IMPROVING THE METHODOLOGY OF ACCOUNTING FOR FINISHED PRODUCTS IN THE OIL AND GAS INDUSTRY

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Annotation. The main objective of this article is to properly organize finished goods accounting in the oil and gas industry. To achieve this goal, the following objectives were defined: studying the specifics of the oil refining production process, conducting a theoretical study of cost allocation in the oil and gas industry, and methods for allocating complex costs in oil refining, examining cost accounting and calculation objects, and properly allocating complex expenses. In this article, we will examine in detail how to properly manage finished goods accounting and determine the financial result (profit or loss) in accounting based on the regulatory documents of the Republic of Uzbekistan.

Keywords: finished goods, costs, cost price, complex costs, by-product, planned (standard) cost price, accounting prices.

INTRODUCTION

Finished goods are part of production inventories held for sale. Unlike other inventories, finished goods are assets produced by the enterprise and represent the end result of the production cycle—that is, assets that have been processed (assembled), and whose technical and quality characteristics comply with the terms of the contract or the requirements of other documents, where established by law.

Finished goods are recorded at production cost. The production cost of finished goods includes costs directly related to their production in accordance with the technology and organization of production (Clause 1 of the Regulation on Cost Composition, approved by Resolution No. 54 of the Cabinet of Ministers of the Republic of Uzbekistan dated February 5, 1999).

Finished goods are accounted for in quantitative and monetary terms. Quantitative accounting of finished goods is conducted in units of measurement adopted by the enterprise, based on their physical properties (volume, weight, area, linear units, or per piece). Homogeneous products may be accounted for in terms of conventional units of measurement (e.g., canned goods in conventional cans, pig iron equivalent, liters and tons in oil refining, individual product types based on their weight or volume of useful substance, etc.).

LITERATURE REVIEW

Like other sciences, the study and development of accounting has a theoretical, practical, and scientific approach. For example, the double-entry bookkeeping method, developed by the great Italian mathematician Luca Pacioli (1445–1517), is neither a theory of accounting nor a scientific discovery. Luca Pacioli created only one practical approach to accounting, and his discovery became the foundation for the theoretical and scientific development of this science. Later, in the mid-19th century, the science of accounting received scientific development. Therefore, special attention was paid to costs as an extension of separate accounting and costing. According to the German scientist A. Kalmes, "Costing is used for the following purposes: reducing costs, determining the selling price, and evaluating products in current accounting."

Also Russian scientists N.A. Blatov, R.Ya. Weizman, A.P. Rudanovsky and A.M. Galagan very carefully explored the need to determine value.

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According to B.A. Khasanov, R.O. Kholbekov and other scientists, the cost in each entity is the choice of an accounting method based on the characteristics of the entity [10].

RESEARCH METHODOLOGY

In the process of conducting the research, general scientific methods of cognition, techniques of comparative analysis, systematization and generalization of information, as well as accounting methods were applied.

ANALYSIS AND RESULTS

The costs that make up the production cost of finished products are grouped according to the following elements:

- production material costs (minus the cost of recyclable waste);
- labor costs associated with production;
- social security costs related to production;
- depreciation of fixed assets and intangible assets for production purposes;
- other production costs.

Other costs also include expenses for mandatory certification (clause 1.5.7, Section B of the Regulation on Cost Structure). Since May 1, 2021, the list of products subject to mandatory technical examination for compliance with regulatory requirements has been established by Resolution No. 43 of the Cabinet of Ministers of the Republic of Uzbekistan dated January 30, 2021 (since November 16, 2021, the list has been shortened by Resolution No. 683 of the Cabinet of Ministers of the Republic of Uzbekistan dated November 16, 2021).

It should be noted that for value-added tax payers and legal entities with a state share in the authorized capital of 50% or more, from April 1, 2024, it is mandatory to reflect in the automated information system of tax authorities “E-aktiv”:

all operations related to the acceptance of inventories into accounting;

information on the deregistration of inventories in the event of their loss, wear and tear, damage, etc., no later than 3 working days.

Until April 1, 2024, the reflection of the specified data in the E-aktiv system is carried out on a voluntary basis (clause 7 of the Resolution of the President of the Republic of Uzbekistan dated June 14, 2023 No. PP-192).

From August 1, 2026, for manufacturers of certain packaging materials and goods that, after losing their consumer properties, cause damage to the environment (with the exception of exported goods), a system of “extended obligations” will be introduced, providing for their phased collection, disposal and (or) processing (clause 4“g” of the Resolution of the President of the Republic of Uzbekistan dated May 31, 2023 No. PP-171) [1,2,3].

