



## Ministry of the Economy

### **Notice of Accepted Amendments** ***Directive PNG010: Well Logging Requirements***

In January 2018, ECON posted documents for consultation in regard to proposed changes to *Directive PNG010: Well Logging Requirements*. The proposed changes fell into the following categories:

- Introduction of new definitions or clarification of existing definitions.
- Miscellaneous additions/revisions/clarifications related to the directive.

ECON received comments on the proposed changes and those comments and ECON's responses are reflected in the following pages.

Thank-you for your review and participation in the consultation process.

For further information, please contact:

PNG Support Desk  
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Ministry of Economy  
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**Directive PNG010: Well Logging Requirements - Consultation Results and Summary of Changes**

Existing Directive Section/Wording	New Directive Section and Wording	Rationale for Changes	Comments	ECON Response/Assessment
<p><b>1.Introduction</b> This Directive sets out the requirements of the Saskatchewan Ministry of the Economy (ECON) for logging of oil and gas wells in Saskatchewan.</p>	<p><b>1.Introduction</b> This Directive sets out the requirements of the Saskatchewan Ministry of the Economy (ECON) for well logging. This applies to all well types licensed under The Oil and Gas Conservation Act.</p>	<p>Specifies that the requirement for logging applies to all well types licensed under The Oil and Gas Conservation Act, not just oil and gas wells.</p>	<p>In the last paragraph, could questions also be directed to the PNG Support email address? If so, could that also be listed here?</p>	<p><b>Agreed.</b>  ECON has incorporated this suggestion. Added email contact detail for the support desk to the Directive.</p>
<p><b>2.1 Single-Well Pads</b> For a well on a single well pad, logging is required with the following exceptions:...</p>	<p><b>2.1 Single-Well Pads</b> For a well on a single well pad, open-hole logging is required with the following exceptions:...</p>	<p>Added "open-hole" to what type of logging is required.</p>		<p>Added in relation to comments provided related to clarity.</p>
<p><b>2.2 Multi-Well Pads</b> For the first well drilled on a multi-well pad....base of the surface casing.</p>	<p><b>2.2 Multi-Well Pads</b> For the first well drilled on a multi-well pad....base of the surface casing, unless the well is within a defined pool that stipulates logging requirements other than those specified within this Directive and the licensee is meeting the logging requirements of that defined pool.</p>		<p>First bullet, should this also apply to ANY vertical well drilled within a defined pool? Not just on single-well pads?</p>	<p><b>Agreed.</b>  Added in relation to comment identifying a need for greater clarity, similar feedback was provided by the geological core lab on this section.</p>
<p><b>2.3 Re-entry Wells</b> If a well is being re-entered, open-hole logs are required on any new open-hole portion that is drilled.</p>	<p><b>2.3 Re-entry Wells</b> If a well is being re-entered with a trajectory of vertical or direction, open-hole logs are required on any new open-hole portion that is drilled if that open-hole portion extends the well beyond the previously deepest logged stratigraphic unit.</p>			<p>Added for clarity based on section title updates.</p>
	<p><b>3. Other Requirements (NEW SECTION)</b> ECON may require open-hole logs, cased-hole logs or well integrity logs (as detailed within <i>Directive PNG008: Disposal and Injection Well Requirements</i>) on any type of well to be run at any time if deemed necessary.</p>	<p>Provides ECON the ability to call for logs on any type of well if deemed necessary.</p>		<p>Industry feedback prompted an overall look at Section numbering. This section applies to all wells, and the section number has been updated on this change.</p>

