NEBRASKA

DEPT. OF ENVIRONMENT AND ENERGY

05-175I Revised June, 2021

Discounting Trust Fund Payments

This Financial Assurance Document for Solid Waste Facilities details the process of discounting trust fund payments over a designated payment period.

The trust fund financial assurance mechanism requires annual payments that must be deposited into the trust account. The Nebraska Administrative Code Title 132, Chapter 8 – Section 010.09 financial assurance regulations allow discounting of the trust fund payments for closure and post-closure care. The discount allowed is based on the long-term rate of return for essentially risk free investments, net of inflation. For financial assurance purposes the discount rate allowed is 2%. The 2% discount rate was determined by using Circular A-94 Appendix C, which is updated annually by the U.S. Office of Budget and Management. The website address is http://www.whitehouse.gov/omb/circulars_a094/a94_appx-c According to Circular A-94 Appendix C dated December 2013 the Real Discount Rate based on a 30 year Treasury Bond is 1.9%. The Nebraska Department of Environment and Energy (NDEE) will allow a 2% discount rate starting in 2015 and will review the discount rate every 5 years to determine if it is still appropriate according to Circular A-94 Appendix C.

The concept of discounting trust fund payments is based on the interest earned on a stream of payments to meet future obligations. The discounting method places a theoretical value on an investment. It is used to determine how much money should be invested annually over a particular time period to result in a certain sum at a future time. For example, if an investor wanted $1,000 in ten years, how much should be paid in as an annual deposit if he could earn 4% interest and it is assumed there will be a 2% annual inflation rate? This results in a real rate of return of approximately 2%. The calculation method for discounting trust fund payments by using a computer spread sheet is discussed later in this document.

For closure and post-closure cost estimates where the expenditures are scheduled to occur in the future (often many years in the future), a trust fund "pay in" schedule based on a discount rate can be used to determine the funding amount. Please note that this does not apply to other financial instruments such as surety bonds, letters of credit, and financial tests which are based on promises of future payments but do not require money to be set aside or invested to meet the financial obligations. Also, please note that this method of discounting does not discount cost estimates, however it does discount the payments made into a trust fund for accumulating funds over time.

Calculating Trust Fund Payments Using a Discount Rate:

To perform the calculation for the annual payment into a trust fund using a discount rate the financial formula “pmt” (payment) in a Microsoft Excel spreadsheet can be used. The calculation can also be performed by a business calculator with “time value of money” operations or from future value annuity tables. The following example illustrates the effects of discounting a trust fund "pay in" schedule using the input

variables for the “pmt” financial formula found in the “Financial” library under the formula tab in Microsoft Excel.

Discounting the Annual Cash Payments:

Perform the annual inflation update first to determine the new closure and post-closure cost estimates before entering any data, since the updated cost estimate is critical in establishing the payment.

Assumptions: Closure Cost Estimate: $600,000
Timing of Closure: 5 years
Discount rate: 2%
Bank Balance: $250,000

The 5-line data entry box (Figure 1, shown below) opens when the “pmt” financial formula is chosen.

(Fig.1) Landfill Closure

Rate	2%
Nper	5
PV	0
FV	-$350000
Type	1

Enter 2% as rate (Rate)
Enter “5” as number of periods or payments (Nper)
Enter $0 as a present value (PV)
Enter -$350000 as a future value (FV) (Enter as a negative number)
Enter “1” to set the payment for the beginning of the period (Type)

Find payment: $65,937. (NDEE prefers this method for calculating the trust fund payment if you are using a discount rate.)

- *Nper (*Remaining life of the landfill or phase of the landfill)
- *PV* (Present Value) is always “0” using this calculation payment method.
- *FV* (Future Value) is the amount of remaining funds to be deposited. It is calculated by subtracting the current value (CV) of the account from the newly inflated closure or post-closure cost estimate (CE). (CE – CV = FV) (Enter FV as a negative number)
- *Type* is usually “1” indicating that the deposit is made at the beginning of the year.
- Without discounting the "pay in" schedule would be $70,000.

