CONTENT: This GI discusses the requirements of Finance and Management for volume balancing reports. The required reports are: "Material Balance Report" (MBR) and "Distribution Oil Stock Balance" (DOSB) reports. These two reports are used by Finance to record the cost of refined products sold and the cost of ending inventories. The reports are also used for reconciling movements of refined products within Saudi Aramco. The GI defines the acceptable variance limits in gains and losses and the reporting requirements when these limits are exceeded. This instruction includes the following:

1. BACKGROUND:

1.1 Saudi Aramco operates five local refineries. Two distribution operating departments manage bulk sales of refined products produced by the refineries, and one air fueling department handles Jet fueling operations at international airports and air fueling units. Additionally, Ras Tanura Terminal operates a tank farm similar to a bulk plant, except that the tank farm is used for loading marine vessels and transfer of products to other facilities.

1.2 Saudi Aramco also operates five strategic storages (three are currently in operation) under the Saudi Strategic Storage Project (SSSP).

1.3 Refined products may be procured from other sources for local sales. In particular, Saudi Aramco as half owner of two joint venture refineries (SAMREF and SASREF) will use some of its share of production for bulk plant sales.

1.4 Losses or gains may result from measurement differences, chemical transformation in the refinery, flare, evaporation, spills, leakage, theft, inaccuracy of flow measurement instruments and equipment, calculation error, unaccounted for line fill, or unaccounted for products in transit. Losses and gains whether explainable or otherwise may be consolidated or reported as separate categories to higher management.

2. SCOPE:

2.1 APPLICABILITY

This GI is applicable to Refining, Distribution, and Ras Tanura/Ju'aymah/Rabigh/Yanbu Terminal Departments in addition to the Operations Accounting Department (OAD) and the Oil Supply Planning and Scheduling Department (OSPAS).

2.2 VARIANCES

Variance limits have been set based on industry practices taking into account Saudi Aramco's operational constraints. These limits are listed in Attachment I. If the acceptable limit by the policy of an operating department is tighter than this G.I., the more stringent requirement should be followed.

2.3 EXCLUSIONS

References in this GI to the refineries refer to refining operations and exclude NGL and crude stabilization activities.

2.4 MEASUREMENTS

All measurements will be in Gross Standard Volume (GSV), using customary (i.e. English) units in the Refineries and metric units in Distribution. Monthly reports referred to in this GI will be in customary units (i.e. 60 º F Barrels). For gases, the units of measurement will be Fuel Oil Equivalent Barrels (FOEB).

2.5 ACCOUNTING CUTOFFS

Monthly reports will include all activities for a calendar month.

2.6 SUPPORTING DOCUMENTATION

Each operating unit will keep supporting documentation for Material Balance Report (MBR) and Distribution Oil Stock (DOS) reports that the operating unit prepares.

3. SPECIFIC RESPONSIBILITIES AND ANALYSIS OF UNRECONCILED VARIANCES:

3.1 REFINERY DEPARTMENTS REPORTING

Each refinery should prepare an MBR. This MBR has two sections - an Input Schedule (RMB-1) and a Production Schedule (RMB-2). The format of the reports may vary depending on the operating characteristics of the refinery. A preliminary report should be due within 2 working days and a final report within 10 calendar days of month-end.

3.1.1 REFINERY MATERIAL BALANCE, RMB-1 (INPUT SCHEDULE)

This section is for refineries that use tank gauging rather than royalty or custody transfer meters for measuring refinery crude oil movements.

3.1.1.1 BEGINNING INVENTORY - CRUDE

Ending inventory from the previous month for crude oil and any other feedstock (Naphtha, FCC feed, etc.) charged to the refinery process unit.

3.1.1.2 RECEIPTS

a) GROSS RECEIPTS: Crude oil and other feedstock such as naphtha received (if applicable) by the refinery. Refined products which are imported and consumed as fuel in the refinery should be included and footnoted in RMB-1.

b) GAIN/LOSS: Known gains or losses at receipt. See paragraph 3.1.4.2.

3.1.1.3 CRUDE SALES

Crude oil transferred to distribution regions for local sales and to the other local customers like Power Plants PP7/PP8 receiving crude oil through dedicated custody transfer meters.

3.1.1.4 ENDING INVENTORY

Crude oil, and naphtha or other feedstock, if applicable, on hand at the end of the month.

3.1.1.5 NET CRUDE CHARGE

Beginning inventory plus receipts minus crude sales and ending inventory.

