

THE ASSET RETIREMENT OBLIGATION BLUEPRINT FOR OIL AND GAS COMPANIES

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If the owner of a backyard pool was asked to predict how much it would be to remove that pool to restore the backyard to its original state 30 years from now, how confident would he be with his estimate? What should he consider when making the estimate? What if a 30 year useful life was not right? How hard would it be to predict at what point in the future the value of the pool had diminished to a level where filling in the pool and restoring the backyard was preferred? Then what if he was told the pool service industry experiences large swings in its pricing depending on something uncontrollable and unpredictable like the weather. Coming up with the exact costs to remove a pool at some unknown time in the future would be extremely difficult. Now think about that scenario as it relates to oil and gas companies that have working interests in 10s to 1,000s of wells. This article present a blueprint to predict the future or at least a reasonable and logical method of calculating asset retirement obligations for the oil and gas industry.

What is an Asset Retirement Obligation?

Accounting Standards Codification (ASC) 410-20 describes an asset retirement obligation (ARO) as unavoidable cost associated with retiring a long-lived asset that arises as a result of either the acquisition, construction, or development of an asset.

In the oil and gas industry AROs usually consist of costs to:

- remove production equipment
- remove facilities at the well site
- restore the oilfield's surface land to its' original state before the oil and gas extraction

When is an Asset Retirement Obligation incurred?

ASC 410-25 states "an entity shall recognize the fair value of a liability for an asset retirement obligation in the period in which it is incurred if a reasonable estimate of fair value can be made. If a reasonable estimate of fair value cannot be made in the period the asset retirement obligation is incurred,

the liability shall be recognized when a reasonable estimate of fair value can be made.”

Typically, oil and gas exploration and production companies use the “Spud Date” as the date for when the ARO is incurred and estimable. To Spud is defined as, “To start the well drilling process by removing rock, dirt and other sedimentary material with the drill bit.”¹

How is an Asset Retirement Obligation calculated?

ASC 410-30 states “an expected present value technique will usually be the only appropriate technique with which to estimate the fair value of a liability for an asset retirement obligation. An entity, when using that technique, shall discount the expected cash flows using a credit-adjusted risk-free rate. The effect of an entity’s credit standing is reflected in the discount rate rather than in the expected cash flows. Proper application of a discount rate adjustment technique entails analysis of at least two liabilities—the liability that exists in the marketplace and has an observable interest rate and the liability being measured. The appropriate rate of interest for the cash flows being measured shall be inferred from the observable rate of interest of some other liability, and to draw that inference, the characteristics of the cash flows shall be similar to those of the liability being measured. Rarely, if ever, would there be an observable rate of interest for a liability that has cash flows similar to an asset retirement obligation being measured. In addition, an asset retirement obligation usually will have uncertainties in both timing and amount. In that circumstance, employing a discount rate adjustment technique, where uncertainty is incorporated into the rate, will be difficult, if not impossible.”

Key Inputs

The future cash flow method described above to calculate an ARO requires the below key inputs:

- Cost to settle the ARO—this is the amount at which the liability could be settled in a current transaction between willing parties in an active market.
- Date when the ARO will be settled—this is the date when the Company expects to plug and abandon the oil or gas well.

¹ Schlumberger Oilfield Glossary– <http://www.glossary.oilfield.slb.com/Terms/s/spud.aspx>

- Inflation factor—tend to be in the 1-3% range. Inflationdata.com or treasury rates from federalreserve.gov can be good sites to research inflation factors.
- Credit-adjusted risk-free interest rate (CARFR)—oil and gas companies typically use a rate at which they can borrow funds for their CARFR.

Completing the ARO Calculation

Below are the initial steps needed to complete an ARO calculation:

- 1) Determine the current costs to settle ARO (i.e. plug and abandon the well). To arrive at this estimate Companies can obtain a quote from an oilfield service provider, look at actual costs for a similar well that was recently plugged and abandoned, or have an estimate prepared internally with the assistance of operations personal.
- 2) Determine the estimated settlement date or date the well will be plugged and abandoned and calculate the future value of that liability based on inflation rate at inception of ARO.
- 3) Discount the future value of the ARO back to the date the liability was incurred using CARFR.

After the steps above have been completed the initial ARO entry would be:

- Debit—Capitalized Asset Retirement Costs (ARC)
- Credit—Asset Retirement Obligations (ARO)

It is important to keep in mind there is no impact to a company's income statement related to the initial entry for an ARO. The accounting offset when setting up the ARO liability is to debit capitalized asset retirement costs. The ARC then becomes a part of the oil and gas property accounts and is amortized on a unit-of-production basis over proved developed reserves. The ARC is also subject to impairment as it is a part of oil and gas property accounts.

Maintenance of the ARO

Accretion of the ARO

After the initial ARO liability is determined, the company must accrete that liability using the CARFR that was used to discount the future value calculation discussed in Step 2 above. The ARO must be accreted over time

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so the balance initially recognized at present value is adjusted to reflect the passage of time. Accretion is calculated by multiplying the prior year ARO balance times the CARFR. Accretion of the ARO is typically done on a monthly basis. See accretion entry below:

- Debit—Accretion Expense
- Credit—Asset Retirement Obligations (ARO)

Changes to Settlement Dates and Downward Revisions in Settlement Costs of the ARO

It is common for inputs used in the initial ARO liability calculation to change or be revised as time goes by due to new information about the oil or gas well or estimated plugging and abandonment costs. The settlement date can change if the company decides to plug the well sooner or later due to economic conditions. Also, the settlement costs might need to be decreased if the company receives new information which leads it to believe the initial settlement costs used are no longer reasonable.

