

## Research on Cost Accounting and Control based on Activity-Based Costing in Oilfield Enterprise

Weihong Zhang <sup>a</sup>, Xinmeng Wang <sup>b</sup> and Qiannan Wu <sup>c</sup>

School of Economics and Management, Xidian University, Xi'an 710126, China

<sup>a</sup>whzhang@mail.xidian.edu.cn, <sup>b</sup>18729019196@163.com, <sup>c</sup>784869129@qq.com

### Abstract

**The cost refined management in the oilfield enterprise is the internal demand to ease the cost pressure and the external requirement to implement the industrial new system. Based on the principle of activity-based costing method, the paper identifies the activity unit in the oilfield enterprise, establishes the resource and activity standard cost library via the twice accumulations on the resource cost and activity cost, conducts the cost variance analysis, traces the cost responsibility and perfects the cost accounting and control procedure in the oilfield enterprise under the activity-based costing method, thus providing the reference for the oilfield enterprise to implement the new system and improve the cost accounting and control method.**

### Keywords

**Oilfield enterprise, Activity-based costing method, Cost driver, Cost accounting, Cost control.**

### 1. Introduction

The Ministry of Finance firstly promoted the construction of industrial product cost accounting system in petroleum and petrochemical industry. Since January, 2015, the large and medium-sized petroleum and petrochemical enterprises began to implement Enterprise Product Cost Accounting System- Petroleum and Petrochemical Industry (hereinafter referred to as "new system"). The new system introduced activity-based costing method accumulation and accounted the oil-gas product production cost, while the activity-based costing method can rationally allocate the indirect cost, provide the accurate cost information, make up the deficiency of traditional cost accounting method, and truly reflect the oil-gas product production cost. The activity-based costing method can control the production cost from the source of cost formation (operation). Starting from the activity chain, we can distinguish the value-added activity and non-value-added activity on the one hand, thus eliminating the non-value-added activity or reducing the non-value-added activity cost and realizing the optimization of value chain; On the other hand, we shall establish the four-class responsibility system including first activity, secondary activity, activity chain and individual based on the activity system.

How to implement the activity-based costing accounting and establish a set of complete activity-based costing control process in the oilfield enterprise? How to trace the cost responsibility and improve the cost management level via the variance analysis? In order to answer the above questions, the paper firstly researches the complete process from the activity division, determination and allocation of resource element, selection of cost driver and the establishment of activity standard cost; then traces the cost responsibility on the variance cost from two dimensions of activity chain and responsibility center; and finally proposes the management suggestions on the cost accounting and control for the oilfield enterprise to apply for the activity-based costing method.

### 2. Brief review for literatures

Seen from the existing research results of relevant fields, it mainly performs as the research on the cost driver of oilfield enterprises' production cost as well as the practice research on oilfield enterprises' cost accounting and control.

In the aspect of research on cost driver of oilfield enterprises' production cost, Huo Jianglin and Zhao Zhenzhi (2010) carried out activity-based driver analysis on oilfield enterprises. They divided the production cost into short-term variable cost (variable cost per ton of oil), long-term variable cost (activity-based variable cost) and fixed cost and established the activity-based driver cost behavior analysis model for oilfield enterprises<sup>[1]</sup>. Sheng Yanmei (2010) used the empirical research method to study the cost driver selection of activity-based costing method, analyzed four major elements such as the resource object, activity-based object and cost driver and explained the reasons of the implementation of the activity as well as the measurement index of the resources' activity consumption degree<sup>[2,3]</sup>. Fan Zhigang, Zhang Yanting (2010) and Qi Jianmin (2013) studied the strategic cost drivers of oilfield enterprises and determined six key strategic cost drivers such as the environmental factors, investment scale, clean production, social responsibility, technological progress and resource grade<sup>[4,5]</sup>.