The oil refining industry determines the cost of petroleum products using the process and standard methods.

With the process-by-process method of determining cost, the cost of the entire product is determined first, followed by the cost per unit. Depending on the industry, the process-by-process method of calculating cost can be implemented in two versions: semi-finished and non-semi-finished.

In the semi-finished product variant, the production cost is calculated for each stage of production. It consists of the production costs of the previous stages and the expenses for the current stage. The production cost of the final stage is the cost of the entire finished product.

In the case of a semi-finished product-free approach, only the cost of the final stage of production is calculated. Costs are accounted for separately for each stage of production, ignoring the cost of production from previous stages. The cost of finished goods includes the costs of production across all individual stages.

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When producing simultaneously from the same raw materials and supplies in a single technological process, different types of products can be produced, each with its own selling price. Such products are called jointly produced.

Products that appear in the process of production of the main product, the cost of sale of which is significantly lower than that of the main product, are called by-products.

Jointly produced products differ from by-products in that they are not identified (defined) as distinct products until the split-off point is reached. That is, before the split-off point, they do not exist as separate products.

A split point is a point in a process where joint products are recognized as individual products.

If the cost of selling the jointly produced product can be determined at the split point, then production costs are allocated among the types of jointly produced products using one of the following methods:

- by the method of natural indicators;
- by the method of cost of realization at the split-off point.

The split-off point cost method allocates costs before the split-off point to each primary product in proportion to its share of total estimated sales revenue. This means that when using this method, integrated costs are allocated to jointly produced products in proportion to their estimated sales costs.

The split-point cost method suffers from one serious drawback: it relies on the assumption that prior costs are determined by sales revenue. This means that, in practice, a low-margin product with low sales revenue will be allocated a small portion of the total costs.

The physical indicator method assumes that costs before the split-off point are allocated to each primary product in proportion to its share of total production, expressed in physical indicators such as weight or volume. If the selling prices of jointly produced products differ, assuming the same unit cost for each product will result in some products showing high profits and others showing losses.

When co-producing a liquid and solid product, density tables or conventional physical units should be used when using the physical indicator method. If individual types of co-produced products undergo subsequent processing and their selling price cannot be determined at the splitting point, then production costs are allocated to the co-produced products using one of the following methods:

- net realizable value method;
- constant percentage gross profit method.

The net realizable value method assumes that the costs of jointly produced products are allocated proportionally to their net realizable value. To determine net realizable value, additional costs incurred after the split-off point are subtracted from the selling price.

The constant gross profit percentage method assumes that costs are allocated so that the percentage of total gross profit is the same for each individual product and equal to the total gross profit. This method includes:

- calculation of gross profit percentage;
- determination of the cost of goods sold and distribution of costs of complex production.

A minor assumption in using the constant gross profit percentage method of allocating manufacturing costs is that it assumes a homogeneous relationship between costs and sales volume at the individual level for each product.[4].

Distribution of complex costs

An oil refinery produces three co-products in a single process. After the separation point, each product can be further processed. Estimated data for June are provided below.

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Table 1.

	Product A	Product B	Product C
Selling price at the split point, USD per liter	16	15	17
Selling price after further processing, USD per liter	20	25	35
Costs after the split point, c.u.	130,000	80,000	150,000
Product yield, l	25,000	20,000	15,000

According to calculations, the complex costs up to the split point amount to 120,000 USD, and the company practices distributing them among three types of products in accordance with their output in liters.

The distribution of complex costs (physical indicators method) and profit for June are shown below:

Table 2.

Product	Product yield, l	Share in total output	Complex costs, e.u	Costs after the split point, e/u	Proceeds from sales after further processing, e.u	Profit (loss)
A	25,000	25,000/60,000	50,040	130,000	170,000	(10,040)
IN	20,000	20,000/60,000	39,960	80,000	180,000	60,040
WITH	15,000	15000/60000	30,000	150,000	260,000	80,000
Total:	60,000	60000/60000	120,000	360,000	610,000	130,000

An incremental analysis of revenues and costs was conducted to determine the feasibility of further processing of products:

Table 3.

	Product A	Product B	Product C	Total
Incremental revenues	(20-16)x25000= 100,000	(25-15)x20000 = 200,000	(35-17)x15000 = 270,000	570,000
Incremental costs	130,000	80,000	150,000	360,000
Incremental profit (loss)	(30,000)	120,000	120,000	210,000

The table shows that further processing of product A should be abandoned, as the losses from processing amount to $30,000. The company would profit from processing products B and C, each worth $120,000. Conclusion: processing can continue as long as the additional revenue exceeds the additional costs.

Accounting of finished products at book prices in the oil and gas industry.

