

Flowback Fluid Diversion Instruction

Document Reference Number: Instruction 009

Version: 3.0

Date: May 2019

Approver: EPP Manager

Any changes to the work instruction must be approved by the EPP Manager.



Role	Key Responsibilities
Well Test Supervisor	<p>Oversee the diversion of well circulation fluids and/or flowback fluids to the correct surface fluid control.</p> <p>Monitor the sand filter and cleaning.</p> <p>Design of injection pressure into separator and gas composition including pressure level to dump into flare system. Record keeping of injected gas blanket.</p>
Well Test Operative	<p>Manage choke manifold to divert flow in accordance with returning fluids.</p> <p>Control flow from separator into the flare system based on pressure of gas blanket.</p> <p>Flush sand filters when blocked.</p> <p>Ensure pilots are lit before sending gas from the separator to flare system.</p> <p>Divert flows from open top tanks when instructed that emissions are above 7.1ppm.</p>
Site Environmental Advisor	<p>Monitoring above open top tanks</p> <p>Record flaring in register</p>

1.0 Returning Fluid

The following fluid types must be managed by the surface fluid control system.

Fluid Type	Scenario	Primary Fluid Control
Circulation fluid <i>(fluid that has not been in contact with the formation)</i>	<p>Clean out runs due to milling, screen outs, proppant return.</p> <p><i>Circulation fluid, when the well has been stimulated, must be overbalanced to allow diversion to open top tanks.</i></p>	Divert to open top tanks
Flowback fluid <i>(fluid that has been in contact with the formation)</i>	<p>Interface of bottoms up of the well & flowback</p> <p>Due to seismicity</p> <p>Between frac stages</p> <p>Well completion</p> <p>Well Testing</p>	Divert to separator

1.1 Choke Management

The Well Test supervisor must adopt a presumption in favour of directing all returning flowback fluid via the well test package (separator/ surge tanks). Deviation from this presumption is only permitted to allow returning fluids to open top tanks if:

- Circulating fluid is before the well is stimulated/ hydraulic fractured
- Using overbalanced circulation fluid to lift sand or debris after well stimulation/ hydraulic fracture

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1.2 Sand Filter

If in an unlikely scenario the sand filter is blocked and presents a risk to the integrity and capacity of the separator or surge tanks, the flow rates will be initially choked back to reduce flow and sand. A twin pot system will be utilised to prevent the sand filter being overwhelmed and allow for the sand filter to be flushed and reutilised. The sand filter is monitored by the Well Test operative.

1.3 Well Test Package

A presumption of **Flowback** fluid to the well test package (separator/ surge tanks) will be adopted. If flowing to the separator a gas blanket will be injected before liquid enters the separator (if no to low gas content in flowback). A constant gas charge will be configured based on separator design. The Well Test supervisor will instruct the Well Test operative the pressure and gas composition. A record of the gas charge injected into the separator will be documented.

A preference of a propane gas blanket will be used to aid combustion in the flare.

1.4 Flowback N2 lift/ Well Completion

Well completion involving N2 lift will require a gas blanket to be used in the separator. The Well Test supervisor will instruct the Well Test operative the pressure and gas composition to inject into the separator.

1.5 Flaring Gas

The Well Test supervisor will instruct the Well Test operative what pressure to allow flow from separator to the flare.

If the amount of gas is low then the gas will be stored in the separator until pressure monitoring identifies the instructed level. This will be set depending on design and configuration of the separator.

The Well Test operative will ensure that the flare pilots are lit before the flow of gas from the separator is allowed.

The Site Environment Advisor will record flaring events in the flaring register (day and duration of flaring) include the quantity of gas flowed to the flare.

1.6 Open Top Tanks Monitoring

Surveillance monitoring above the open top flowback tanks will be undertaken before the start of **well circulation** fluid enters the open top tanks (establish methane background levels).

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The Site Environmental Advisor (or a nominated deputy) will ensure that the monitor is deployed above the tanks before **well circulation** to provide redundancy that levels of natural gas are not being emitted above 7.1ppm.

Monitoring will be conducted at the start of flow for 10minutes. A surveillance programme will continue once per hour to check levels are below 7.1ppm. Records of monitoring will be documented.

1.7 Elevated Emissions

If levels of 7.1ppm are detected the choke will divert flows from the open top tanks towards the well test package. The Site Environmental Advisor (or deputy) will instruct the Well Test operative to redirect flows.