Abstract of "Operations Auditing in Physical Crude Oil Trades

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< EXECUTIVE SUMMARY >

◆The article below focuses on the operations auditing targeting improving efficiency and a facilitator to the internal and annual auditing exercises. This is in the back drop of many companies due to lack of transparency or confusing information load that defy a common investor to interpret the accounts and the notes below it. The article first discusses about the nature of the business and the outlines the scope of assignment and the auditing plan action. The it spells out some of the critical areas an operational auditor must address and the procedure to be followed in each of these.

The paper focuses on operations auditing targeting improving efficiency and a facilitator to the internal and annual auditing exercises. This is in the back drop of many companies due to lack of transparency or confusing information load that defy a common investor to interpret the accounts and the notes below it. Major investment banking, financial and energy trading companies are choked with sub-optimal usage of derivatives and special purpose entities that result in more risk that threatens to bring down the entire the country's financial system, if not global.

Energy companies justify the usage of derivatives to mitigate the various risks exposed to, but lose track and charter into dangerous waters. Companies must pitch more on physical trading and improve their efficiency to create more wealth for investors. Trading and risk policies must address the underlying commodities risk first, instead trying to create millions on paper trading.

This is the trigger for this paper. It first discusses the nature of the business and then outlines the scope of the assignment and the auditing action plan. Then it spells out some of the critical areas an operational auditor must address and the procedure to be followed in each of these. Starting from the purchase or sales contract detailing many of the important items to be audited like Quantity, Quality, Pricing Period, Freight it outlines the checks and balances that need to be developed. To make the paper more holistic audits on Accounts Receivables, Account payables, Invoicing are punched in the last. Regular auditing, Systems Auditing, Risk Auditing are kept out of the purview of the paper though they also play an important role in making the operations auditing a comprehensive one.

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OPERATIONS AUDITING IN CRUDE OIL PHYSICAL TRADES

Nature of Business

Crude oil purchase from Oil Majors, blending it with cutter stocks and sales to end users is a low margin, high risk business. A typical company operates from different coasts of US and also from other major ports of the world. The business is supported by derivative trades to mitigate the price and cash flow risks. Thus it becomes important to have concurrent Operations Audit to identify the inefficiencies and improve upon them. The purpose of the paper is to focus on the critical areas of the business, and also to discuss the areas on which, annual

audit programs must be designed. These are given as a mesh, instead of a stratified approach.

Scope of the Audit

The audit depends on the scope defined by the client. Some major areas are identified for in Chart 1. Process and documentation audits includes mapping of the processes, cutting non-value adding processes and a complete check on the back up of statistically sampled transactions. Settlements audit focus on provisional and final invoices for oil purchase and freight, reasons for the delay in settlements between Joint Venture partners & also between the client and suppliers or customers.

Evaluation of the assessed risk of the physical trades including Price risk, Operations risk and Counter-party risk go as a part of risk auditing with rigorous analytical reviews. Technical audits are done at the port manager's office covering quality and quantity aspects.

The paper dwells on the operations audit with usual annual audit areas (documents audit), settlement audits, as for an industry like this, that facilitates the annual audit programs.

Planning the Audit

The plan and the action are outlined in Chart 2. An in-depth knowledge in the mechanism of oil trade, port operations, quality and quantity issues are vital. The next step is to study the organizational chart to gain understanding on the flow of authority and processes. It would help if the trends in the industry were familiarized.

Next mapping the processes, marking the critical ones, and getting the feel of document flow, time lags and delays are important. This helps to develop the checks and balances.

The cargoes must be sampled based on the deadweight/quantity carried and must be more on the busy periods to make it a representative one.

Auditing the Cargo Trades:

<u>Purchase/Sales Contracts:</u>

Buyer and Seller:

If the buyer is a client with multiple group companies, one needs to be vigilant on the trades between these entities. There may be occasions where the bills are settled by a group entity as a financing mode. The "arm length" interest cost to be paid by the client entity to the financing entity must be a well accepted business practice in the industry. If a different currency is involved the conversion norms needs to be audited as per the provisions of the contract and market. Payment to the supplier is made only after the Purchase Order (PO) is closed after meeting all the quantity and quality standards set in the contract.