In the aspect of research on the cost accounting and control of oilfield enterprises, Li Hui (2010) demonstrated that it had feasibility for petroleum enterprises to apply activity-based costing method for cost accounting. Combining with the process flow of petroleum exploitation enterprises, the cost accounting process under activity-based costing method was design, and the the product cost was obtained by calculating<sup>[6]</sup>. Meng Lili (2012) and Xin Weina (2012) respectively applied activity-based costing method into the cost control of desert oilfield and the cost control practice of Daqing oilfield enterprises and elaborated the procedure of activity-based costing method in the cost control of oilfield enterprises<sup>[7,8]</sup>. After the interpretation for the cost accounting system of enterprises' products - petroleum and petrochemical industry, Ouyang Xi (2016) pointed out that oilfield enterprises adopting the activity-based costing method could increase the dimension of activity process to accumulate, distribute and carry forward oil and gas products' cost and proposed that the oil and gas products' cost accounting under activity-based costing method was divided into four main procedures, such as determining the cost accounting object, setting cost center, activity process dimension as well as distributing and carrying forward product cost<sup>[9]</sup>.

It is found by analyzing the above literature that the research is mainly focused on the cost driver as well as the practical summary of some oilfield enterprises' experience in cost management. The research that applying activity-based costing method in the cost accounting for oilfield enterprises' oil and gas products is not much, and complete cost control system still can't be formed. For the refinement of product cost accounting and the effectiveness of cost control of oilfield enterprises, there is lack of operational practical guidance. This article applies activity-based costing method in oilfield enterprises' cost accounting and combines with the characteristics of oilfield enterprises' production process flow, to explore the new way of oilfield enterprises' cost accounting and control under the activity-based costing method.

### **3. Design for cost accounting and control of oilfield enterprises under activity-based costing method**

#### **3.1 The requirement of new system on the cost accounting of oilfield enterprises**

At present, the cost accounting of China's petroleum enterprises is adopted the hierarchical management system, implementing the first accounting for the headquarters, with the secondary unit and third basic unit as the cost accounting center. China National Petroleum Corporation decomposes the target to all secondary units. Oilfield branches (secondary units) then decompose all targets to all the third basic units. Oil extraction plants (the third basic units) directly calculate their direct materials, direct labor and other direct expenditures into their cost accounting objects. The indirect costs are calculated in the oil and gas production cost according to certain standards in proportion. According to the characteristics of process and production flow of oilfield enterprises, this article takes the oil extraction plant as the cost accounting center, and the total production cost is finally collected and distributed to the unit product to calculate the product's unit cost.

The new system stipulates that the procedures of oil and gas products' cost accounting include: determining oil and gas products as the accounting object, which generally divides cost factors according to cost center, carrying out the cost accumulation for oil and gas products, distributing and carrying forward for oil and gas products' cost by equivalent coefficient method according to benefit principle. Such "three-step" cost accounting, namely, "determining the cost accounting object - setting cost center (cost accumulation) - distributing and carrying forward product cost, has little difference with the calculation method under traditional cost accounting method.

### 3.2 Design for cost accounting and control process of oilfield enterprises under activity-based costing method

Activity-based costing method is a kind of cost calculation and management method which calculates the cost of activity and cost objects and evaluates the activity performance and resource utilization by tracking the dynamic reflection of all activities. Its basic principle is that the product consumes the activity, and the activity consumes the resource. The design ideas of cost accounting and control flow of oilfield enterprises under activity-based costing method include two aspects. The first is that, in accordance with the provisions of the new system, the enterprises manufacturing oil and gas products by using activity-based costing method for management can increase the dimension of activity process to accumulate, distribute and carry forward oil and gas products' cost; the second is to formulate the resource standard cost of activity and activity standard cost, calculate the cost variance, carry out the variance analysis and trace the cost responsibility, by combining with the actual situation of the enterprise.

#### 3.2.1 Oil and gas products' cost is calculated by two times' accumulation

The cost accounting of activity-based costing method is divided into two accumulation processes. The primary accumulation is to accumulate the resource cost into each activity according to different resource drivers, to get the resource cost data of the activity; the secondary accumulation is to accumulate the activity-based cost into the final products according to different activity drivers, to get the activity cost data.

