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**JIG**

CP 5.02

**Document Application:** Common Process

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# **GUIDELINES FOR STOCK CONTROL AT JOINT VENTURE AIRPORT OPERATIONS**

## **CP 5.02**

**Issue Date:** 23<sup>rd</sup> March 2021

**Issue Number:** 1.0

# GUIDELINES FOR STOCK CONTROL AT JOINT VENTURE AIRPORT OPERATIONS

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<b>Date Issued:</b>	<b>Revision No:</b>	<b>Reason for Issue:</b>
1st July 2012	0	New Guidelines
23rd March 2021	1	Update JIG company data

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### **Attachment 1 CP 5.02 JIG Stock Control Guideline Review Form**

## Introduction

This document provides best practices and more detail of requirements of JIG Guidelines within JIG2 and JIG4. These are considered necessary for stock control in accordance with JIG principles at Joint Venture (JV) airports. It is recognised that the implemented processes and equipment need to be cost-effective and appropriate to the size and nature of operations.

Product is normally owned by the Suppliers with stock control being conducted by on airport JVs on their behalf. Effective stock controls are required to help in the detection of product theft or leaks and to ensure accurate accounting. The objective of oil loss control is to achieve gains/ losses within an acceptable range to provide assurance on the accuracy of stock records and reporting. Standard Temperature Accounting is considered as the primary stock control measure to achieve these objectives and this document provides guidance on how this should be applied.

The guidelines are set out to cover main on airport stock control activities. These guidelines shall be reviewed by the governing body of each JV to consider those items that are applicable or relevant to their specific operation. Documented JV procedures shall be produced, be consistent with these Guidelines and approved by the JV Board / Management Committee to ensure that stock control procedures:-

- Define the boundaries of responsibility of the JV in terms of in and outbound product movements.
- Include the specific measurement equipment and methods to be used for receipts, sales, stock and other product transactions used at the JV.
- Detail specific processes decided on by the JV to meet their control needs.

Local legislation and regulations may supersede or augment some of the guidelines in this document and takes precedence where appropriate.

**1 GUIDELINES FOR STOCK CONTROL AT JOINT VENTURE AIRPORT OPERATIONS**

**1.1 Definitions**

1.1.1 JV Participant

A shareholder in an incorporated JV or member of an unincorporated JV.

1.1.2 Supplier

A JV Participant or throughputter who supplies fuel or owns stock.

1.1.3 Standard Temperature Accounting (STA)

Records held so that Volumetric Measurements are converted into 15 degrees C (60 degrees F), or other standard temperature adopted by that country.

1.1.4 Volumetric Measures

Each JV should decide on the core unit of measure to be used which is considered the norm in that country e.g. litres / US Gallons.

1.1.5 Transfer Point

This is the point where stock control responsibility transfers from one party to another as evidenced by a Delivery Ticket or other document as distinct from a change in ownership of product.

1.1.6 Delivery Ticket

A document with product quantity plus quality, Supplier, customer or other details.

1.1.7 Physical Stock

Stock as measured at a point in time.

1.1.8 Book Stock

The volume held in the airport accounting records at a point in time, based on a calculation of opening stock and records of all stock movements over a period.

1.1.9 Loss

The term Loss is used throughout this document to describe accounting differences and therefore may actually be a gain, so read this term as meaning loss or gain.

1.1.10 Oil Loss

The difference between Book Stock and Physical Stock at the end of a reporting period, usually monthly or year to date.

1.1.11 Transportation Loss

The difference between the volume advised by the delivering terminal (usually on the Delivery Ticket) and the volume measured by the JV on receipt. This is also commonly referred to as "Receipt Loss".

1.1.12 Operating Loss

The loss during storage and handling at the JV. It is determined using the receipt volume measured by the JV, sales volumes and other physical stock movements. Operating Loss will include Transportation Loss if the JV does not monitor Transportation Loss separately and hence uses terminal advised volumes. This should exclude specific write-offs for product slops, downgrades, disposals, etc. (see 1.3.7)

## 1.1.13 JV Agreement

The legal document defining how a JV is to operate.

## 1.2 Receipts

### 1.2.1 Product Transfer Point

The measurement point of transfers to the JV facilities should be agreed with all Suppliers to the JV. This is normally a meter at the delivering refinery or terminal or a receipt meter on airport in the case of pipeline or ship/barge receipts.

### 1.2.2 Transportation Loss

It is best practice to monitor Transportation Losses separately to Operating Loss and allocate to the individual Supplier, unless determined by JV management as not appropriate due to nature of supply logistics or measurement accuracy.

