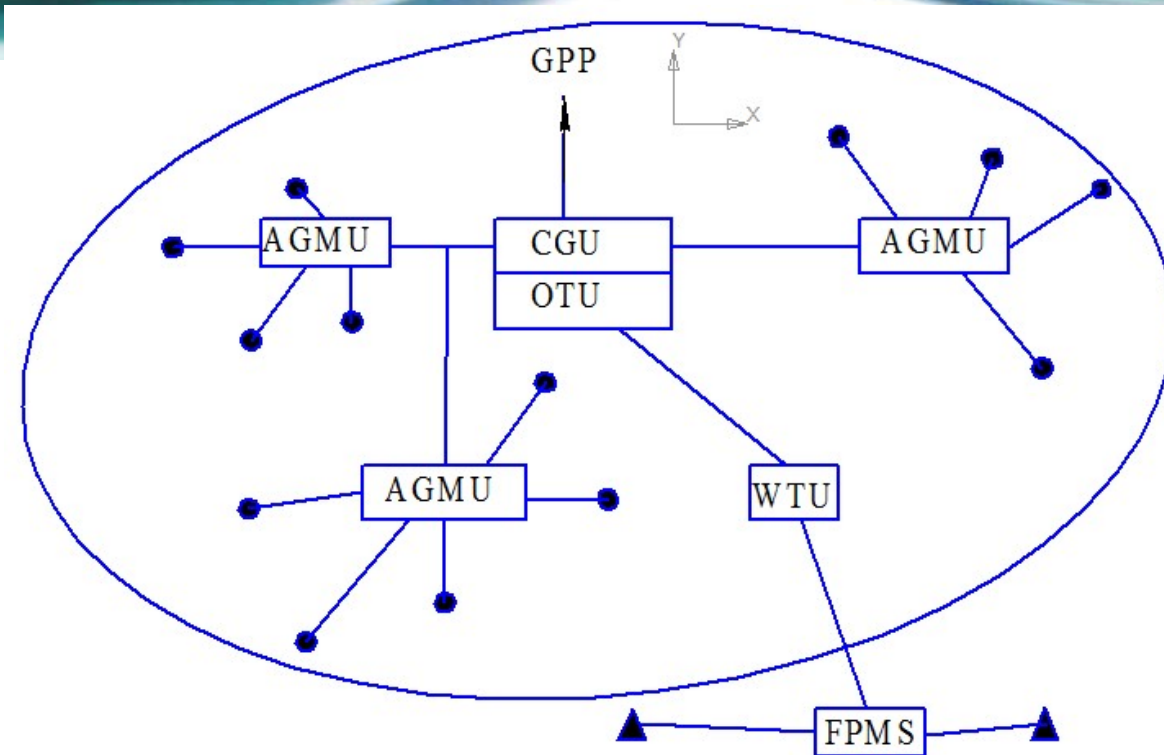


Figure 4 – Diagram of Distribution of Group Gathering Stations in Oil Field

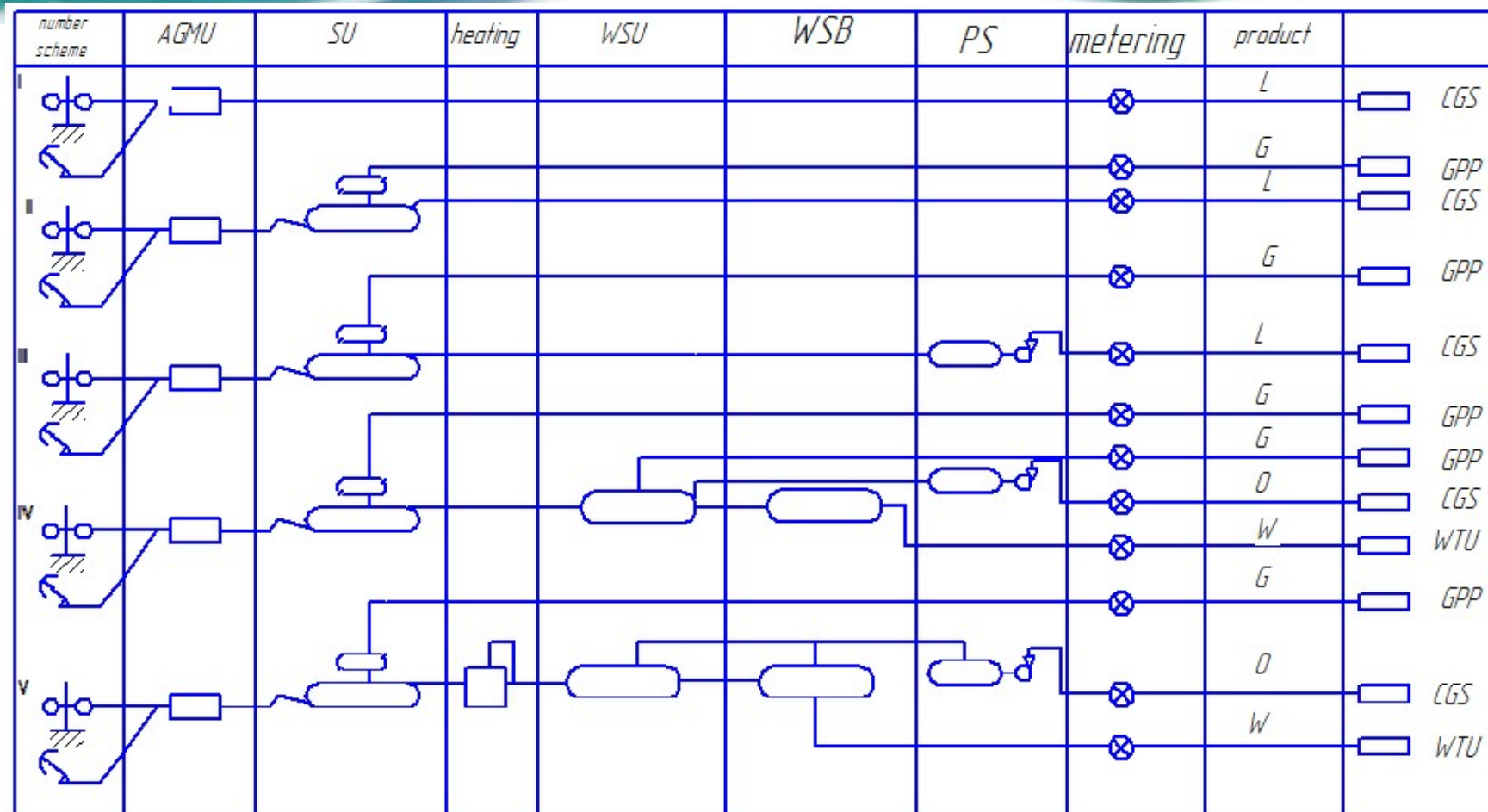


producing wells

injection wells

automated group measuring unit – AGMU;
water treatment unit – WTU; central gathering station – CGS;
oil treatment unit – OTU; formation pressure maintenance system –
FPMS; gas-processing plant – GPP

Figure 5 – Modern Centralized Gathering System



AGMU – automated group measuring unit; SU – separation unit; h – heating; WSU – water separation unit; WSB – water settling block; PS – pump station; L – liquid; G – gas; O – oil; W – water; central gathering station – CGS; gas-processing plant – GPP; water treatment unit - WTU

Figure 6 – Standardized Technological Diagrams of Oil and Gas Gathering