According to the principle of activity-based costing method, in a certain accounting period, accumulation is carried out for the resource cost of each activity and the activity cost in the production process of oil and gas products twice. The specific accounting process is shown as in Fig. 1.

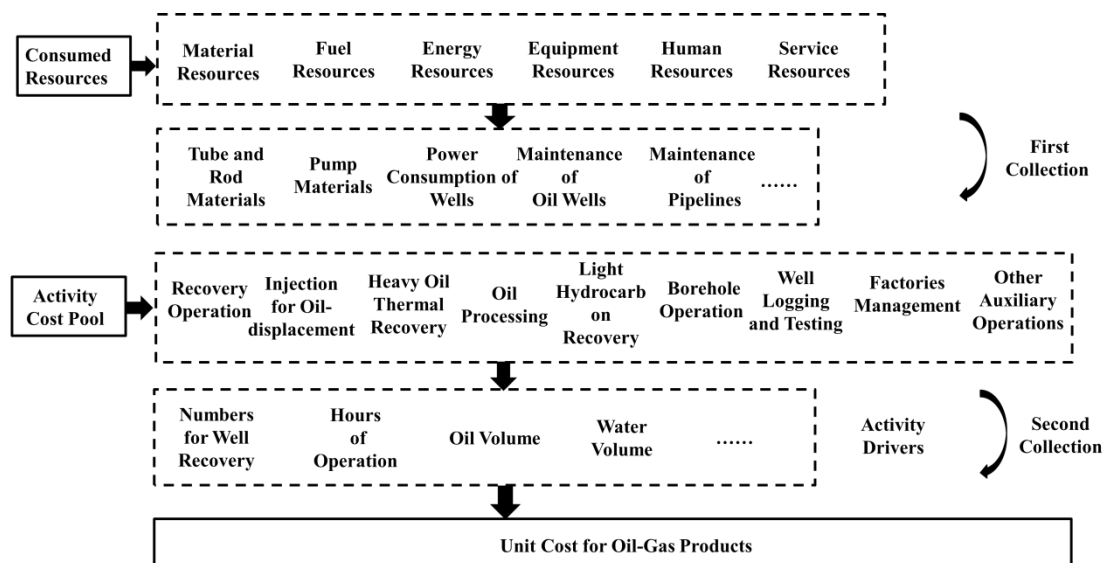


Fig. 1 Process chart of cost accounting under activity based costing method

#### 3.2.2 Cost standards are developed

To better reflect the consumption of resources and activities, according to the requirements of oilfield enterprises' relevant documents and codes, combined with historical data and practical experience,

the experience evaluation, technical measurement and other relevant methods are used to develop the resource cost standard and activity cost standard of oil and gas products.

### 3.2.3 Actual data are collected to make variance analysis

In the practical work, according to the principle of two times' accumulation of activity-based costing method, the activity resource cost table and the actual data in the activity cost table are collected, and the variance between it and the standard cost is calculated. Then, the variance is analyzed systematically, and the responsibility is traced along the responsibility chain, to achieve the purpose of reducing and controlling costs.

## 4. Cost accounting for oil and gas products under activity-based costing method

Activity-based cost is also known as operation cost. It includes all the expenses in the oil and gas production process, such as the material, fuel, power, labor and others. If activity-based cost method is used to accumulate and manage the production cost, the cost driver should be analyzed, and the activity process should be set, to reflect the production cost of oil and gas products. Activity-based cost method calculates the resource consumed by activity into activity resource cost by dividing the first activity, the secondary activity and activity chain; activity cost is distributed according to activity driver; the accumulated costs of the first activities (activity center) are summed to get the cost of oil and gas products.

### 4.1 Activity Identification

The activity selection follows the 80/20 principle, namely, 80% of the cost is consumed by 3~5 key activities, without too much attention to the 20% cost consumed by other activities. According to the production process flow of crude oil, nine first activities (activity center) are established, such as the mining activity, injection activity of oil displacement materials, thermal recovery activity of thickened oil, oil and gas processing activity, light hydrocarbon recovery activity, down-hole activity, well logging and testing activity, factory and mine management activity and other auxiliary activity. Each first activity center is set the secondary activities, and the secondary activity is set activity chain. Activity chains are the chains composed of a series of activities which are interrelated with each other, namely a small whole consisted of several activities. Activity identification provides the framework for the accounting and controlling of the activity cost. Taking mining activity as the example, it is listed to illustrate the division of detail activity, which is shown as in Table 1.

