

# Nasa rubber division



**ASSIGN  
BUSTER**

In this report, I will discuss the performance of NASA Division for the past 9 months during the fiscal year with special attention to the meaning and accuracy of the volume variance. Then I will identify the issues of the best sales and production strategy for EROW Division, NASA Division and the Rubber Group as a whole. At last, my recommendations of changes that should be made in the management accounting performance system to improve the reporting and evaluation of the Rubber Group performance will be raised. NASA Rubber Division's performance:

As shown on the statement of net contribution September 1986, NASA Rubber Division's actual net sales revenue exceeds the budget by yielding a favorable net sales variance of 4, 579, 000. NASA also generates a positive gross margin by accurately and reasonably budget the variable costs. NASA calculates standard variable cost per tonne of butyl by multiplying a standard utilization factor by a standard price established for each unit of input. Since feedstock prices varied with worldwide market conditions and represented the largest component of costs, it is impossible to establish standard input prices that remained valid for extended periods.

Therefore, the company reset feedstock standard costs each month to a price that reflected market prices. This constant adjustment makes sure the accuracy of the measurement of the variable costs. However, NASA's actual gross profit is almost 50% below budget because the actual total fixed costs are much higher than the budget; and volume variance would be the key factor resulting in this discrepancy. The unfavorable 5, 250, 000 volume variance is considered huge, which is about 50% of the actual volume variance cost.

The big gap between the actual volume variance and the budget implies some potential problems of the measurement on the volume variance. The volume variance is calculated by multiply the standard fixed cost per tonne by the difference between actual tones produced and the demonstrated capacity. Therefore, two numbers are estimated when calculating volume variance, demonstrated capacity and standard fixed cost per tonne. The demonstrated capacity is the actual annualized production of a plant within the last fiscal year after adjusting for abnormal items.

The resulting adjusted historical base should be further modified for changes planned to be implemented within the current fiscal year. Therefore, for each plant of NASA, production level of previous year will be used to estimate the production capacity for current year. However, NASA's regular butyl plant, Sarnia 2, may not have reliable historical data since it is newly built in late 1984 and begins operation for only one year around. Moreover, Sarnia 2 failed to achieve the annual nameplate production capacity with a shortage of 30, 000 tonnes in 1985.

These factors will all affect the accuracy of the demonstrated capacity estimate for 1986. In order to improve the accuracy on the estimate, I suggest Sarnia 2 could use Sarnia 1's production data to forecast and budget the future performance since Sarnia 1 has longer operating history and its data is more stable and consistent. The other number that affects the calculation of the volume variance is the standard fixed cost per tonne. This number is determined by dividing the estimated annual total fixed costs by annual demonstrated plant capacity.

Besides the inaccuracy of the demonstrated capacity estimate discussed above, the determination of the annual total fixed costs is not accurate enough as well. The total fixed costs applicable to certain level of production can only be estimated after production estimates are established each fall for the upcoming year. However, the production estimates for Sarnia 2 are affected by the transfer to EROW. As shown in Statistics and Analyses in Exhibit 1 and schedule of shipment in Exhibit 6, the gap between the actual and budget transfer is big, which implies the plan on transfer is not accurate.

This inner company transfer is outside control of NASA Rubber since if EROW cut back on orders; its profit is hurt through the volume variance. EROW could change its purchase from NASA depends on the sales prediction, inventory level, production capacity constraint and other economic factors. Therefore, the uncertainty of the inner company transfer would weaken the accuracy of the production estimates, and in turn affect the determination of the total fixed costs. The determination of both two numbers above involves some uncertainties.

Therefore, volume variance is not an accurate measurement of the performance of NASA Rubber. To improve the budgeting efficient, the management should consider transfer problem and other factors I addressed above. Using relevant and proper information will help NASA Rubber in performance forecasting. Issues of the best sales and production strategy

EROW: EROW Division's butyl plant is located in Antwerp, Belgium. Built in 1964 as a regular butyl unit, the plant was modified in 1979/80 to allow it to produce halobutyl as well as regular butyl.