Quantity Audit:

Usually +/- 10% variation is allowed in many contracts. The variation may be due to spillage during loading or discharge, evaporation, higher Remaining on the Board Quantity (RBQ), deteriorating vessel efficiency and similar others. If the negative limits are exceeded, it warrants a scrutiny of the port document including

- Bill of Lading
- Key Meeting Reports
- Quantity Certificates
- Voyage Analysis Report
- Report of Shore Quantity

The documents give data on quantities on shore tanks, after loading, responsibilities of the shore personnel during loading (to re-bill or book it in the client's name). The nature and responsibility of the loss will facilitate this settlement. Analytical reviews based on the ratios of quantities at different points at load and discharge ports must be done to authenticate the quantity discounts given by the supplier or to the customer when invoice is paid or received.

Quality Audit:

Viscosity in centistokes, Vanadium and Aluminium contents are the more important standards. With lower than 134 degree F temperature the viscosity increases so the rate of flow decreases along with other quality issues. A discount is given for lower viscosity based on a formula. These calculations need to be audited so the client gets the due discounts. If computed on MS Excel Worksheet or similar others, formula links need to be audited for the sampled cargoes. The auditor can also suggest a plan for operational audits to avail of these discounts. The source document is the Laboratory Report of Quality.

Pricing Period Audit:

Pricing Formulas are based on the index representing the discharge port. Suppose the fuel oil is loaded in Amuay Bay and to be discharged at New York Harbor during January 2003. The formula may say, effective published quotes of NY 1% for Jan 2003 by Platts. The quotes are published as High and Low for each day. So the formula will also say, average (of the month say 20 trading days) of the mean (of the high and low) of the daily quotes. Moreover, Platts is not the only independent reporting agency in the market. So one should also question the representative nature of the quotes. This

determines the final cost of the fuel.

Normally a provisional invoice is raised for pricing-Bill of Lading (BL) plus 10 or 15 days based on the transit time to the discharged port 75% to 90% of the fuel cost computed on this basis is paid to the supplier. When the actual pricing period is completed in Jan 03, a final payment is made adjusting for provisional payment. When there are two discharge ports or due to some reason, the pricing formula may be a weighted average of two indexes, weighting depends on quantity and judgment of the port managers. The auditor must focus on the following in the pricing audit:

- To watch out for phrases like "effective published quotes", "from or following BL date".
- If the pricing period is 5 days around BL, [2-1-2 days] quotes and the BL date happens to be a holiday, provisions need to be checked for alternative method in the contract. (Either 2-0-2 or 3-0-2 etc)
- In case of weighted average price of two indexes, how the pricing is done. Whether it is 20 (assuming 20 days of trading in the month) daily average of each the indexes weight it on a daily basis, and then average for 20 days OR a 20 day average for each index separately and then weight them. This sometimes will have a major impact on the final payments.
- The final pricing month is found by adding 10 or 15 days (depending on the estimated time of arrival at the discharge port) to the BL date. The final date ending in a month is taken as that month pricing. For example, if the BL date is Oct 17th plus 15 days will end on Nov 2nd. So, November will be the full month pricing for final invoice. A twisty interpretation by the supplier might result in excess payment by the client. This needs to be checked on well-defined sampling method.
- Or due to bad weather the BL date might be pushed further to an adverse position.
- If there is a price disruption due to uncontrollable events, the auditor must review the fall back pricing followed by the parties as per the contract.
- The auditor must also review all the e-mail correspondence between the traders and the supplier and the client, for subsequent changes in the provisions.
- If the price is fixed, the auditing of the price is a direct affair.

Freight Audit:

Freight paid to the vessel owners is based on the world scales published for specific routes. This has two components. A flat rate that is published for the year and a daily floating rate. Both these rates are based on the route and also for wide range of deadweight of vessels. The product of flat and floating rates with the vessel capacity adjusted for percentage factor, is the freight payable. When the vessel is not fully loaded, a dead freight is payable.