### 1.2.3 Fuel Supply Schedules

The Supplier's schedulers should provide the JV with a proposed agreed periodic schedule of quantities to be pumped or delivered to the JV to allow the JV to monitor planned stock levels. The schedule can be updated as necessary during the period. The schedulers should deliver agreed quantities in line with the schedule but need to check with the JV prior to actual pumping to ensure that ullage is available for pipeline deliveries.

### 1.2.4 Supplier Delivery Ticket Requirements

The following minimum data should be provided for each delivery

Point of Supply (e.g. delivering terminal) and date

Ambient volume

Standard volume or temperature and density to allow calculation of standard volume

Volumes of any samples taken post loading (where this occurs, the JV should understand the impact and decide how this volume should be allocated to JV Suppliers)

Batch density at standard temperature for quality checks

Other data required by local law for product identification, quantity, quality or other purposes

### 1.2.5 JV Receipt Procedures and Verification

The JV should have an agreed written procedure to validate delivered volume appropriate to the receiving method and throughput of the JV, e.g. receipt meters or tank dip movements. Other checks shall also be completed as required by JIG Guidelines.

## 1.2.5.1 Road and Rail Receipts

Best practice is a calibrated receipt meter as this gives the most accurate measurement, though the technical aspects of line fill and air should be considered. If meters are not appropriate then dips of vehicle and/or receiving tanks can be used, preferably for each delivery but at least daily. Observed temperature and density measurements should also be recorded for each delivery.

## 1.2.5.2 Pipeline Receipts

The best practice is to verify batch volume received using a calibrated meter as this gives the most accurate measurement. Temperature and density sample measurements should be taken to be representative of the batch. If meters are not available, verification should be done by calculating tank movements using before and after measurements (dips, temperature and density) allowing appropriate time for tank levels to stabilise after receipt.

On completion of any pipeline receipt the JV should prepare an outturn certificate showing the quantity received as per JV measurements. A copy of the outturn certificate should be sent to the scheduler.

## 1.2.5.3 Ship / Barge Receipts

There are specific requirements for airports delivered by ships or barges. Records shall be maintained by individual receipt and transportation loss should be calculated by delivery. Normal practice for receipts measurement is using receiving tank dip movements or receipt meter on airport.

## 1.2.6 Transportation Loss Procedure and Follow-up

The JV should have an agreed protocol with each Supplier for resolving differences between advised and received quantities i.e. investigating any receipts which fall outside of an agreed tolerance (+/- % received volume) so that the cause of the discrepancy is understood or corrected so that it can be accepted by both parties.

Tolerances at which Transportation Losses are investigated shall be set by the JV Committee but should be at a recommended maximum of:

Road and Rail +/- 0.2% on a monthly basis\*

Pipeline +/- 0.3% per parcel

Ship / Barge +/- 0.3% per vessel

\* The monthly basis for road and rail trucks is due to potential equipment and measurement inaccuracies when receiving individual truck or railcar quantities. Where practical, a loss per load should be calculated and a tolerance per load set, recommended at 0.5% of volume.

## 1.3 Sales and Transfers

### 1.3.1 Measurement at Ambient Litres

Sales to customers are to be done via a calibrated meter unless specifically agreed for a particular sales process. Start and end meter readings plus calculated volume are to be recorded on the delivery ticket plus other reconciliation documents used by the JV e.g. vehicle log. Industry practice is to use ambient litres for sales due to the accurate data obtained from truck meters.



### 1.3.2 Temperature and Density Measurement

In order to convert ambient sales into standard temperature volumes for stock control purposes there should be an agreed method for determining temperature and density. It is particularly important to establish an appropriate basis for temperature measurement for into-plane sales as an error of 1°C will result in a standard volume error of just under 0.1%.

Where estimations are used, normal practice is to measure temperature and density on a sample basis and apply to a number of appropriate timebands each day. These timebands should be established to ensure that they are representative of temperatures and densities for the typical schedule of operations. This should be done as near to the point of delivery as practical. Potential measurement points for this method are:

Fuelling vehicle with thermowell or manual sample

Hydrant representative points

Storage tanks

Tank temperatures are in general not reflective of the into-plane temperatures so should be avoided where possible. Where installed on fuelling vehicles, in-line thermometers should be read and temperature recorded for each fuelling once the temperature for that fuelling has stabilised.

Tank temperature and density are appropriate for tank and into-truck sales or transfers.

### 1.3.3 Sales Delivery Ticket Requirements

The following data should be provided for each sales delivery

Point of Supply (i.e. Airport) and date

Supplier name

Unique reference number

Customer data (including flight, destination and aircraft registration for into-plane sales delivery)

Ambient volume (plus meter start and finish is good practice)

Other data required by local law or tax requirements for product identification, quantity, quality or other purposes.

