



**ANALYSIS OF ANNUAL TRENDS AND REQUEST TO CONTINUE WITH APPROVED IMMEDIATE NOTIFICATION PARAMETERS FOR OPERATION OF MONUMENT AGI D#2 (API #30-025-43470) UNDER NMOCC SWD-1654**

This document presents the results from the analyses of the injection parameter data collected from the Monument D#2 Well, which serves Targa's Monument Gas Processing Facility in Lea County, NM. Data have been collected continuously since commissioning of the Monument AGI D#2 (March 23, 2017) and have been analyzed monthly by Geolex and transmitted to Targa for reporting to NMOCD on a quarterly basis as per the NMOCC order referenced above. The AGI D#2 well was completed in the Devonian through the Montoya section as a near vertical well approximately 300 feet from the plugged AGI#1.

Bottom hole sensors for AGI D#2 provide the ability to monitor real-time reservoir conditions in the deeper Devonian reservoir by providing reliable bottom hole pressure and temperature data. In addition, surface data from the well is being collected relative to the following parameters:

- Treated Acid Gas (TAG) surface injection pressure,
- TAG injection temperature,
- Annular pressure,
- Bottom Hole pressure and temperature
- TAG flow rate from compressors

The above are the key parameters which are currently being measured in the well in order to monitor the operations of the well, prevent hydrate formation and reduce corrosion potential. Since these parameters are useful indicators and predictors of potential operational or mechanical problems in the well, various levels of alarms have been established for each of these parameters. These parameters include three which are measured directly (TAG injection pressure, TAG injection temperature and annular pressure) and one (differential pressure) which is a calculated value (the difference between the two measured parameters of injection and annular pressure). The analyses of the long-term trends in these values have been useful in smoothing out shorter-term variations which can be observed from detailed inspection of hourly data and in the development of appropriate alarm bands for each parameter. These data are included as Table 1.

The well at Monument is equipped with bottom hole (just at top of packer) P/T measurement capability inside the tubing. The monitoring of these additional parameters will also aid significantly in determining the appropriate immediate notification parameters which are required by the NMOCC order for AGI D#2. In general, the immediate notification parameters for the well were developed from this long-term analysis of the injection data. When the average values for 2021 are compared to 2020 values, it is clear that the reservoir is responding well to the TAG injection with average pressures both at the surface and in the bottom hole decreasing in 2021. This effect is observed despite consideration of a reduction in average injection rate of approximately 5% for 2021 values compared to values over the entire operational life of the well. A significant data loss occurred in 2021 from mid-October through November when all surface injection parameter data was lost due to a hard drive and server failure. This server was replaced and backup systems modified to prevent the reoccurrence of a similar data loss.



However, when data collection and storage was reestablished in December, the data for the month were consistent with pre data loss periods Q1 through Q3.

The NMOCD also requires that immediate notification parameters and levels be discussed and agreed upon with the agency, and that these be periodically reviewed and updated as needed based on operational or regulatory changes. The immediate notification parameters for the well have been approved by NMOCD, and Targa requests no changes in these approved values. With this requirement in mind and for the purpose of protecting the mechanical integrity and safety of the well and the overall AGI facility, Geolex monitors these data under contract to TARGA to prevent damage to the wells or violation of regulatory requirements or permit constraints.

After analyzing the performance of the well on a continuous basis, Geolex has assembled the data and has analyzed observed trends for the 2017 through 2021 timeframe as can be seen in Figures 1 and 2.

Given the observations of the trends in the graphs and the significantly different behavior of the well as compared to AGI#1, the well demonstrates good mechanical integrity. There is no indication of the reservoir currently being used by AGI D#2 being pressured-up to any significant degree. Furthermore, the temperature and pressure control at this well are handled very well and are stable facilitating startups after any upset events.

Upon startup from any shutdown that lasts more than 6-8 hours it is critical to inject methanol along with the TAG for the initial startup period to prevent the formation of hydrates. It is also critical to maintain the temperature control on the injected TAG and to avoid rapid temperature or pressure fluctuations during periods when power failures or other mechanical failures may occur. The trends observed in AGI D#2 are shown in Figures 1 and 2 for the entire period.

