national accelerator laboratory

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0041

METHODS OF CALCULATING ACCRUALS, COSTS, AND COMMITMENTS FROM RELIEF TRANSACTIONS

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The data processing routines which are used to process the Laboratory's accounting and purchasing transactions are being modified to permit the entry of accrual transactions. This paper describes the formulas used to compute changes in accruals, costs, and commitments caused by relief transactions.

Two files of data are created and updated by the incoming accounting and purchasing transactions: 1) the transaction file and 2) the unliquidated (open) purchase-order file.

The transaction file contains one, and in certain cases two, records for each incoming transaction in a reporting period. Each record contains the following quantities:

1. Change in accrued cost
2. Change in disbursement
3. Change in unaccrued commitment
4. Change in unliquidated commitment.

The open purchase-order file contains one record for each unpaid purchase order. Each of these records contains the following amounts:

1. Current total commitment
2. The unaccrued amount of the total commitment
3. The unliquidated amount of the total commitment.

The following symbols will be used in the discussion which follows:

A = change in accrued cost

AC = change in disbursed cost

C = prior unaccrued commitment

C' = new unaccrued commitment

CC = change in unaccrued commitment

CCU = change in unliquidated commitment

CU = prior unliquidated commitment

CU' = new unliquidated commitment

V = amount of the incoming transaction.

Accrual Transactions

Accrual transactions are distinguished from total reliefs and partial reliefs by having an "A" punched in column two of the transaction card. Each accrual must contain at a minimum the work package/cost element, an entry date, and an amount. If specific purchase orders are being accrued, the purchase-order number must be entered.

Case 1

The work package/cost element of an accrual against a purchase order matches that of the purchase order, or the accrual is not against

a purchase order, or the purchase order is not in the file:

A = V

AC = O

CC = -V

CCU = O

C' = C-V

CU' = CU.

Case 2

The work package/cost element of the transaction does not match that of the purchase order. Two transactions are generated, one against the purchase order work package/cost element, the second against the transaction work package/cost element:

Purchase Order WP/CE:

A = O

AC = O

CC = -V

CCU = O

C' = C-V

CU' = CU.

Transaction WP/CE:

A = V

AC = O

$$CC = O$$

$$CCU = O.$$

Total Relief Transactions

A total relief causes the removal of a purchase order from the file, paying it off completely.

Case 1

The work package/cost element of the transaction matches that of the purchase order, or the relief is a journal entry, or is against a purchase order not in the file:

$$A = V + (C - CU)$$

$$AC = V$$

$$CC = -C$$

$$CCU = -CU$$

$$C' = O$$

$$CU' = O.$$

Case 2

The work package/cost element of the transaction does not match that of the purchase order. Two transactions are generated, the first against the purchase-order work package/cost element and the second against the transaction work package/cost element.

Purchase Order WP/CE:

$$A = (C - CU)$$

$$AC = O$$

CC = -C

CCU = -CU

C' = O

CU' = O.

Transaction WP/CE:

A = V

AC = V

CC = O

CCU = O.

Partial Relief Transactions

A partial relief transaction reduces the unaccrued and unliquidated commitments but does not remove the purchase order from the file unless the value of the relief equals or exceeds the unliquidated commitment.

Case 1

The work package/cost element of the transaction matches that of the purchase order, or the relief is against a purchase order not in the file:

A. When V < CU

If SIGN (V) $\neq$ SIGN (C - CU) and $|V| \leq |C - CU|$ then A = O.

If SIGN (V) $\neq$ SIGN (C - CU) and $|V| > |C - CU|$ then A = V + (C - CU).

Otherwise, A = V

AC = V

CC = -A

CCU = -V

C' = C - A

CU' = CU - V.

B. When V ≥ CU

A = V + (C - CU)

AC = V

CC = -C

CCU = -CU

C' = O

CU' = O.

Case 2

The work package/cost element of the transaction does not match that of the purshase order. Two transactions are generated, the first against the purchase order work package/cost element and the second against the transaction work package/cost element.

A. When V < CU

Purchase Order WP/CE

If SIGN (V) ≠ SIGN (C - CU) and $|V| \leq |C - CU|$ then A = -V. If SIGN (V) ≠ SIGN (C - CU) and $|V| > |C - CU|$ then A = C - CU. Otherwise A = O.

AC = O

CC = - (V + A)

CCU = -V

$C' = C + CC = C - (V + A)$

$CU' = CU + CCU = CU - V.$

Transaction WP/CE

$A = V$

$AC = V$

$CC = O$

$CCU = O.$

B. When $V \geq CU$

Purchaser Order WP/CE

$A = (C - CU)$

$AC = O$

$CC = -C$

$CCU = -CU$

$C' = O$

$CU' = O.$

Transaction WP/CE

$A = V$

$AC = V$

$CC = O$

$CCU = O.$