A similar procedure is used for discounting post-closure costs. The effects of discounting the pay-in schedule for post-closure costs could be more dramatic due to the length of time to accumulate the funds. The longer the time period for making payments the larger effect the discounting has on the amount of the payments. Please note that the closure and post-closure time periods may differ because partial closure of the facility may occur when each phase is closed, however post-closure cost estimates are based on final closure of the facility. By discounting the post-closure payments over the life of the facility and updating the cost estimate for inflation each year, the full amount for post-closure should be accumulated when the facility closes and any interest earned over the post-closure period is anticipated to provide sufficient funds during post-closure.

Discounting the Annual Cash Payments including the Compound Interest that Accrues on the Cash Balance:

This is an alternative to the discounting method described above that can be used after an account balance has been accumulating for several years. This alternative takes into account the compound interest accruing on the account balance and the future earnings on the stream of payments. There is more risk associated with this discounting procedure because it relies on the real rate of return on the investments to be at least equal to the discount rate.

Perform the annual inflation update first to determine the new closure and post-closure cost estimates before entering any data since the updated cost estimate is critical in establishing the payment.

Assumptions: Closure Cost Estimate: $600,000
Timing of Closure: 5 years
Discount rate: 2%
Bank Balance: $250,000

The 5-line data entry box (Figure 2, shown next page) opens when the "pmt" financial formula is chosen.

(Fig.2) Landfill Closure

Rate	2%
Nper	5
PV	$250000
FV	-$600000
Type	1

Enter 2% as rate (Rate)
Enter "5" as number of periods or payments (Nper)
Enter $250,000 as a present value (PV) (Account balance)
Enter -$600,000 as a future value (FV) (Enter as a negative number)
Enter "1" to set the payment for the beginning of the period (Type)

Find payment: $61,035.

Note: There are three inputs that change from year to year using this method:

- *Nper* (life of the landfill or phase)
- *PV* (the current account balance)
- *FV* (amount of the current cost estimate). Enter FV as a negative number.
- Since the current account balance is incorporated into the formula it is not necessary to subtract the account balance from the cost estimate in this alternate discounting procedure. The *FV* (Future Value) in this calculation is equivalent to the *CE* (Cost Estimate).

Comparison of Payments between (Figure 1) Discounting the Annual Cash Payments and (Figure 2) Discounting the Annual Cash Payments including the Compound Interest on the Cash Balance:

- The discounting procedure in Figure 1 results in a higher payment than the Figure 2 procedure in the short term. However, if the discounting period is long, such as 30 or more years, the Figure 1 procedure will accumulate the funds faster because of the higher payments during the first few years and the payments will start dropping dramatically in the last part of the payment period. The payments in the Figure 2 procedure will increase each year, especially, if the return on the investment does not match expectations.
- The Figure 1 procedure has less risk than the Figure 2 procedure. With the Figure 2 procedure there is inherently more risk involved because the assumptions that are being made for the real rate of return on the investment is attributed to both the present account balance and to all future cash payments. If the rate of return is less than 2% on any given year there will be a more dramatic increase in future trust payments. The Figure 1 procedure has built in safety features that will help overcome returns that are less than anticipated.

RESOURCES:

- NDEE Home Page http://dee.ne.gov/

Contacts:

- NDEE Waste Management Section (402) 471-4210
- NDEE Toll Free Number (877) 253-2603
- Email questions to: NDEE.moreinfo@nebraska.gov

NDEE Publications:

- Financial Assurance for Solid Waste Facilities – Enterprise Fund
- Financial Assurance for Solid Waste Facilities – Trust Agreements
  Financial Assurance documents can be found on the NDEE website under "*Publications & Forms*"

- Title 132 – Integrated Solid Waste Management Regulations
  Titles are available on the NDEE Home Page under "Laws/Regs & EQC", "Rules & Regulations"

Produced by: Nebraska Department of Environment and Energy, P.O. Box 98922, Lincoln, NE 68509-8922; phone (402) 471-2186. To view this, and other information related to our agency, visit our web site at ***http://dee.ne.gov****.*