Business case: natural uranium contract price calculation

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Spot prices, $/lb U₃O₈, 2018

The contract price of the U₃O₈ shall be equal to the average of spot prices published by relevant known consulting companies over the period of six months preceding the delivery month. This applies a 5% discount.

Notes:
1. Contract price is determined in kilograms of uranium contained in U₃O₈. Consulting companies publish prices in pounds of U₃O₈.
2. Oxygen standard atomic weight is 16. To simplify calculations it is assumed that natural uranium contains U-238 isotope only.
3. Pound weight is 453,6 grams.

Need to calculate: contract price for delivery in November 2018.
Enriched uranium price calculation

\[ P(EUP) = Q(SWU) \times P(SWU) + \frac{Q(U_3O_8) \times P(conv)}{(1 - k2)} + \frac{Q(U_3O_8) \times P(U_3O_8)}{(1 - k1) \times (1 - k2)} \]

- \( Q(SWU) \) – estimated quantity of separation work units required to produce 1 kgU of enriched uranium;
- \( Q(U_3O_8) \) - estimated quantity of natural uranium required to produce 1 kgU of enriched uranium;
- \( P(SWU) \) – contract price of separation work unit;
- \( P(conv) \) - contract price of conversion of natural uranium oxide to hexafluoride, per kg of uranium;
- \( P(U_3O_8) \) - contract price of natural uranium, per kg of uranium;
- \( k1 \) – conversion loss rate;
- \( k2 \) – enrichment loss rate