Changes in estimated settlement dates (upward or downward) and downward revisions in estimated settlement costs should use the original liability CARFR.

The entry for these changes would not have an impact on the company's income statement it would just decrease or increase ARO and the offset would be recorded to the capitalized asset retirement costs account. See example below:

- Debit—Asset Retirement Obligations (ARO)
- Credit—Capitalized Asset Retirement Costs (ARC)

Upward Revisions in Settlement Costs of the ARO

Unlike changes in settlement dates or downward revisions in settlement costs, upward revisions of undiscounted future cash flows (i.e., estimated settlement cost increases), the incremental change is treated as a new liability and discounted at the current CARFR and not the original CARFR. This in essence creates a new ARO layer. For example—if settlement costs change from \$30,000 to \$35,000, the \$30,000 would continue to be discounted using the original liability CARFR and the \$5,000 increase would be discounted (as a separate line item/layer on the ARO schedule) using the current year CARFR.

- Debit—Capitalized Asset Retirement Costs (ARC)
- Credit—Asset Retirement Obligations (ARO)

Settlement of the ARO

Once the ARO is settled, it should be removed from the balance sheet and any difference (settlement amount vs. recorded ARO) is recorded as a gain or loss on the settlement of an ARO. See example entry below:

- Debit—Asset Retirement Obligations (ARO)
- Credit—Accounts Payable/Cash (actual settlement amounts)

If P&A > or < ARO Debit – Loss on P&A or Credit – Gain on P&A

What about AROs for Midstream Companies?

Determining asset retirement obligations is more difficult for midstream companies. Some midstream companies conclude that their pipelines have indeterminate lives because they are owned and will operate for an indeterminate future period when properly maintained. Rice Midstream Partners is an example of a midstream company that does not record AROs for its midstream assets. Their accounting policy footnote is stated as follows:

Asset Retirement Obligation

The Partnership operates and maintains its gathering systems and it intends to do so as long as supply and demand for natural gas exists, which the Partnership expects for the foreseeable future. Therefore, no asset retirement obligation has been recorded for its gathering systems as the Partnership believes that these assets have indeterminate useful lives.²

Not all midstream companies take the same stance as Rice Midstream Partners with regard to AROs. There are also several midstream companies that record AROs for their midstream assets. Based on their 10K disclosures, Dominion Midstream Partners, American Midstream Partners, and Targa Resources Corp. have all recorded AROs connected to their pipeline and gathering facilities.

² 2015 Rice Midstream Partners LP 10K filed on February 25, 2016

Items to consider when determining whether a company should record AROs for its midstream assets are: (a) length of right-of-ways, (b) any contractual or legal requirements to remove the midstream assets or restore the property to its original state, and (c) determining if the present value of the ARO is immaterial due to the length until the termination date.

Additional Items to Consider for Oil and Gas Industry Related AROs

- Accretion should be recorded through the revision date before making any upward or downward revisions to ARO.
- Cash flow statement classification—cash payments to settle an ARO should be classified as an operating activity.
- Any salvage value from equipment or facilities at the well site should not be considered when calculating the settlement costs for the ARO. A company should consider the salvage value for depletion purposes on the ARC, but it should not impact the ARO.
- Accretion expense should be included in the results from operations on the income statement and should be a separate line item if material.
- The current portion of a company's ARO reported on the balance sheet is management's estimate of amounts to be incurred over the next twelve months or what is required to be settled over the next twelve months. Occasionally, companies will use the economic life of the well in the reserve report to determine the current portion of AROs. However, the reserve report economic life does not necessarily mean the company will want to plug that well in the next year. Alternatively, the company could have plans to work the well over and extend the life of the well and hence the ARO would not be incurred in the next twelve months.

Audit Considerations

Most oil and gas companies will have financial statement auditors reviewing and testing their ARO calculations. The two biggest audit risks with AROs are completeness and valuation. The items below should be considered when preparing a company's ARO calculations.

Completeness

- Match wells listed on ARO Schedule to master well listing, and/or reserve report to ensure all AROs have been included and wells are not missed.
- Match working interests on ARO schedule to master well listing and/or reserve report to ensure the settlement costs are calculated based on the company's correct ownership in that well.

Valuation

- Compare estimated costs to actual plugging expenses incurred during the year to determine the need for revisions. Also have staff from the operations department review the estimates to ensure they are still reasonable.
- Test reasonableness of settlement dates by comparing to reserve report. They do not have to match exactly, but it is a starting point to identify possible revisions.
- Maintain documentation to support the CARFR and Inflation rates used each year to calculate new AROs.

Conclusion

Like most management estimates there are a significant number of judgements in the calculation of an ARO. The only certainty in calculating an ARO is that it inevitably will be wrong. Predicting the exact costs of a liability many years into the future is inherently difficult. Accountants must do their best to develop materially correct AROs and let time do the rest.