Gmail wayne price <waynepriceq.com@gmail.com>

RE: [EXTERNAL] Wasserhund Inc Inc 2022 Annual report-Addendum Action #295323

1 message

Chavez, Carl, EMNRD <Carlj.Chavez@emnrd.nm.gov> Tue, Jan 9, 2024 at 2:28 PM
To: wayne price <waynepriceq.com@gmail.com>, jonrgandy Gandy <JonRGandy@aol.com>
Cc: "Goetze, Phillip, EMNRD" <phillip.goetze@emnrd.nm.gov>

Wayne and Jon,

Good afternoon!

The New Mexico Oil Conservation Division (OCD) completed its review of the addendum submitted in your E-mail message of December 16, 2023.

I can see that the OCD communication appears to have confused Wasserhund, Inc. (Wasserhund). OCD's computations with assumptions are different than Wasserhund's and were derived by basic algorithmic computations based on the "Brine Well Working Group" (2009) Useful Brine Well Calculations Sheet (Sheet).

First, the "V" in the RCC Formula is the volume of salt cavern cavity or void space created from 10,143,420 bbls of brine produced (See No. 1 below) from the well at the end of 2022.

The Sheet provides the estimated volume "V" of void space in barrels of brine based on the cumulative brine produced (See No. 2 below).

The volume "V" of void space is converted to cubic feet (See No.3 below) for the RCC Formula calculation.

The height of the salt cavern "h" (See No. 4 below) in the RCC Formula is estimated at 660 feet (Ft.) based on the maximum brine well TD (Ft.) in salt minus the casing shoe depth (Ft.).

The estimated radius "r" (Ft.) of the salt cavern is 116 Ft. and the diameter is 232 Ft. (See No. 5 below).

The OCD calculated ration of D/H (See No. 6 below) is estimated to be 0.162 which is much less than the 0.5 D/H.

OCD Final Conclusions (Case 3):

567 I 162 I 32.87313

1. Cumulative of 10,143,420 bbls of 10 lb Brine Produced in 2022.

2. Results in 1,643,234 bbls of salt cavern space (Assuming: 1 bbl brine removed equates to about 0.162 bbl of space)

3. Multiple No.2 by 1 bbl = 5.61 Ft3 to convert to a "V" of 9,218,542.96 Ft3 for RCC Formula.

4. h would be the TD minus the Casing Shoe Depth or 660 Ft.

5. r is equal to the Sq.Rt. (3V/3.14(h)) or 116 Ft. (Diameter = 2r or 232 Ft.)

6. D/H= Max. Diam. Ft./Depth to Casing Shoe in Ft.= 232 Ft./1895 Ft. or 0.162 <<0.5

The good thing is that both of our calculations indicated the salt cavern is safe and not likely to collapse.

OCD can see from your response to OCD's request for evaluation of the above Case 3 using the Sheet that you prefer to rely on your table form calculation method with macros you developed. OCD can also see that your assumptions on cavern height "h" are 50% less than OCD estimation. OCD recommends that the Permittee conduct sounding for depth to the base of the salt cavern when tubing is removed from the well in order obtain more accurate "h" values used in the RCC "V" calculation. If you wish to apply your table form calculation in the future, OCD requests that you display the calculations with assumptions as they are calculated by hand in a step-by-step process in order to be evaluated by the OCD. OCD will complete its review of the "2022 Annual Report" and include some conditions in our approval.

Please contact me if you wish to communicate further on the D/H estimation.

Thank you.

Carl J. Chavez ● UIC Group

Engineering Bureau

EMNRD - Oil Conservation Division

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From: wayne price <waynepriceq.com@gmail.com>
Sent: Saturday, December 16, 2023 3:01 PM
To: Chavez, Carl, EMNRD <Carlj.Chavez@emnrd.nm.gov>; jonrgandy Gandy <JonRGandy@aol.com>
Subject: [EXTERNAL] Wasserhund Inc Inc 2022 Annual report-Addendum Action #295323

Please find attached a clear version of the submittal.

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COMMENTS

Action 323822

COMMENTS

Operator: WASSERHUND INC P.O. Box 2140 Lovington, NM 88260	OGRID: 130851
	Action Number: 323822
	Action Type: [UF-DP] Brine Facility Discharge Plan (DISCHARGE PLAN BRINE EXTRACTION)

COMMENTS

Created By	Comment	Comment Date
cchavez	Annual Report 2022 Max. Salt Cavern Diameter Addendum Calculation by OCD	7/3/2024

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cchavez	None	7/3/2024