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|  **«agreed»****\_\_\_\_\_\_\_\_\_****«\_\_\_\_»\_\_\_\_\_\_\_\_\_20**\_ **г.****Representative** **\_\_\_\_\_\_\_\_\_****«\_\_\_\_»\_\_\_\_\_\_\_\_\_\_20**\_ **г.****\_\_\_\_\_\_\_\_\_****«\_\_\_\_»\_\_\_\_\_\_\_\_\_\_20**\_ **г.** |  **«approved»** **Operations Director** **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** **\_\_\_\_\_\_\_** **« \_\_\_»\_\_\_\_\_\_\_20**\_ **г.** |

Work Plan

Of drilling across productive intervals in well

Well data

1. Well location on the field \_
2. Projected data:

Depth \_\_ ***(TVD)*** \_\_\_

Projected horizon \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Well design:

Surface casing \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cement \_\_ \_\_\_\_\_\_\_\_\_\_\_\_

Intermediate string \_\_\_ cement \_\_ ***\_*** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Production string \_\_\_ cement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Actual data as for the date the present plan is signed:

Bottom hole \_\_

Well design:

Surface casing \_\_\_\_\_\_\_\_\_ cement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Intermediate string \_\_\_ cement \_\_ ***\_***\_\_\_\_\_\_\_\_\_\_

Stratigraphic and lithological characteristics of formations at the point of last string shoe location\_\_\_\_\_\_ \_

1. Special or additional well data \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. **Anticipated**:

Depth of top productive horizon \_***\_\_\_***

Total (final) well depth ***\_)\_\_\_***

Formation pressure \_\_\_\_\_\_\_\_\_\_\_

(provide data for all isolated horizons of bed type)

1. Characteristics of formations, composing productive horizon, main reservoir properties \_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. Parameters of drilling mud used for drilling across productive intervals: type of drilling mud \_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Specific gravity  with \_\_\_\_\_\_\_\_\_5\_\_%% reserve,

Viscosity \_\_\_\_\_\_\_\_ sec, filtration \_\_\_\_\_\_\_см3 in 30 мin

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Preparative works

1. Inspect and prepare drilling equipment and auxiliary equipment and sign the Act on equipment readiness.
2. Line up the derrick and the rotory table with well head.
3. Tie-in well head with BOP in accordance with diagram approved.

Make up the diagram of well head equipping with actual sizes indicated.

1. Outgoing gas lines shall be no shorter than 150 m, alterations to gas lines direction or bends are allowed only if supported by scheme, approved by company for every instance.
2. Constant reserve of drilling mud shall be kept on the rig site in amount of \_\_\_\_\_m3, parameters in accordance with clause 7 as for specific gravity, filtration and mud type.

Additional requirements to circulation fluid quality:

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Assemble and RIH the following BHA and drill column:

Bit (type, size) \_\_***\_\_\_\_\_\_\_\_\_\_\_\_\_***

Drill collar: diameter \_\_\_\_\_\_\_mm steel \_\_ \_\_, length \_\_\_\_\_\_\_\_\_\_\_

Drill string \_\_\_\_\_\_mm, grade \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Requirements to drill string:
2. Drill string shall be:

- tested by defectoscopy: before drilling start \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ hours of work

- pressure tested: before drilling start with pressure \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ hours of work часов, with pressure \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

- swept-up with a gage % diameter \_\_\_\_\_\_\_ mm

1. Drill collar type \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

- sweep-up with a gage % \_\_\_\_\_\_\_\_\_\_ mm

- replace every \_\_\_\_\_\_\_\_ hours of work

- pressure test: before drilling start with pressure \_\_\_\_\_\_\_\_\_\_\_ kg/cm2

 in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ hours of work with pressure \_\_\_\_\_\_\_\_\_\_ kg/cm2,

1. Kelly size ***\_\_***

- test by defectoscopy directly on site before drilling start and in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ hours of work:

- replace every \_\_\_\_\_\_\_\_\_\_\_\_\_ hours of work:

1. All drill string x-overs:

- shall be made of steel 40x ПМА

alternative \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:

- shall be with bore no less than

1. Respective documentation of established form for all parts of drill string shall be available on site (log books, certificates, acts, etc.).
2. Make pressure test of wellhead equipment and casing:

- BOP – by water with pressure  (BOP rams shall not be pressure tested) before installation on well head:

- BOP flowlines (with master valves closed) – by water with pressure **\_\_** after installation of BOP's.

- casing \_\_*\_\_\_\_ mm* together with BOP with pressure *\_\_\_\_\_*.

During the pressure test the casing, BOP and flowlines shall be filled with \_\_\_\_.

Pressure test shall be repeated after every closure of BOP:

- casing head, BOP and flowlines – with water, pressure \_. During pressure test tightness of weld seams and seals of casing head shall be checked:

NOTE: if the height of the cement sleeve in the column is more than 100 m, after drilling of the cement down to the bump ring the pressure test with liquid shall be repeated.

1. Fill the well with salt saturated mud of the quality according to clause 7.
2. Keep materials, instruments and equipment stock:

Swivel \_\_\_\_\_\_\_

Kelly \_\_***at site*** \_\_\_\_\_

Mud hose \_\_***at site***\_\_\_\_\_

Rotary table \_\_***at site***\_\_\_\_\_

Fishing tools \_\_***at site***\_\_\_\_\_

Tap \_\_***at site*** \_\_\_\_\_

Magnetic mill \_\_***at site***\_\_\_\_\_

Chemicals: ***list attached***

Float collar: type and size: ***\_***

Gate valve, pressure tested: \_ ***\_ kg/cm2***

Wellhead packer

1. Have tested and ready to be used:

Vacuum degasser type \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Mud logging station, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Prepare the following documents:
2. Act on readiness of well for drilling across productive intervals.
3. Supervisor's duty chart.
4. Permission of the established form to start drilling across productive intervals.
5. Act on conduct of shifts training.

**Drilling across productive intervals**

**(all works shall be performed at the presence of responsible supervisor in charge)**

1. Drill-out the cement plug and the casing shoe of the intermediate column. Clean downhole of metal if necessary.
2. Pressure test of cement ring behind the intermediate casing with pressure at wellhead \_\_\_\_.
3. Drilling across the productive intervals shall be performed at presence of a supervisor. As drilling continues, daily shifts of supervisors shall be established.
4. Quantity and type of cementing units \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
5. Coring and geophysical surveys \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
6. In-hole control methods for troubles prevention \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
7. Main drilling parameters:

WOB \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

RPM \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Pumps flow rate \_\_\_\_\_\_\_\_\_\_\_\_\_

1. Prior to POOH circulate the well bottom up.
2. In case of down time (repair, etc.) the drilling instrument shall be located at the intermediate string shoe.

If forced stop happens, immediate measures shall be taken for pulling out of instrument to the intermediate column shoe.

1. Additional actions for blow-out prevention and safety measures \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_***\_\_\_\_\_\_\_\_\_\_.***

**agreed:**

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| **Deputy Chief Geologist** **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_****\_\_\_\_\_\_\_\_\_\_ «\_\_\_\_»\_\_\_\_\_\_\_\_\_200**\_**г.**  |  | **Drilling manager****\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_****\_\_\_\_\_\_\_\_\_ «\_\_\_\_»\_\_\_\_\_\_\_\_\_200**\_**г.**  |