

8000-PM-OOGM0024 4/2012

Site 875622 Client 341759 OGO-51036
eFacts: INR OPR LLCCOMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS MANAGEMENT

DEP USE ONLY
Application Tracking # 1569246

**Proposed Alternate Method or Material for
Casing, Plugging, Venting or Equipping a Well**

Well Operator INR Operating, LLC		DEP ID# OGO-51036		Well Permit or Registration Number 063-37579	
Address 2605 Cranberry Square				Well Farm Name Virgin Gorda	
City Morgantown		State WV	Zip Code 26508	Well # 7HM	Serial # N/A
Phone 304-212-2350	Fax			County Indiana	Municipality Armstrong

A proposed alternate method is subject to provisions in §3221 of the 2012 Oil and Gas Act, 58 Pa. C.S. §3221 Section 13 of the Coal and Gas Resource Coordination Act, 58 P.S. §513 and 25 PA Code §§78.75-78.75a (relating to Alternate Methods.) **Attach proof of notification of coal operator(s).**

Describe in reasonable detail using a written description and / or diagram:

1. the proposed alternate method or materials, and
2. the manner in which the alternative will satisfy the goals of the laws and regulations.

Upon bond log review, production string cement did not meet 78.a 83c, the following alternate method is being proposed to meet 78.a 86 standards.

Optional: Approval by Coal Owner or Operator

Signature 	Date 4/21/26
Print or Type Signer's Name and Title Robert G. Higbee - VP Engineering & Land	

Signature of Applicant / Well Operator

Signature 	Date 4/20/2026
Print or Type Signer's Name and Title M. Tyler Dean, Sr. Director of Drilling & Completions	

If optional approval is signed by coal owner or operator, the 15-day objection period may be waived.

DEP USE ONLY		
Approved by (DEP Manager) 	Conditions ☐ YES, See Attached ☒ NO	Date 7/13/26

Infinity Natural Resources

Virgin Gorda 7HM Proposed Alternate Method

During cementing operations on the Virgin Gorda 7HM, Infinity Natural Resources lost returns 130 bbls into displacement. In an attempt to regain circulation, pump rate was lowered from 4 bpm to 2 bpm with no success. Rate was then increased back to 4 bpm and we landed/bumped the plug to 5,550 psi, held for 5 minutes, bled back 9.5 bbls to the truck and floats held. Total displacement pumped was 522 bbls. The well was monitored while waiting on wireline and tractor and the fluid column remained at surface. We then pulled a CBL from 12,260' to surface and found TOC to be at 10,500'. The pack off was set, night cap installed and the well was paused for planning of workover operations. On 3/31/2026, we moved in and rigged up workover rig and all ancillary equipment. Wireline was rigged up and we set two composite bridge plugs at 8,854' and 8,835'. A TCP gun string was then tripped in the well via stick pipe, and the 5.5" casing was perforated from 8,797.5' to 8,802.5'. Wireline was rigged up and a cementing retainer was set at 8,760'. We then made up a cementing stinger BHA and tripped in the hole. On 4/4/2026, we stung into the retainer, established circulation and worked pump rate up to 3.8 bpm. Once rate and pressures were stabilized, we pumped 375 bbls of 14.0ppg spacer followed by 63 bbls of 15.0ppg Class A cement. We then displaced with 45 bbls of freshwater and maintained returns during the entire job. We then stung out of retainer and circulated the well to clean up. A drill out BHA was made up and we tripped in the well to drill out the cementing retainer, then drilled out cement from 8,777' to 8,810' and slid in the well to tag the first composite bridge plug. The drill out BHA was tripped out of the well, wireline was rigged up and we pulled a cement bond log from the first composite bridge plug to surface. A drill out BHA was made up, tripped in the well and the composite bridge plugs were drilled out. Wireline was rigged up, and a cement bond log tool was run into the lateral via tractor. The log was pulled from 12,000' to 7,000' to determine if cement had dropped below the perforations once the cement job ended. While waiting for PADEP approval on path forward, two composite bridge plugs were set again at 8,865' and 8,835'. The casing will be cleaned via a cleanout BHA consisting of casing scraper, string magnet and watermelon mill to prepare for patch installation. A 40' 4.25" by 5.5" 20ppf ESeal HP Patch will be set across the perforations. The patch will be expanded to the casing, the shoe milled out and then pressure tested to 10,000 psi to confirm successful installation. A drill out BHA will then be made up, all composite bridge plugs drilled out with the remedial cement job and patch installation deemed complete and awaiting stimulation operations.

During stimulation operations, Infinity Natural Resources plans to implement the following pressure monitoring plan while stack fracturing the 7HM and zipper fracturing the 9HM/11HM. INR will rig up 2" 1502 iron from the 1-13/16" side outlet valve on the RSH-2N Well Head assembly to flowback tanks on all wells. There will be a 1,250 psi pop off in line and pressure will be monitored in the data van during stimulation operations. Per 78.73(c), stimulation operations will be paused if the intermediate casing (production string annulus) pressure exceeds 831 psi, $(0.8 \times 0.433 \text{ psi/ft} \times 2,400')$ and contact PADEP oil and gas inspector, Jason Branan. INR will also preemptively lower its planned proppant and fluid loading on the offset Virgin Gorda 9HM from 13,025' to 11,831'. These depths correlate to 10,500' (top of cement) and 9,306' (landing point) on the Virgin Gorda 7HM. Top of frac on the Virgin Gorda 7HM will be 10,500'. Along with that, INR has installed gauges with wireless transmitters on the DL Resources Samuel H Fyock 1, and the Kriebel Natural Gas Co LLC Indiana Farms 002 and 004 conventional wells.

If the cement in the 5.5" annulus on the Virgin Gorda 7HM were to fail during stimulation operations and flow is observed at surface, INR will set a 350 bbl vertical tank containing 300 bbls of 13.2ppg SOBM and a mud pump to bullhead down the intermediate casing and kill the well. INR will rig up 2" 1502 iron from the tank to the 9-5/8" x 5-1/2" 1-13/16" side outlet valve on the RSH-2N well head. INR will be hauling and offloading produced water during stimulation operations around the clock. If excess fluid is returned to the flowback tanks, incoming water will be shut down and water will be transferred to the AST or hauled off location to disposal.