The following can be used as accounting prices:

- planned (standard) cost;
- actual cost of finished products of previous periods;
- selling (wholesale) price, etc.

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The enterprise establishes a specific option for the accounting price independently in its accounting policy.

Throughout the month, finished goods are shipped and written off from the warehouse at book prices. At the end of the month, the total amount of goods shipped is calculated by group at book prices.

Next, the actual production cost of the product and the percentage of its deviation from the cost in the accounting estimate are determined:

The percentage deviation is determined as follows:

$$\frac{\text{Deviation in product balances at the beginning of the month + Deviation in products released during the month}}{\text{Book value of balances at the beginning of the month + Book value of manufactured products}} \cdot 100$$

The amount of deviations in shipped products is determined by the formula:

$$\text{Book value of finished goods} \times \text{Percentage of deviations}$$

Based on the percentage of deviations, the finished goods shipped per month are brought up to the actual cost price, that is, regardless of the method for determining the accounting prices, the total cost of the finished goods (accounting cost plus deviations) must be equal to the actual cost price.

Example of calculating the actual cost of shipped products (commodity balance):

Table 4.

№	Indicators	January	February	March	1st quarter
1.	Balance of finished goods at the beginning of the month:				
	a) at book prices	100	75	55	
	b) at actual cost	165	108	56	
2.	Finished products received from production:				
	a) at book prices	140	150	300	590
	b) at actual cost	180	120	210	510
3.	Total (page 1 + page 2):				
	a) at book prices	240	225	355	
	b) at actual cost	345	228	266	
4.	Deviation coefficient (the ratio of the actual cost of the remainder and finished goods received from production to their cost at book prices (p. 3b p. 3a)	1.4375	1.0133	0.7493	
5.	Finished products shipped:				
	a) at book prices	165	170	250	585
	b) at actual cost (line 5a x line 4)	237	172	187	596
6.	Balance of finished goods at the end of the month (p.3-p.5):				
	a) at book prices	75	55	105	
	b) at actual cost	108	56	79	

In some cases, oil refineries ship finished products with a markup or discount on the selling price, meaning the contractual selling price differs from the selling (calculated) price at which the

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finished product is recorded in the warehouse. The amounts of these markups (markdowns) are included in the selling price when determining the percentage deviation between the actual cost and the book price in the period in which the finished product was sold. An example of a product balance sheet taking into account markups and discounts on the selling price:

Table 5.

№	Indicators	January	February	March	1st quarter
	Balance of finished goods at the beginning of the month:				
1.	at selling prices	100	85	100	
2.	at actual cost	65	52.7	64.7	
	Finished products received from production:				
3.	at selling prices	140	140	190	470
4.	at actual cost	90	90	126	306
5.	Finished goods worth the additional value (markdown) of the selling price	10	-5	12	17
6.	Sum of rows (1+3+5)	250	220	302	
7.	Sum of rows (2+4)	155	142.7	190.7	
8.	Odds (7/6)	0.62	0.65	0.63	
	Finished products shipped:				
9.	at selling prices	165	120	188	473
10.	at actual cost	102.3	78	118.44	298.74
	Balance of finished goods at the end of the month:				
11.	at selling prices	85	100	114	
12.	at actual cost	52.7	64.7	72.26	
13.	Profit (9-10)	62.7	42	69.58	174.26

Accounting for finished products at book prices can be carried out using an additional account (for example, account 3710 - “Production of products (works, services)”) or without it.

The debit of account 3710 – “Production of goods (works, services)” reflects the actual production cost of the products released from production (in correspondence with accounts 2010 “Main production”, account 2310 “Auxiliary production”, etc.).

The credit of account 3710 – “Production of goods (works, services)” reflects the standard (planned) cost of manufactured goods (in correspondence with accounts 2810 “Finished goods in warehouse”, 9110 “Cost of finished goods sold”).

By comparing the debit and credit turnovers of account 3710 – “Production of goods (works, services)” on the first day of the month, the deviation of the actual production cost of the released goods from the standard (planned) cost is determined.

Savings, i.e., the excess of the standard (planned) cost over the actual cost, are reversed on the credit of account 3710 - “Production of goods (works, services)” and the debit of account 9110 “Cost of finished goods sold”[11,12].

Overspending, i.e. the excess of the actual cost over the standard (planned) cost, is written off from account 3710 - “Production of goods (works, services)” to the debit of account 9110 “Cost of finished goods sold” by an additional entry.

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Table 6.