Table 1. Details on Mining activity

First-Level Operation	Second-Level Operation	Third-Level Operation
Recovery Operation	Promotion Operation	Operations on Pumping Unit, Electromotor, Power Distribution in Well sites
		Operation on Diesel Engine Set
	Shafts' Maintenance Operation	Overhauling
		Hot Paraffin Removal
		Sand-Flushing

### 4.2 Determination and distribution of resource factors

Step one: resource factors shall be determined. The oil and gas production process involves the complex operation procedures. Each activity is completed by energy consumption, so it shall consume various resources. The main resources consumed in the production process shall be classified according to the activity center and the secondary activity. For example, the cost of the mining activity resources include materials, fuel, power, man power and equipment etc. As for activity chains, the consumption and cost of different resources shall come into being.

Step two: resource cost shall be distributed according to different resource drivers. Resource drivers refer to any factors which lead to the resource consumption of an activity. They can reflect the

resource consumption of an activity in the activity chain. They are the basic scale showing that resource cost is distributed to the activity center. The resource base of reflecting the activity resource consumption shall be set and the resources shall be distributed to the activity according to the activity resource consumption in the activity chain. Based on the example of mining activity, resource driver index is presented by well opening time, number of pumping unit parts, operation times etc. Unit cost shall refer to the market unit price of material consumption. Mining activity mainly consumes electric power resource. Electric power consumption cost of operation = resource driver index × unit cost = power consumption kilowatt hours × unit electric price (yuan/kilowatt hour). Table 2 shows how mining activity resource cost is distributed and accumulated among all levels of activities.

Table 2. Allocation Sheet on Mining activity resource cost unit: yuan

First-Level Operation	Second-Level Operation	Activity Chain	Repository	Resource Drivers	Volume of Resource Drivers	Unit Cost	Resource Costs
Recovery Operation	Promotion Operation	Pumping Unit, Electromotor, Power Distribution in Well sites	Rod-pumped Well	Running Energy Consumption	Power/Opening Hour for Well	Market Price	
				Labor Cost	Hours of Operation	Yuan/Hour	
				Belts, Electrical Material, Oil	Opening Hour for Well	Market Price	
				Distribution of Well site		Market Price	
			Pumping Unit	Pumping Unit Fittings	Number of Sets for Fittings	Market Price	
				Pumping Unit Fitting Process	Hours of Operation	Market Price	
		Power Distribution	Renewal for Electromotor	Number of Sets for Electromotor	Market Price		
			Fault Repair	Hours of Operation	Yuan/Hour		
		Diesel Engine Set	Diesel Engine Set	Running time	Production Time	Market Price	
				Fault Repair	Hours of Operation	Yuan/Hour	
	Shafts' Maintenance Operation	Overhauling	Tubing, Rod, Pump	Renewal	Length/Number of Sets	Market Price	
				Maintenance	Numbers for Maintenance	Market Price	
		Hot Paraffin Removal	Fuel, Water	Oil Well	Opening Times for Well	Market Price	
			Chemical Agent			Market Price	
		Sand-Flushing	Power, Water	Oil Well	Numbers for Well Recovery	Market Price	

Note: the table chooses the mining activity as the object. The resource distribution process of other activities shall be the same as that of mining activity.

The steps above finish the process that resources are distributed into activities. It shall make an accumulation according to variety and amount of resource consumption, calculate the cost of each kind of resource consumed by the activity, summarize the resource consumption cost of each mining activity chain.