#### **REVIEW OF STATISTICAL ANALYSIS OF INJECTION PARAMETERS, DEVELOPMENT OF AND REQUEST TO CONTINUE WITH APPROVED IMMEDIATE NOTIFICATION PARAMETERS MONUMENT AGI D#2 (API #30-025-43470) UNDER NMOCC SWD-1654**

The statistical analyses of the injection parameter data were initially conducted for the purpose of establishing normal operating levels for these parameters which are automatically monitored. Several data filtering steps were accomplished to take the hourly data which forms the basis of the analysis in order to smooth out variability due to normal operations. Since the commissioning of the AGI D#2, only that well has been operated at the site since the AGI#1 was plugged and abandoned pursuant to OCD requirements and approvals. The bottom hole PT sensors in AGI D#2 have provided excellent reservoir condition data for the well.

All the data are summarized in Table 1. Based on the analysis of trends, the immediate notification parameters which were approved for AGI D#2 remain appropriate.

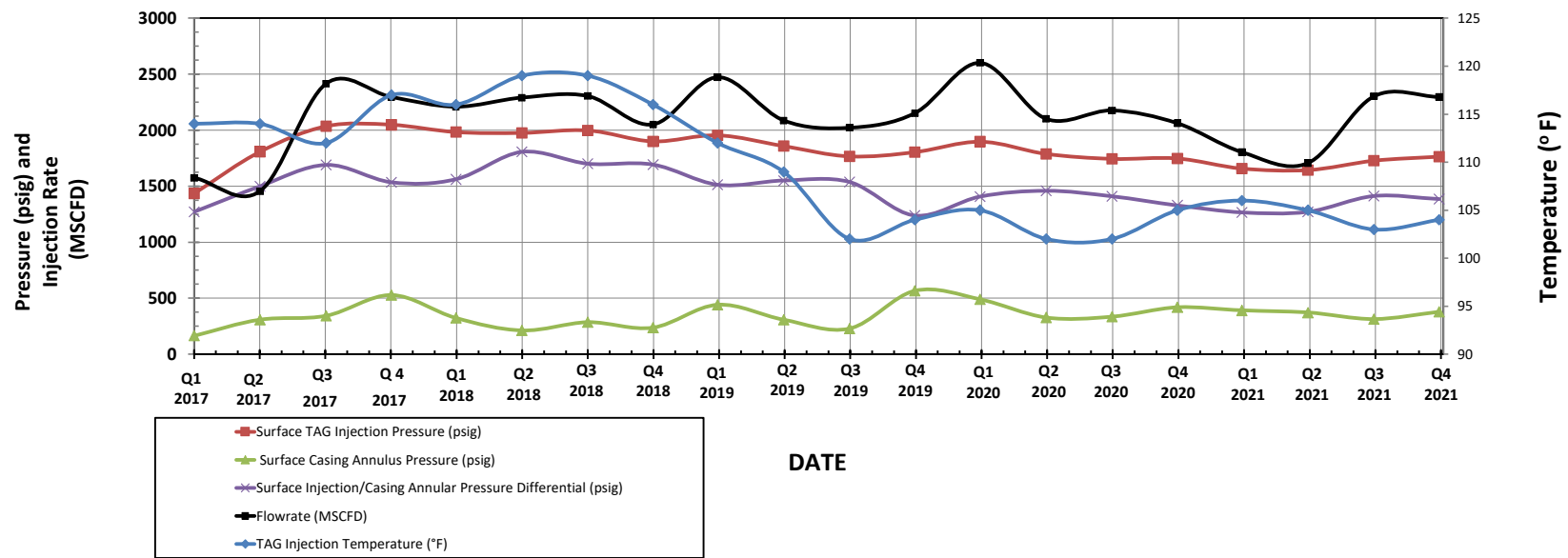
The approved immediate notification parameters for the Monument AGI D#2 are summarized below:

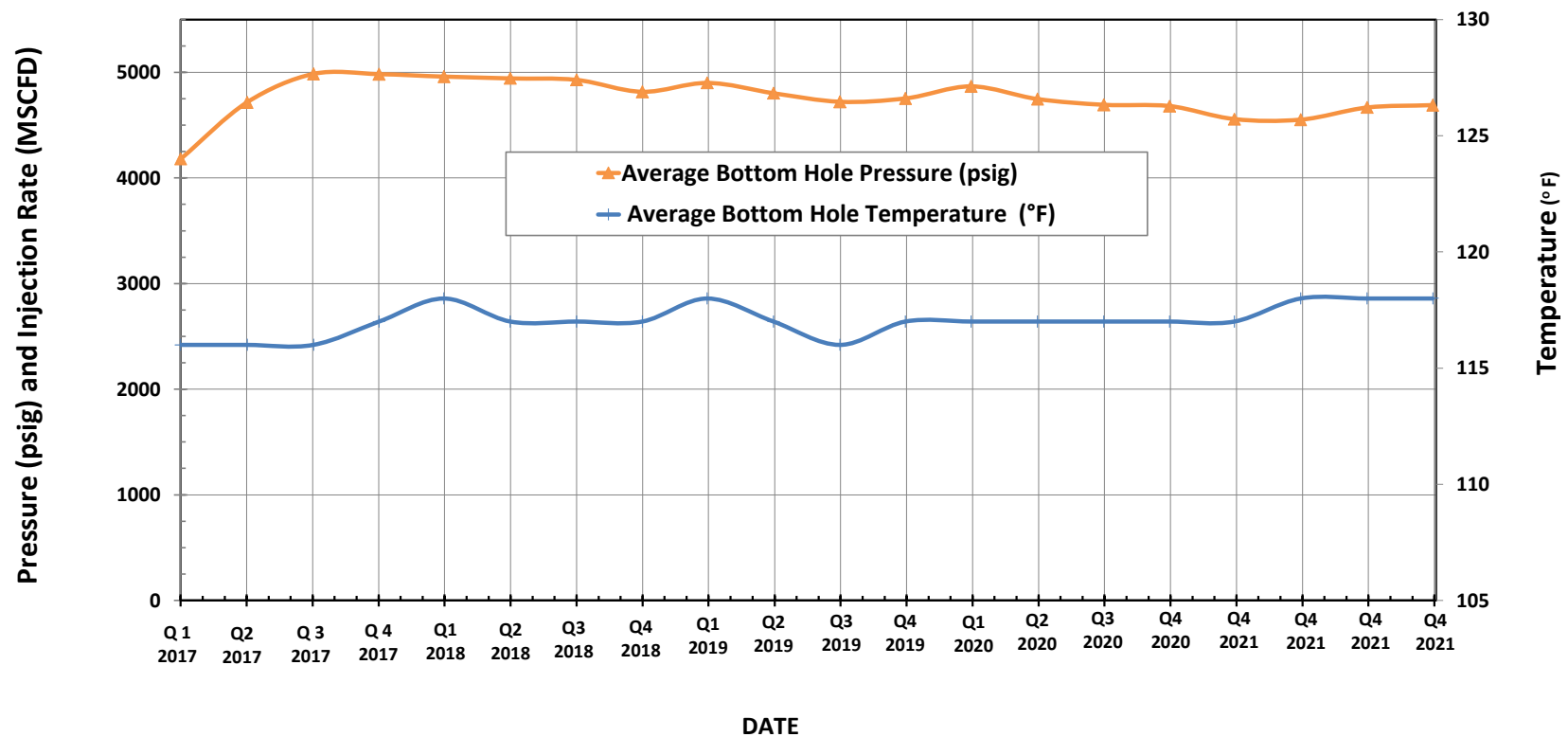
1. Exceedance of the approved MAOP of 3000 psig surface for a period greater than two hours.
2. Failure of a mechanical integrity test (MIT) of the well.
3. Confirmation of any condition that indicates a tubing, packer or casing leak.
4. Any increase of the annular pressure to a value that is more than 80% of the injection pressure.



5. Any release of H<sub>2</sub>S at the well which results in an activation of the facility's approved Rule 11 H<sub>2</sub>S contingency plan.
6. Any workover or maintenance activity that requires intrusive work in the well. Based on these analyses and quarterly monitoring of well injection parameters, Targa hereby requests no change to the currently-approved immediate notification parameters.

Figure 1 Monument AGI D #2 All Surface Injection Data



**Figure 2 Monument AGI D #2 Bottomhole Data**

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**State of New Mexico**  
**Energy, Minerals and Natural Resources**  
**Oil Conservation Division**  
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CONDITIONS

Action 109906

CONDITIONS

Operator: TARGA MIDSTREAM SERVICES LLC 811 Louisiana Street Houston, TX 77002	OGRID: 24650
	Action Number: 109906
	Action Type: [C-103] Sub. General Sundry (C-103Z)

CONDITIONS

Created By	Condition	Condition Date
mgebremichael	None	12/19/2022