3.1.2 REFINERY MATERIAL BALANCE, RMB-2 (PRODUCTION SCHEDULE)

The first section of this schedule contains the following summary by product grades using standard oil industry terminology i.e. OSPAS products specification index and OSPAS PROP code of products (c/p):

3.1.2.1 BEGINNING INVENTORY

Ending inventory from previous month.

3.1.2.2 TRANSFERS OUT

a) DISTRIBUTION

Refined products transferred to Distribution Regions.

b) SALES

Direct sales of refined products.

c) EXPORT

Products sold directly for export.

d) BUNKERS

Diesel and Fuel Oil Bunkers sold directly.

e) SSSP

Jet-A-1/kerosene, Gasoline and Diesel transferred to SSSP

3.1.2.3 ENDING INVENTORY

Product on hand at the end of the month.

3.1.2.4 GROSS PRODUCTION

Ending Inventory plus transfers out minus beginning inventory.

3.1.2.5 PURCHASES/TRANSFERS IN

Refined products received from joint ventures or other organizations outside Saudi Aramco. Also includes transfers from other Saudi Aramco refineries, gas plants and use of slops and gas products. This quantity is the actual received quantity and not the bill of lading quantity.

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3.1.2.6 NET PRODUCTION

Gross production minus Purchases/Transfers In.

The second section of the report consists of the following:

3.1.2.7 NET FUEL CONSUMPTION (OWN USE)

Production used by refinery operations listed by products. Imported fuel for refinery consumption should be reported separately. Gas should be converted to Fuel Oil Equivalent barrels.

3.1.2.8 GAIN/LOSS

Net Crude charge from (RMB-1) minus Net Production from (RMB-2) minus net fuel consumption. See section 3.1.3.

3.1.3 REFINERY GAIN AND LOSS

The information above will be used to calculate a refinery gain or loss (paragraph 3.1.2.8) for each month. Any gain or loss which exceeds the “A” limit (see Attachment I for values of “letters”) of the sum of the beginning inventory plus crude charged shall be jointly investigated by the refinery and Oil Supply Planning & Scheduling (OSPAS) to determine the cause(s) of the unacceptable gain or loss variance. Differences that cannot be resolved will be referred to management of both departments for appropriate action.

3.1.4 OTHER RECONCILIATIONS

In addition to the above, the following reconciliations will be performed between the parties noted:

3.1.4.1 PRODUCTS TRANSFERRED FROM A REFINERY TO TERMINAL OR DISTRIBUTION

All concerned operating departments should reconcile with other operating departments on a daily basis, the transfers of refined products between the two organizations, using SAP Transaction ZE0521. This transaction shall be developed by TD in SAP and will be announced for RT Refinery and Eastern Distribution. The quantity of each batch shall be reconciled after it has been completed. The monthly variances should be within the "B" limit (refer to attachemnt-1). A separate summary of product transfers between the refinery and the receiving organization will be prepared monthly by each department and copies will be furnished to OAD, OSPAS, and other concerned departments.

3.1.4.2 VARIANCE IN CRUDE CHARGE AMOUNT

Anyone noting a difference in the crude charge amounts used between organizations will inquire as to why the difference is occurring.

3.1.5 UNACCEPTABLE DIFFERENCES

Any instances where reconciliations are not within the acceptable limits as listed in Attachment I will be referred to OSPAS and further investigated. Unresolved differences that still remain will be referred to management of the accountable departments and other higher management for appropriate action.

Note: If the acceptable limit by the policy of an operating department is tighter than this G.I., the more stringent requirement should be followed.

3.2 DISTRIBUTION OPERATING DEPARTMENTS, RAS TANURA TERMINAL, AIR FUELING DEPARTMENT, AND SSSP REPORTING

Each Distribution Operating Department, Air Fueling Department, Ras Tanura Terminal Department, and Saudi Strategic Storage Project (SSSP) should prepare a Distribution Oil Stock Balance (DOSB) report. The DOSB report should consist of the following:

- Oil Stock Balance Report - DOS I
- Movements Reconciliation Report - DOS II
- Throughputs Report – DOS III

The format of the reports may differ depending on unique characteristics of some operations. A preliminary DOSB report is due to OAD within 2 working days and a final report within 10 calendar days of month-end.

3.2.1 OIL STOCK BALANCE REPORT (BY PRODUCT) – DOS I

3.2.1.1 OPENING INVENTORY

Closing physical inventory from the previous month.

3.2.1.2 RECEIPTS FROM SAUDI ARAMCO REFINERIES

Refined products received from refineries.

3.2.1.3 INTER-REGION TRANSFER IN

Refined products transfer in from other regions or Saudi Aramco organizations.