### 4.3 Activity drivers and activity cost distribution

Step one: the activity drivers shall be determined. Activity drivers are a scale showing that the activity cost is accumulated and distributed in the products. They decide the activity variety and number required by the products. They reflect the number and quality of the activity consumed by the products. They are the foundation how the activity center cost is distributed in unit ton oil cost. The choice of activity drivers shall be based on the internal relation between the activity level and cost

drivers. The cost drivers which are closely related to the real consumption of the activity, have the most direct and the biggest influence on the real consumption of the activity shall be chosen. Generally, the activity can be divided into unit level activity and batch level activity. Unit level activity refers to the work with positive proportion between the consumed resources and volume of oil gas products, such as mining activity, injection activity of oil displacement materials, thermal recovery activity of thickened oil, oil and gas processing activity. It generally adopts well times, working hours, oil mass, water yield, power consumption etc as the activity drivers for accumulation and distribution. Batch level activity refers to any activities or matters related to batches, such as monitoring and inspection etc. It is related to cost drivers of batch level activity, such as test times, inspection times etc.

Step two: the responsibility center shall be divided. In the traditional cost management system, the responsibility center shall be divided according to the functional unit boundary of the organizations. This way inherently contradicts activity-based costing method. To achieve the closed-loop control of the activity cost, we need to establish the responsibility system matching the activity-based costing method. According to the responsibility matching principle, the four-level cost responsibility system is set in the organization, including the first activity, the secondary activity, the activity chain and individual. Thus a complete responsibility chain is developed. Compared with traditional way, the responsibility center divisions are not constrained by the organizational framework. Instead, it is based on activity system. It contributes to playing the advantages of the cost control of the activity-based costing method. At the same time, it is helpful for the continuous improvement of the activity system.

Step three: the activity cost shall be distributed based on activity drivers. Cost of each activity shall be accumulated to be the activity cost base according to the chosen operation drivers above. The paper sets up nine first activities and develops nine activity cost bases.

Based on the example of mining activity, the distribution and accumulation process of activity cost shall be explained as shown in Table 3.

Table 3. Allocation Sheet on Mining activity cost

Accounting Subject	First-Level Operation (Activity Cost Pool)	Second-Level Operation	Activity Chain	Resource Cost for Operation ①	Volume of Activity Drivers(Frequency) ②	Total Cost ③=①*②
Oil Factories	Recovery Operation	Promotion Operation	Pumping Unit, Electromotor, Power Distribution in Well sites	(Form2)		
			Diesel Engine Set	(Form2)		
		Shafts' Maintenance Operation	Overhauling	(Form2)		
			Hot Paraffin Removal	(Form2)		
			Sand-Flushing	(Form2)		

In Table 3, the total cost is the product of resource cost consumed by all activities and the activity driver index. The resource cost data of the activity is calculated based on table 2. Activity driver index is calculated based on budget oil production index issued by oil extraction plant. The mining activities obtained via calculation include two secondary activities, namely improvement activity, well-bore maintenance activity as well as the activity cost of five activity chains. So far, two times of accumulations of mining activity are completed. The accumulation and distribution of other first activities, secondary activities are as above.

**4.4 Production cost calculation of oil gas products**

Based on the mining activity of the oil extraction plant above, it calculates the total cost of mining activity center. Since crude oil developed by the oil extraction plant is single products. Cost of nine activity cost bases shall be accumulated only, namely, the total cost of oil gas products. Unit cost shall be obtained based on oil production.

$$\text{Total cost of oil gas products } w = a + b + c + d + e + f + g + i \tag{1}$$

In the equation above, w is the total cost of oil gas products; a-i are the total cost of nine activity centers respectively. The accumulation process of A-I shall be shown in Table 3.

**5. Cost control of oil gas products under activity-based costing method**

**5.1 Set up resource standard cost and activity standard cost**

The unit cost of oil gas products is calculated via two times of accumulations. To analyze the cost difference, resource standard cost table and activity standard cost table shall be set up to improve the science of cost strategical decision.

