Shot Hole Drilling – Working in Shallow Gas

CAGC INFORMATION ALERT

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The following information is not a definitive guide to government legislation and does not release users of this document from their responsibilities under applicable legislation.

Safe Work Procedures

- Always set drill unit upwind;
- There must be no open ignition sources (i.e. Herman Nelsons, tiger torches, smoking or generators) while drilling or loading a hole;
- Water vents must be left open and never closed while drilling or loading water;
- A check valve must be installed on the kelly hose;
- When in known shallow gas areas, two (2) rigs must always work in close proximity;
- When in known shallow gas areas, water must be loaded from an alternative source;
- When loading water ensure that the suction hose is well below the bottom of the ice;
- In the event of a shallow gas encounter the following must be adhered to:
    - Immediately shut the rig off (i.e. kill switch);
    - Immediately vacate area and walk to next rig to report encounter (**NOTE:** Never use the radio in your cab);
    - When blow has subsided return to the shot point and abandon hole;
    - Move to next shot point and commence drilling

Conditions of Approval

Shallow Gas

This is an area of possible shallow gas and gas hydrate deposits. The Operator must be familiar with Section 19, Drilling Shot Holes for Charges, in the Canada Oil and Gas Geophysical Operations Regulations. All necessary precautions shall be made while drilling shot holes to ensure that any released gas is not ignited. The following precautions are to be taken, but not limited to:

- There must be no open ignition sources such as generators, Herman Nelsons or smoking;
- If gas is encountered while drilling, a flowing hole report, that indicates the shot hole location, must be submitted without delay to a Safety Officer;
- Use alternate means of communication to report the encountering of shallow gas, not the cab radio in the rig that has encountered the gas;
- If gas is encountered, explosives shall not be detonated in the encountering shot hole until cleared by the Safety Officer;
- Check valve must be installed on the kelly hose;
- Water vents must be left open and never closed while drilling or loading water; and
- Water must be loaded from a source that has low potential for gas with the suction hose well below the bottom of the ice. This condition also applies to obtaining camp water from a frozen water body where shallow gas/hydrates may be a concern.

Ice Monitoring

Prior to crossing or working on any body of water, not found to be frozen to the bottom, the following procedures are to be followed:

- The ice is to be profiled utilizing the same care and due diligence that would be displayed drilling shot holes. Ice areas shall not be crossed or worked on until profiling indicates that the ice thickness is satisfactory as per approved COMPANY Health Safety and Environmental Manual Land Operations;
- Profiles shall be available upon request by the Safety Officer;
- Equipment and personnel shall not travel beyond or on ice that has not been previously tested and profiled;
- If gas is encountered or expected in an area, it is recommended that profiling be done more frequently to identify any areas that may have been eroded due to ice thinning; and
- If gas is found to be venting through the ice a Safety Officer must be informed prior to any work being conducted in that area.

Weekly Status Reports

Weekly seismic activity, reported in the status reports, should refer to the 2D work in line kilometers and to the 3-D work in square kilometers.

Provide the Attached Emergency NEB phone List

Hazardous occurrences (as prescribed under section XVI of the *Canada Oil and Gas Occupational Safety and Health Regulations)* are to be reported to the N.E.B. immediately. The N.E.B. also requires immediate notification of any accident or incident requiring medivac.