3.2.1.4 RECEIPTS (THIRD PARTIES)

Refined products purchased from joint ventures or other sources.

3.2.1.5 TOTAL AVAILABLE FOR SALE

Opening physical inventory plus transfers in and receipts.

3.2.1.6 CLOSING INVENTORY

Closing physical inventory for the month.

3.2.1.7 INTER-REGION IN TRANSIT

Refined products in transit to other regions.

3.2.1.8 INTRA-REGION IN TRANSIT

Refined products in transit within the same region.

3.2.1.9 TOTAL THROUGHPUT

Total available for sale minus closing physical inventory.

3.2.2 MOVEMENTS RECONCILIATION REPORT- DOS II

3.2.2.1 TOTAL THROUGHPUT

Total throughput from Oil Stock Balance Report- DOS I.

3.2.2.2 TOTAL

Transfer in plus receipts minus throughput.

3.2.2.3 OPENING INVENTORY

From Oil Stock Balance Report- DOS I.

3.2.2.4 CLOSING INVENTORY

From Oil Stock Balance Report- DOS I.

3.2.2.5 TOTAL CHANGE IN INVENTORY

Opening inventory minus closing inventory.

3.2.3 THROUGHPUT REPORT (BY PRODUCT)- DOS III

3.2.3.1 QUANTITY TRANSFERRED TO THE REFINERY

Quantity transferred to the refinery.

3.2.3.2 INTER-REGION TRANSFER OUT

Quantities delivered to Distribution Regions.

3.2.3.3 INTRA-REGION TRANSFER OUT

Quantities handled within the same Distribution Region.

3.2.3.4 TRANSFER TO SAUDI ARAMCO SHIPS/AIRCRAFT

Fuel transferred to Saudi Aramco ships/aircrafts.

3.2.3.5 TOTAL SALES

Actual sales per delivery tickets in net volumes.

3.2.3.6 TOTAL THROUGHPUT

Transfer out plus sales plus own use.

3.3 TRANSFERS/RECEIPTS

The Distribution, Air Fueling, Terminal Departments, and SSSP will monitor closely all refined product receipts by metering or tank gauging. Reconciliations will result in an apparent gain or loss for each product handled. A product gain or loss that cannot be reconciled within the acceptable limits by the operating departments shall be referred to management of the concerned department by OAD for appropriate action.

3.4 GAINS AND LOSSES

Operating Gains and Losses as percentages of the throughput will be unacceptable if they are higher than "C" limit. A product gain or loss that cannot be reconciled within the acceptable limits by the operating departments shall be referred to Management of the concerned department by OAD for appropriate action.

Product gains/(losses) = Ending Physical Inventory – Ending Perpetual Inventory
Where
Ending Perpetual Inventory = (Beginning Physical Inventory + Receipts & Transfers In + Defueled Quantities) – (Sales + Transfers Out + Own Use) ± (Rebrand and Stock Adjustments)
Operational gains/(losses) for a period shall also be monitored and reported as a percentage of the "throughput" of an Operating Department:
Gains/(losses) % = (Quantity Gained/Lost ÷ Dept. Throughput during the period) x 100
The throughput in computing (loss)/gain results is defined as:
Throughput = Sales + Transfers Out + Own Use
Where Transfers Out include "intra-region" and "inter-region" transfers

3.5 APPROPRIATE ACTION

"Appropriate action" as noted above may involve either one or more actions such as additional investigation into the causes of any particular incident, determination that a systematic error is involved, further strengthening of internal controls, referrals to other organizations for assistance, recognition that an error has occurred with no further action necessary at the time, etc.

Approved: [Original signed by R.A. Krygsman]
R.A. KRYGSMAN, Manager (A)
Accounting Policies & Systems Department

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VARIANCE LIMITS

Paragraph Reference	Variance	Identification	Limit
3.1.3	Refinery gain or loss [1]	A - monthly	± 2%
3.1.4.1/3.3	Refined products transportation (loss)/gain from transferring quantities between Refinery and Terminal/Distribution based on gross standard volume (GSV) by:	B - monthly	
	a) Tank Trucks		± 0.6%
	b) Pipelines		± 0.5%
	c) Marine vessels		± 0.5%
3.2.5	Refined products [2] operational (loss)/gain (within Terminal/Distribution) based on total throughput quantity (Sales, Own use, and Transferred out) [3]	C - monthly	± 0.5%

[1] Refineries with hydro crackers and catalytic crackers are allowed to exceed this limit to a maximum of 4% gain.
[2] P. Gasoline, Diesel and Jet Fuels
[3] Should include intra region and inter region transfers.