**5.1.1 Set up resource standard cost**

To better reflect the resource consumption, consumption standard shall be set up for each kind of consumed resources according to the variety of resource consumption. As shown in table 2, the resource consumed by each activity unit in the mining activity shall be summarized respectively according to material, fuel, power, equipment, man power and service resource. Resource cost summary table shall be made, including improvement activity, well-bore maintenance activity--two secondary activities of mining activity. According to the relevant documents of oilfield enterprises, we extract the real data for many times. Combined with historical data, the technology and finance staff etc shall help to calculate resource consumption standard quantity. According to the current market price, the corresponding unit resource standard cost shall be set up. Based on the example of mining activity, table 2 shows pumping unit maintenance, electrical materials and appliances, belt, lubricating oil, running cost, fault repair cost etc in the resource base. Namely, it improves material resource, power resource, man power resource etc of activity consumption. Table 4 shows the resource standard cost of mining consumption.

Table 4. Resource standard cost table of Mining activity unit:yuan

Consumed Resource Operation	Material Resource	Fuel Resource	Energy Resources	Equipment Resources	Human Resources	Service Resources	Total
Promotion Operation							
Shafts' Maintenance Operation							
Total							

**5.1.2 Set up activity standard costs**

To reflect the consumption activity of oil gas products, we need to set up the unit activity standard of the first activity, secondary activity and activity chain. As shown in table 3, the activity cost of first activity, secondary activity and activity chain is calculated based on the example of mining activity. According to the relevant documents of oilfield enterprises, we combine the historical data as well as real work experience and apply the management standard method, experience evaluation method and technique determine approach etc to make the activity consumption standard volume and unit activity standard cost of mining activity based on many times of simulation and revise. Then total cost shall be the product of two items above. For example, we use two times of distributed activity cost calculation methods above, collect the real consumption costs of the real activity process, adopt method of

weighted mean as well as experience evaluation method to calculate the standard quantity of activity consumption and unit activity standard cost. Based on the example of mining activity, we set up the activity standard cost table as shown in Table 5.

Table 5. Standard cost of Mining activity unit: yuan

Accounting Subject	First-Level Operation	Second-Level Operation	Activity Chain	Consumed Standard Volume for Operation ①	Consumed Standard Costs for Operation ②	Total Cost ③= ①* ②
Oil Factories	Recovery Operation	Promotion Operation	Operations on Pumping Unit, Electromotor, Power Distribution in Well sites			
			Operation on Diesel Engine Set			
		Shafts' Maintenance Operation	Overhauling			
			Hot Paraffin Removal			
			Sand-Flushing			

## 5.2 Cost difference analysis and application based on activity chain and responsibility center

In the real work, we collect resource consumption cost and real activity cost data. These data shall be input by activity area, emergency area, well site, station and other departments based on different activity systems. The work shall be refined into each activity chain. The collected cost data shall be compared with the standard cost data of table 4 and table 5. The cost difference shall be calculated. Based on the cost difference, we shall analyze which activities and which costs shall have over-expenditures. The responsibility shall be traced based on the activity responsibility chain to reduce and control cost.

### 5.2.1 Trace cost from activity chain; analyze the reason of over-expenditures; improve the activity

According to the cost difference analysis, different cost control measures shall be adopted. First, the invalid activity whose cost is greatly higher standard cost shall be based on the the activity chain and start from source to simply the activity process. Second, we shall improve the activity way, improve input-output ratio of the activity, optimize the activity drivers, reduce the resource consumption volume as well as cost expenditure in terms of the inefficiency whose cost is slightly higher standard cost. Third, we must improve the efficiency of the necessary activity, make the summary and promotion, and improve the activity frequency of the valid activity in terms of valid activity whose cost is lower than the standard cost.

There are four ways for improvement of over-expenditure activity. The first way is the activity choice. The best activity is chosen from many different activities. The second way is the activity elimination. This is a process of eliminating non-value-added activities. Generally, any activities which take place for output are all value-added. Some activities which are carrying, unloading and loading, storage, waiting and delay in the process etc shall belong to non-value-added ones. The causes and responsible staff of the non-value-added activities shall be found out to trace the responsibility and avoid the similar phenomena. The third way is the activity decrease. The activity way shall be improved to



reduce the resource consumption volume. The fourth way is the activity sharing. The scale economy shall be used to improve the necessary activity efficiency and reduce the activity driver rate as well as the apportioned cost the products.