This division has been successful since 1982. They increased shares in the high growth halobutyl market and simple and compact operation also facilitates their success. Moreover, the strategies they used improve the efficiency of the operation. One strategy EROW used is to take advantage of the inner company transfer. When the regular butyl demand outpaces the plant's remaining capacity, EROW will take its regular butyl shortfall from the Sarnia 2 plant. Like in 1985, 21, 000 tonnes of regular butyl were shipped from NASA to EROW. There are two advantages related to division transfer.

First, EROW does not need to incur additional fixed cost when the market demand exceeds the production capacity by simply purchase from Sarnia 2. Second, EROW could cut the feedstock costs down since the product transfers between divisions for performance accounting purposes are made at standard full cost which is lower than the market price. Accordingly, product transfer allows EROW to achieve profitability and minimize the costs. The other strategy is to accurately plan production budget. EROW operated near or at its nameplate capacity for several years. Those past actual production data help in future forecasting and budgeting.

They also make estimates on the purchase from Sarnia. These estimates are based on the prediction of butyl and halobutyl sales and how hard they can load their plant. The overall sales estimates are usually within ten percent, unless an unexpected crisis occurs. The accurate planning helps EROW to achieve maximum plant capacity and avoid the unabsorbed fixed costs. Last but not least, EROW has a superb management. They constantly investigate and be aware of change in customer demand make sure that the division could operate to meet fully the halobutyl demand.

The management also allocates the production of halobutyl and regular butyl depends on the market needs. The efficiency of the management results in high gross margin of 61, 447. NASA: This division is managed on price and margin. Quality, service, and technology are also important, but it is difficult to differentiate it from other competitors on these dimensions. Since the feedstock prices will be affected drastically by the change in price of oil, control of prices would be key thing to do for the NASA management team. The two plants, Sarnia 1 and Sarnia 2 are producing halobutyl and regular butyl, respectively.

The newly regular butyl plant, Sarnia 2, is running at less than capacity. The plant should be able to produce 95, 000 tonnes, but the actual production is only 65, 000. This creates a lot of unabsorbed fixed costs and inefficiency. Rubber Group: The key component of Polysar's strategy is to be a leader in high margin, specialty rubbers. Rubber Group is running its two divisions, NASA and EROW as profit centers. In addition to the two operating profit centers, the Rubber Group includes a Global Marketing Department and a Research Division to communicate the product flow and improve on innovation.

The Rubber Group as well as its two divisions is all exposed to competitive risks as they compete in dynamic markets. To help managing the competitive risk, interactive controls systems should be implemented; as they are essential to monitor competitive risks in a culture that could potentially create barriers to impede the free flow of information about emerging threats and opportunities. Recommended changes to improve the

reporting and evaluation: NASA: As mentioned previously, NASA faces a serious problem regarding to the product transfer to EROW.

For performance accounting purposes, product transfer are made at standard cost but not recorded as revenue, which does nothing for the division profit. Since the transfer price between NASA and EROW is not naturally determined by arm's length market transactions, as is normal between independent buyers and sellers; so distortion can be introduced into each business unit's reported revenue, expenses, and profitability. These distortions can affect both performance evaluation and resource allocation.

From the perspective of performance evaluation, the distortion of revenues, expenses, and profits can make it difficult to determine where value is actually being created. The product transfer benefits EROW by providing them a lower feedstock price but hurts NASA's performance without adding profit. This imbalance will not improve the performance of Rubber Group as a whole since the transfer price does not reflect the created value. Therefore, NASA should discontinue the product transfer and instead focus on exploring its own market area.

Removing the transfer from the normal production, NASA's cost controlling and planning will become more easy and clear. Another problem of NASA is that Sarnia 2 is always operating at less than capacity. The discrepancy between actual production and demonstrated capacity results in a lot of unabsorbed fixed cost, especially depreciation charge, and also troubles the measurement of the volume variance and total fixed costs. NASA's management should think about improving its production level by

conducting market campaign to increase market demand; or “ downsizing” the plant to prevent the future occurrence of the unabsorbed fixed costs.

NASA’s current performance measurement system is not working well and lack of inaccuracy. Many management members don’t even understand how volume variance measurement works. To improve on this, management should communicate with members about the measurement system and try to eliminate the factors causing measurement instability. Moreover, NASA’s management could implement more quality measurement such as the balance scorecard to facilitate the quantitative analysis.