Accounting for finished goods using an account 3710 – "Production of goods (works, services)"		
	Debit	Credit
Write-off of the actual cost of finished goods produced	3710 – "Production of goods (works, services)"	2010 "Main Production" 2310 "Auxiliary production"
Release of finished products at standard (planned) cost	2810 "Finished goods in warehouse"	3710 – "Production of goods (works, services)"
Write-off of finished goods when sold at standard (planned) cost	9110 "Cost of finished goods sold"	2810 "Finished goods in warehouse"
The deviation is written off - the excess of the actual cost over the standard (planned) cost	9110 "Cost of finished goods sold"	3710 – "Production of goods (works, services)"
The deviation is written off - a decrease in the actual cost over the standard (planned) cost (reversal entry)	9110 "Cost of finished goods sold"	3710 – "Production of goods (works, services)"

Accounting for finished products at planned (standard) cost in the oil and gas industry.

During the reporting period, the company produced and sold 10,000 sets of candles at a price of 22,400 soums per set for a total of 224,000 soums, including value-added tax (VAT) of 24,000 soums. Finished goods are accounted for at planned prices. The planned cost of one set was 15,000 soums; the actual cost was 22,000 soums.

The accounting policy of the enterprise provides for the accounting of finished products at book prices.

If account 3710 "Production of goods (works, services)" is used, the debit of the account reflects the actual production cost of the products released from production, and the credit reflects the standard (planned) cost of the manufactured products.

By comparing the debit and credit turnovers on account 3710 on the first day of the month, the deviation of the actual production cost of the products released from production from the standard (planned) cost is determined.

Table 7.

No.	Content business transaction	Sum thousand soums	Correspondence of accounts		Supporting documents
			Debit	Credit	
1.	Finished goods were received into the warehouse at the planned cost price	150,000	2810	3710	Receipt order, accounting calculation
2.	The actual cost of finished products is reflected	220,000	3710	2010	Accounting calculation
3.	Reflects income from the sale of finished products	200,000	4010	9010	Purchase and sale agreement

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4.	Value added tax (VAT) has been accrued from the sale of finished products	24,000	4010	6410	Invoice
5.	The standard cost of finished products has been written off	150,000	9110	2810	Accounting calculation
6.	The amount of excess of the actual cost of finished products over the standard cost is written off	70,000	9740	3710	Accounting calculation

CONCLUSIONS AND SUGGESTIONS

In our opinion, account 3710 - "Production of Goods (Works, Services)" should be used when developing an enterprise's accounting policy. This account is used to determine the deviation of the actual cost of finished goods from the standard or planned cost. Using this account reduces labor costs for determining the actual cost of goods sold and the actual cost of goods sold. The debit of this account reflects the actual cost, and the credit reflects the standard or planned cost.

The actual cost is transferred from the credit of account 2010 “Main production” to the debit of account “Production of goods (works, services)”.

Debit 3710 – “Production of goods (works, services)”

Credit 2010 – “Main production”.

The standard or planned cost is reflected on the credit of the account “Products (works, services)” and the debit of account 2800 – “Finished goods”.

Debit 2800 – “Finished goods”

Credit 3710 – “Production of goods (works, services)”.

For this reason, we suggest using account 3710 – "Production of Products (Works, Services)" – in the oil and gas industry and including it in your accounting policies. The formation of the financial result is presented in the table below.

Table 8.

Formation of financial results

№	Active	№	Suggested
1.	Actual cost of "Main production"	1.	Actual cost of "Main production"
		2.	"Production of goods (works, services)"
2.	Planned cost of "Finished goods in warehouse".	3.	Planned cost of "Finished goods in warehouse".
3.	"Revenue from sales of finished products"	4.	"Revenue from sales of finished products"
4.	Cost of finished goods sold	5.	Cost of finished goods sold
		6.	Unforeseen profits or losses in production
5.	Final financial result	7.	Final financial result

As can be seen from the table, when using 3710 – “Production of goods (works, services)”, “Unforeseen profits or losses in production” arise, which affects the formation of the final financial result.

Unforeseen profits in production occur when the cost of production is less than the standard or planned cost. This is reflected in the following accounting entry:

Debit 3710 – “Production of goods (works, services)”

Credit "Unforeseen profit in production".

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Unforeseen losses in production occur when the cost of production exceeds the standard or planned cost. This is reflected in the following accounting entry:

Debit "Unforeseen losses in production"

Credit 3710 – “Production of goods (works, services)”.

As a result of the above calculation, it is necessary to use accounts 9730 – “Unforeseen profit in production” and 9740 – “Unforeseen losses in production”.

In the “Financial Performance Report” form of the enterprise, you can see how unexpected profits or losses in the production of products (works, services) as a result of 3710 - “Production of products (works, services)” affected the final financial result.

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