The auditor needs to have a pince nez look on the following items:

- The inco-terms under which the cargo is booked. This has a great bearing on the freight payable and the resulting contentious issues like, when the title passes to the buyer and who has to bear the disputed expenses.
- The freight may be calculated on barrels or on metric tons depending on from which part of the world, the cargo originates. Sometimes operational errors creep up in workings based on certain applications and result in huge differences.
- The auditor also has to check on the amounts that need to be re-billed to supplier or vessel owners.
- Some companies trade on freight swaps to mitigate the freight rate volatility. The auditor has to evaluate the profit or loss in these derivatives on a total cash flow basis for the freight.

Discounts Audit:

Some suppliers offer a standing discount for regular off take per period. This may be an absolute rate or a percentile. This discount needs to reviewed for its fairness as compared to the ongoing rates in that particular coastal market. This is to ensure, the shareholders value is not eroded.

The auditor must also investigate all the on going rates and convince herself on the fairness of the rates. More so, if the supplier or customer is one of the group entities. The "length of the arm" must be far enough to justify the fairness.

Insurance Audit:

A FOB cargo needs to be probed into, as the insurance will be allocated from a common pool, which has been paid in advance. The rates for different for Inventory in Tanks, In transit Inventory and Out transit inventory and the Chapter Party. These rates needs to checked with policy documents of the insurance company. The auditor should also pay close attention to those vessels, which have carried twice within a 60-day period for a charter party. Likewise, once the allocation reaches a certain limit by $ value or barrels a reduced rate may be applicable.

Non-availability from the Insurance pool indicates a boom year or a less accurate forecast. The audit team must also look for under or overcharging especially Cargoes and Charter party vessels. Certain old vessels may not get the Ship Fixture Report due to their inefficiency or technical defects. These vessels need to get an additional premium

allocation to cover extra risk. As a part of analytical review the audit team can relate the vessel efficiency factor to the premium to be allocated by consulting technical experts.

Other Expenses Audit:

Selected expenses are considered here based on their critical nature affecting the financial result and the delay in processing.

Demurrage:

Usually 36 hours from the lay can dates are allowed as normal loading/discharging period, beyond which demurrage is to be paid by the party responsible for the delay. Higher viscosity, bad weather, additional testing of the samples and the like might delay the loading or discharging or the very arrival of the vessel. The auditor has to verify all the calculations involved and take professional help from technical experts if needed in addition to the onus of responsibility.

Deviation:

Additional freight will have to be paid if there is a deviation from the main transit route. The freight charged by the vessel owners is on a per day basis for a vessel. Likewise the deviation expenses must be compared with similar offers in the same region and also the history of the vessel's efficiency.

Heating Expenses:

The products in general are required to be maintained at 134 degree F. Due to technical snags or deviation from the scheduled route or cargoes heading to Far East from USA (long distance) additional heating expenses may be required. On a statistical based sampling and on Judgment, the expenses are to be audited for correct proportions given the circumstances.

Auditing Joint Venture Agreements:

Most disputes arise because of two factors:

- Vague or no terms and conditions on issues like demurrage, deviation and heating expenses, Wharfage etc.,
- Unpredictable changes in markets and weather.

Though it is impossible to include terms for all the probable issues, the most likely critical issues must be included with a provision to address the other issues on mutually agreeable terms. This would facilitate the audit process.

Joint Ventures are born mostly to take care of the following issues:

- Purchase and Sales of Crude on advantageous terms due to long relationships and nearness of the markets.
- To purchase Crude from the Joint Venture.
- To manage the liquidity concerns like financing the cargo purchase, freight.

The auditor has to review the major term agreements:

- To evaluate the "arms length" in transactions.
- To technically audit on bearing some contentious expenses like deviation, heating, Wharfage, demurrage, penalty by dock authorities etc.,
- To assess the payables are to booked to the accounts of the client or must be re-billed to the other party, by having analyzing the Inco terms.
- Check all the claims like demurrage, dead freight, are made before the due date.

The above steps ensure that the cash flow and working capital of the client are not unnecessarily strained.

Payables Audit:

Certain critical areas in the payables are covered in this section for the auditor corroboration and operations audit.

