

Iles Dome Unit #6 (081-05107)**Form 2 #400845422****Offset Well Evaluation****Proposal to Deepen well for UIC – Sundance Formation**

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Subject Well Existing Isolation

Surface casing is set at a depth of 116'. Operator reports the 8+5/8" First String top of cement (TOC) as 2390', which is consistent with a previously-reported, calculated cement top shown on a wellbore diagram included with a 1995 UIC application for this well (Correspondence #153567). A Cement Bond Log #153570 (CBL), submitted with the 1995 UIC Application shows a cement top of 3220'. However, the CBL header indicates that the log was run on 8/28/1964 in the "USA G. D. Parkinson #4" well with a TD of 3696'. Therefore, it appears that the CBL may be from a different well. The production casing annulus in the subject well is apparently uncemented from 2390' (or possibly deeper) to 116' (all Mancos Shale).

Offset water well check: COGCC evaluated offset water wells within one mile of this proposed well's surface hole location. This information was used in addition to locally-available geophysical logs and hydrogeologic information to evaluate the adequacy of the existing casing and cement configuration. The deepest water well within one mile is 420', approximately 2550' south of the subject well. Water was reportedly present in a sandstone from 401' to 411' while drilling the water well. A 440' deep water well is also nearby (greater than one mile) in NW/4 NW/4 Section 25, to the southeast of the subject well. These water wells likely produce from sandy or fractured intervals in the Mancos Formation, within a zone that is not cemented in the subject well.

Remedial requirements for subject well Iles Dome Unit 6 (081-05107)

- Set RBP at 3250' and run CBL to verify existing cement coverage from RBP to surface.
- Submit CBL to COGCC Engineering Staff for approval of squeeze perforation depth.
- Pressure test casing to check for leaks prior to remediation (this is not the formal MIT required prior to injection).
- Perforate as close as practical to existing TOC to establish circulation, and cement from squeeze perforations to surface.
- Run post-remediation CBL to verify new cement coverage.
- Submit Form 5 with CBL and cement tickets to document new wellbore configuration. This information will be required prior to UIC approval.
- Set packer in final UIC configuration and perform MIT. Prior notice, COGCC witnessing, and a Form 21 is required for this MIT.

Stimulation Concerns

Stimulation is not proposed in operator's procedure, and based on COGCC's offset well review (provided below for several wells), Sundance Formation stimulation is not authorized. If the operator intends to do so at any point in the future, stimulation will only be considered if offset well mitigation method(s), acceptable to COGCC staff, are performed by the operator for the following offset wells that are located within 1500' of the subject well:

Producing Wells

- Iles Dome Unit #8, f.k.a. Iles Dome #21X (081-05119)

Abandoned Wells

- Unknown #6 (081-05657)
- Parkinson #35 SD (081-05115), no data available in COGCC records
- GD Parkinson #17-SD (081-60016) , no data available in COGCC records
- GD Parkinson #5 (081-60017) , no data available in COGCC records

UIC Concerns

There is no plugging data available for abandoned offset wells within ¼ mile of the subject well. Plug back of the Sundance Formation and isolation of shallow water resources is not adequately documented for the following wells. Therefore, re-entry and re-plugging of the following wells is required prior to converting the subject well to UIC, per COGCC Rule 325.c.(2):

Abandoned Wells

- Unknown #6 (081-05657)
- Parkinson #35 SD (081-05115), no data available in COGCC records
- GD Parkinson #17-SD (081-60016) , no data available in COGCC records
- GD Parkinson #5 (081-60017) , no data available in COGCC records

Offset Well Evaluation Summary (annotated map attached)

- Evaluated offset PR well **Iles Dome Unit #11 (081-05108)**, TD at 3358' in the Sundance Formation. The production casing (7" First String) was cemented with 200 sx cement at 3320', just below the Sundance Formation top, and the well produces in the Sundance from open hole below the casing shoe. A significant interval of uncemented Mancos Formation is likely present above the cement top behind the production casing. There is no cement bond log in COGCC's

well file for cement coverage verification, but based on volumetric calculation, the First String annulus is likely cemented to surface. Surface casing was set and cemented at 107'. No mitigation required.