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<p><b>3. Acceptable Logs for Vertical and Directional Wells</b> The licensee must take an acceptable resistivity or standard electric log.</p>	<p><b>4. Acceptable Logs</b></p> <p>All logs stipulated as a minimum requirement within this Directive are to be run:</p> <ul style="list-style-type: none"> <li>• For vertical/directional wells, from the total depth of the well to the base of the surface casing and shall record all pertinent data</li> <li>• For horizontal wells, from at or near the intermediate casing/landing point to the base of surface casing and shall record all pertinent data.</li> </ul> <p>Any logging conducted above and beyond the minimum requirements at a licensee's discretion may be conducted in whatever manner the licensee deems appropriate but shall be submitted in accordance with <i>Directive PNG013: Well Data Submission Requirements</i>.</p>	<p>Section 4 speaks to logging minimum requirements for all trajectory types of well.</p> <p>Section 4.1 and 4.2 provide what log types are required to satisfy minimum requirements.</p>	<p>What happens or is the requirement expected related to logs an operator chooses to run above and beyond the minimum requirements. The Directive may seem to be requiring voluntary logging be run to a certain requirements (depth) is that the intent?</p>	<p><b>Agreed.</b></p> <p>Added statement to clarify requirements expectations on logs run above and beyond the minimum requirements at operator's discretion.</p> <p><b>Clarification.</b> Clarified section heading to identify that what is identified is what is deemed acceptable logs to satisfy minimum requirements.</p>
<p><b>3.1 Open Hole</b></p>	<p><b>4.1 Open Hole</b></p>		<p>Should this be sonic porosity or neutron porosity or density porosity?</p>	<p><b>No Change.</b> The current wording and requirement is correct, "sonic porosity or neutron porosity and density porosity".</p>
<p><b>3.2 Cased Hole</b></p>	<p><b>4.2 Cased Hole</b></p>		<p>Is this stating cased hole is always required on non-horizontal wells even if open hole logs were run.</p>	<p><b>No Change.</b> This is stating what is acceptable when conducting logs required in accordance with this Directive. Sections 2.1 and 2.2 stipulate when open-hole vs cased-hole</p>

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				logs are required on vertical/directional wells.
<b>4. Horizontal Wells</b>	<b>5. Logging Requirements for Horizontal Wells</b>			Based on review for clarity updated heading to align with Section 2 wording.
<b>4.2 Cased Hole</b> The minimum logging requirement is a compensated neutron porosity log or equivalent be run through casing from a point at or near the intermediate casing point (ICP)	<b>5.2 Cased Hole</b> Cased hole logs must be run through casing from a point at or near the intermediate casing point (ICP).		The minimum logging requirement is a compensated neutron porosity log or equivalent, should this also include gamma ray?	<b>Agreed.</b>  Acceptable logging is identified within section 4. Removed reference to what type of log is required.
<b>4.2 Cased Hole</b>	<b>5.2 Cased Hole</b> Logs that reach a minimum of 70 degrees from vertical or contact the top of the target pool will be accepted.		Suggestion to indicate to free fall depth as the required depth, rather than 70 degrees.	<b>No Change.</b> 70 degrees is providing the maximum relaxation ECON will consider. For a company to run a log to a lesser depth/angle and have that log accepted approval should be obtained through the "Amend Well Logging" application process in IRIS.
<b>4.2 Cased Hole</b> ... Cased-hole logging for horizontal wells is not required in the following situations: ..	<b>5.2 Cased Hole</b> ... Cased-hole logging for horizontal wells is not required in the following situations: <ul style="list-style-type: none"><li>The well is within a defined pool that stipulates logging requirements other than those specified within this Directive and the licensee is meeting the logging requirements of that pool.</li></ul>			As per comments in relation to Section 2.2 provided exemption to logging requirements if stipulated through defined pool Minister's Order.
<b>4.2 Cased Hole</b> Figure 1	<b>5.2 Cased Hole</b> Figure 1		Could greater clarity be provided on sufficient log coverage? This appears not to be reviewed by ECON.	<b>No Change.</b> Figure 1 is illustrating within what area and depth there must be log coverage in order to obtain a waiver. ECON does

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				audit wells to ensure correct disclosure is made in relation to logging requirements and per this Directive.
General Comments			What is the authority of this Directive in relation to the Act and Regulations?	<b>Response.</b> This directive is in effect under the authority of the Act, this Directive is the primary authority for logging requirements specified.