- The auditor must cross verify the purchases of sampled cargoes are not doubled paid. There must be distinctive numbers for each cargo and that they are referred to in Invoices and when the cash is applied
- All the back up documents, e-mail correspondence of subsequent changes, reasons for withholding of payables, inter-company adjustments and whether they are made with appropriate responsibility level.
- Must also check on whether withholding is due some other payables from the party relating to derivative trades.
- An analysis of the aging schedule with the line of credit available for cargo trades and the time value of money involved would be a good check.
- A thorough investigation of the total unapplied cash with an analysis on the components would also reveal any hidden liability that might spring a surprise at a later date. The technical or operational reason must be ascertained for developing control mechanisms.

Receivables Audit:

- An indepth study of Aging Analysis and the time value of money also are vital for unfreezing any locked working capital. If huge receivables are due to technical reasons and the trends in the past also indicate this, it must be brought to the notice of the management.
- Any payable is netted out with receivable with the customer/supplier/Joint Venture Partner has to be authenticated by the source documents, e-mails and approved by the authority.
- If there is unapplied cash, again this must be scrutinized for the reason and procedures must be instituted for avoiding such in the future.

Invoicing Audit:

As the final critical documentation invoices for cargo trades must be audited with a high level of confidence.

The points mentioned below are crucial among others.

- Check the segment values balances to which all the unapplied cash are parked and critically question each of the items.
- Verify that all the receivables are invoiced or, are there any net outs.
- Corroborate the computations given in the invoice or attached worksheet with the supplier or customer correspondence.
- It must also be verified that all the cash are applied to the correct party as it is highly likely many parties have offices worldwide and there is a chance that it is applied to the correct party but to a wrong address. Must be checked with segment values
- Check on the foreign exchange rates for conversion

Summary:

An attempt has been made in this paper to highlight and outline the critical areas of operations audit for the crude oil trading industry. The industry is fraught with many technicalities that are invariably interwoven with all the accounting, finance and trading treatments. It becomes important for an auditor to understand the industry as this operates in volatile markets and more technical knowledge is required than for auditing a manufacturing industry. The idea is to throw open opportunities available for auditing field in a period transparency, and more transparency is required to make the accounts more user friendly, and present a true and fair of the results that is meaningful and useful for the investors.

Glossary-"Operations Auditing of Physical Crude Oil Trades

Paper Trading- Basically derivatives trading. For our purpose it is purchase and sale of swaps, options and futures on West Texas Intermediate and sulfur based indexes on different coasts and other indexes.

Physical Trading_ Purchase and Sale of crude, sulfur based products, Marine Diesel Oil Marine Gas Oil and the like

Voyage Analysis Report- That gives the shore quantities in the loading and discharge ports, with vessel efficiency ratios, differences, custody transfers. Remaining on Board Quantity & the like.

Remaining On Board Quantity- Material like water, oil, slops, oil residue remaining in the vessel tanks, void spaces, pipelines before loading.

NY 1%- Fuel and Non-Fuel Products- Fuel products are identified by their sulfur content say 1%, 2.2%, 3% along with coasts on which they are to be traded. Example GC 3% (Gulf Coast). Non-Fuel Products are the West Texas Intermediate or the Brent Crude.

Platts- A group company of McGraw Hill Inc, an independent agency that publishes the market quotes for worldwide energy indexas.

Key Meeting Report- Minutes of the Meeting held among cargo inspectors, vessel representatives, shore operational personnel at the loading port, giving the responsibilities of the people identified, communication procedures and the loading procedures.

Deviation Expense- Additional freight to be paid to vessel owners when it takes a diversion from the planned route.

Dead Weight- The gross capacity of a vessel in metric tons.

Operations Auditing
Physical Crude Oil Trades

Chart 1

Scope of Audit

Process and Documentations Audit
Settlements Audit
Operations Audit
Management Audit
Risk Auditing
Other Audits

Chart 2

Plan of Action

Study of the Industry, Organization Charts, Training Manual

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Mapping the processes, Identify Critical ones, Time lags, delays

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Interview Port Managers, traders Sample Observations, Operations Overview

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Develop Checks and Balances Cross checking numbers Technology Interface- ERP