- Evaluated offset PR well **Iles Dome Unit #8, f.k.a. Iles Dome #21X (081-05119)**, TD at 3437' in the Sundance Formation. The production casing (8+5/8" First String) was cemented with 300 sx cement at 3423', just below the Sundance Formation top, and the well produces in the Sundance from open hole below the casing shoe. A significant interval of uncemented Mancos Formation is likely present above the cement top behind the production casing. Water bearing zones of the Mancos Formation and underlying potential water-bearing formations (Frontier and Dakota) may be uncemented. There is no cement bond log in COGCC's well file for cement coverage verification. Surface casing was set and cemented at 91'. Offset mitigation is required.
- Evaluated offset PA well **Iles Dome Unit (Parkinson) #5 (081-05110)**, TD at 3384' in the Sundance Formation. Four casing strings were set in this well, but most of the casing was pulled during plugging in 1955. Plugs were set at 3210' in 6+1/4" casing (casing pulled above plug), at 2961' in 8+1/4" casing (casing pulled above plug), at 2730' in 10" casing (casing pulled above plug), at 83' across 15+1/2" surface casing shoe, and from 20' to surface in 15+1/2" casing. Zones at and below the Dakota Formation are isolated with plugs. No mitigation required.
- Evaluated offset DA well **Unknown #6 (081-05657)**. No information is available for this well, other than a TD of 3362' in COGCC's database. Third-party data, available from IHS, Inc. (IHS) indicates that this well (designated Parkinson #6SD by IHS) was spud on 11/5/1927 and drilled to a TD of 3908'. The reported ground elevation was 6330'. Two casing strings were reportedly set: 15+1/2" surface casing to 120' and 12+1/2" production casing to 1416'. Reported formation tops: Mancos at surface, Frontier at 2482', Dakota at 2910', and Entrada at 3550'. The well was reported as dry and abandoned during drilling in 1927. There is no data on pulled casing (if any). There is no plugging data available. Offset mitigation is required.
- Evaluated offset well **Parkinson #35 SD (081-05115)**. No information is available for this well in COGCC's database, and it does not plot on COGCC's GIS. Third-party data, available from IHS indicates that this well is located 400 FSL and 700 FEL from the southeast corner of Lot 5, Section 22, approximately 980' northwest of the subject well, ground elevation 6400'. The well was reportedly spud on 1/17/1935 with 12+1/4" surface casing set at 112'. Reported log tops were 2351' Frontier, 2730' Dakota, and 3344' Sundance. The well was drilled to a TD of 3381', but a note indicates that the "original" TD was 3484', so the well may have been sidetracked. The reported 7" production casing setting depth was 3312', but a SNDC open-hole completion is shown from 3344' to 3381', so there appears to be some uncertainty with the production casing setting depth. MRSN was reportedly perforated 3156' – 3183'. There is no data on pulled casing (if any). There is no plugging data available. Offset mitigation is required.
- Evaluated offset well **GD Parkinson #17-SD (081-60016)**. No information is available for this well in COGCC's database, and it does not plot on COGCC's GIS. Third-party data, available from IHS indicates that this well is located 990 FNL and 527 FWL from the northwest corner of the SW/4, Section 23 approximately 910' south-southeast of the subject well (plots in Lot 13). The well was reportedly spud on 6/13/1927 with 15+1/2" surface casing set at 81', 12+1/2" casing

set at 1350', 10" casing set at 2305', 8+1/4" casing set at 2740', and 6+1/4" casing set at 3091'. Reported log top: 2460' Frontier. The well was drilled to a TD of 3522'. There is no data on pulled casing (if any). There is no casing cement or plugging data available. Offset mitigation is required.

- Evaluated offset well **GD Parkinson #5 (081-60017)**. No information is available for this well in COGCC's database, and it does not plot on COGCC's GIS. Third-party data, available from IHS indicates that this well is located 330 FSL and 255 FEL from the southeast corner of the SW/4 of the NW/4 of the SW/4, Section 23, approximately 860' south-southeast of the subject well. The well was reportedly spud on 6/9/1927 with 15+1/2" surface casing set at 63' with 25 sks cement, 10" casing set at 2730' with 60 sks cement, 8+1/2" casing set at 2961' with 20 sks cement, and 6+1/4" casing set at 3210' with 30 sks cement. Reported log tops were 2725' Dakota, 3003' Morrison, 3311' Curtis, and 3342' Entrada. Reported shows: 33' and 1235' water; 1958', 3190', and 3225' gas; and 2580', 3016', and multiple depths below 3232 oil. The well was drilled to a TD of 3362'. There is no casing cement or plugging data available. There is no data on pulled casing (if any). Offset mitigation is required.

Iles Dome 4N92W

