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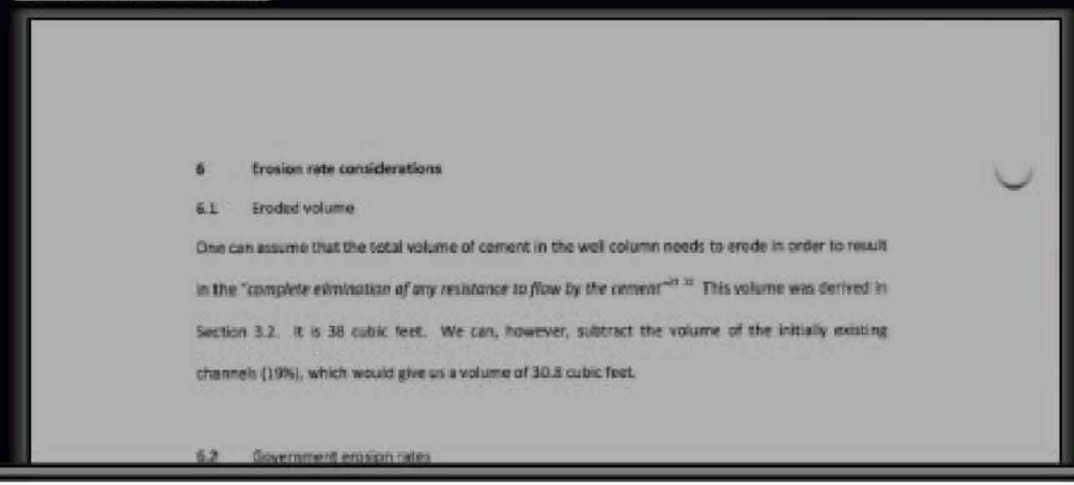

6 Erosion rate considerations

6.1 Eroded volume

One can assume that the total volume of cement in the well column needs to erode in order to result in the "*complete elimination of any resistance to flow by the cement*"[21] [22] This volume was derived in Section 3.2. It is 38 cubic feet. We can, however, subtract the volume of the initially existing channels (19%), which would give us a volume of 30.8 cubic feet.

6.2 Government erosion rates

Here, E_C is the cement volume V_C (in ft^3) that must be eroded in a given time period (in hours). This calculation is charitable to Griffiths because he mentioned *"any resistance to flow by the cement or other down-hole restrictions."*[24] Thus, not just the designated cement volume must be removed during the 9-hour period, but additional material (with probably higher erosion resistances, say steel in the float collar) as well. And as noted above, there would also have been cement in the annulus resisting flow.

[22] It could be argued that resistance to flow may end before all the cement eroded. As we will see, however, the government experts require an erosion rate that is much higher than any reported cement erosion rates. This assumption thus does not affect our results and simplifies our analysis.
[23] Griffiths Report, page 12 ("9 hours represents ... the time to complete elimination of any resistance to flow by the cement...").
[24] *Id.*

11

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