### 5.2.2 Trace cost responsibility from the responsibility center

The activity-based costing method breaks the traditional cost control pattern of functional department-oriented responsibility center. Based on the activity, the four-level responsibility system is set up, including the first activity, the second activity, the activity chain and individual. At the same time, the performance shall be assessed combined with two budget indicators, the cost available rate and balance rate in the oilfield enterprises' assessment system. The monitoring and management shall be enhanced. The cost decrease shall be enhanced. Therefore, the activity-based costing method provides many means for oilfield enterprises to achieve cost control. This way the effectiveness of the cost control shall be improved.

## 6. Conclusion

Firstly, the activity-based costing method makes up the shortage of cost accounting for oil-gas product under the standard costing method. Allocating the indirect cost with single machine working hour, man-hour and others under the standard costing method cannot reflect the various influences from different technical factors on the indirect cost in the production of oil and gas product; while the activity-based costing method collects the cost of activity unit into different cost libraries according to the activity type, and different cost libraries adopt various distribution standards to allocate the cost to the final product, thus providing the more accurate cost information and truly reflecting the operating status of oil enterprise.

Secondly, the original production cost accounting process in the oilfield enterprise is optimized and improved based on the principle of activity-based costing method. With the example of production activity, the paper mainly researches the twice accumulation on the activity-based costing method, and perfects the cost accounting and control procedure in the oilfield enterprise under the activity-based costing method, thus providing the practical reference for the oilfield enterprise to improve the cost accounting method, and making the beneficial exploration for the cost refined management in the oilfield enterprise.

Thirdly, the control of the cost of oil and gas product is realized from the activity chain and responsibility center. On the one hand, we can find out the problem from the activity process, distinguish the value-added and non-value-added activity from the activity chain, eliminate or improve the non-value-added activity, reduce the cost and realize the optimization of value chain. On the other hand, the activity-based costing method changes the cost control center from the functional department to the activity unit at each level, and the closed-loop control is formed for the activity cost, thus not only beneficial for the decrease of activity cost, but also for the sustainable optimization of activity.

## References

- [1] Huo Jianglin, Zhao Zhenzhi: Analysis on the Behavior Cost of Oilfield Enterprise, Finance and Accounting Monthly, Vol.31 (2010)No.06,p.55-56.
- [2] Sheng Yanmei, Zhou Hang: An Empirical Study on the Cost Motivation of Petrochemical Company, Journal of Liaoning Technical University(Social Science Edition), Vol. 23(2010) No.03,p.266-268.
- [3] Sheng Yanmei, Zhou Yongzhan: Analysis of cost driver selection, Communication of Finance and Accounting, Vol. 31(2010)No.06,p.110-111.
- [4] Fan Zhigang, Zhang Yanting. Analysis of structural strategic cost drivers of Petroleum Enterprises, Management & Technology of SME(On the ten day) , Vol. 19(2010)No.02,p.72-73.
- [5] Qi Jianmin: Analysis on the Strategic Cost of Petroleum Enterprises Based on DEMATEL, Finance and Accounting Monthly(The next ten day), Vol. 34(2013)No.04,p.68-70.

- [6] LiHui. Discussion on Application of Operating Cost Method in Oil and Gas Exploitation of Petroleum Enterprises, Oil-Gasfield Surface Engineering, Vol.33 (2010 )No.10,p.88-90.
- [7] Meng Lisha. On the Operation Cost Control of Desert Oilfield, China Petroleum and Chemical Standard and Quality, Vol. 32(2012)No.04,p.279.
- [8] Xin Weina. Study on Strengthening Cost Control in Daqing Oilfield, Corporation Research, Vol. 28(2012)No.16,p.123-124.
- [9] Ouyang Xi. Discussion on Cost Accounting System of Petroleum and Petrochemical Enterprises under Activity-based Costing, Communication of Finance and Accounting, Vol. 37(2016)No.01,p.101-103.