### 1.3.4 Tank and Into-truck Sales or Transfers

Appropriate methods should be defined for recording and reconciliation of internal product transfers, e.g. tank to tank transfers and fuelling vehicle loadings.

#### 1.3.4.1 In-tank sales between Suppliers are agreed between the Suppliers and relevant details notified to the JV.

#### 1.3.4.2 Into-truck sales on airport are typically to an into-plane operator or other local airports and should be based on a calibrated meter.

Records should be held of vehicle loadings in the case where the into-plane JV is recording the stock movement though no Delivery Ticket needs to be issued.

### 1.3.5 Sales Meters Reconciliation Process and Controls

Meter totaliser readings are to be taken at the end of each day for each meter used for sales. The movement of each meter is to be reconciled versus total of individual sales Delivery Tickets daily. This will mainly be into-plane sales but should also include other meters if used for into-truck sales.

Non-sales meter movements (e.g. for meter calibration, product sampling or other maintenance checks) should be recorded on separate documents and approved by a JV supervisor. These will be included in the reconciliation above.

Where there are regular small variances for meter roundings or other factors, a daily tolerance per meter based on airport experience should be set before investigation is required.

### 1.3.6 Consistent Process if Separate Storage, Hydrant and Into-plane Operators

Where there are separate storage and into-plane JVs or other entities on airport there should be agreement between them on calibration and measurement processes to follow so ambient and standard volumes are consistently recorded and reported to Suppliers i.e. use same temperature and density measurements. As the main stock custodian, the primary responsibility is on the Storage JV(s) to manage this process to ensure accuracy.

### 1.3.7 Downgraded Product - Disposal of Off-specification Fuel / Slops

If it is necessary to dispose of off-specification or contaminated fuel (for example following tank cleaning), the fuel should be disposed of using an approved contractor (e.g. appropriately qualified) and appropriate certified records retained to meet local accounting and duty regulations.

Unless the Supplier can be specifically identified, the quantity of fuel disposed of should be allocated to the Suppliers on the basis of a percentage of their monthly sales unless otherwise dictated in the JV governing documents.

## 1.4 Stock Measurement

### 1.4.1 Measurement Practices – Dip Levels, Temperature and Density

Tanks - All tanks should be measured on a daily basis and all stock movements recorded daily, including product drain recovery tanks where possible. Dips shall be converted to volume using the current certified calibration tables. Where such data is held in a system there should be annual checks on data integrity.

Fuelling vehicles - All fuellers should be either measured or filled to a reference point to determine volume. Approximation techniques may be used for daily stocks but accurate measurements should be used at month end.

Hydrant servicers - There should be a consistent process to include or exclude product in vehicle recovery tanks for month end stock where fitted.

STA - All measurements shall be converted to standard volumes at the applicable reference temperature using approved industry conversion tables. Where such tables are held in a system there should be annual checks on data integrity.

Physical Stock calculations at a point in time should show both ambient and standard volumes by individual tank, vehicle or other. It is good practice to have a proforma document listing all of these and deadstock to ensure that all stock is covered. All

operational copies of tables used for conversions should be maintained in good condition for ease of use.

### 1.4.2 Deadstock

Product in plant and fuelling vehicles along with all pipework considered as full (inclusive of hydrant lines) and filter contents should be included in the plant Physical Stock calculation. For stock accounting purposes, deadstock is stock not otherwise measured by dips or gauges. There should be supporting documentation to validate the volume recorded. The deadstock should be updated to reflect permanent changes or significant alterations and be subject to periodic review, at least annually.

### 1.4.3 Measurement Equipment Accuracy and Verification

All equipment shall be calibrated in line with JIG requirements.

### 1.4.4 Daily Stock Reconciliation

Best practice is for stock to be reconciled on a daily basis and approved by a JV Supervisor, although this may be reduced to a weekly check at low activity locations. The purpose is to detect major issues or non-recorded product movements. Gauge readings may be used instead of physical dips. There should be an agreed process to consistently handle operations in progress over the day end, e.g. include pipeline receipts on day completed.

The reconciliation should compare the Book Stock with the closing Physical Stock to calculate the daily Oil Loss in standard volume. Any significant loss, due for example to a missing delivery ticket, should be followed up immediately. Consistent daily losses should lead to further investigation. Daily stock accounting shall be in line with local regulations and be maintained at both ambient and standard temperature.

There should be an agreed basis for day end cut off to include or exclude a particular receipt or sale consistent with the associated physical stock measurement.

### 1.4.5 Month End Stock Reconciliation

At the end of each month the Physical Stock at the JV shall be compared to the closing Book Stock to calculate the difference in standard volume. This should be checked and approved and any Loss in excess of agreed monthly tolerances should be followed up immediately. Consistent results outside tolerances should lead to further investigation and results documented.

### 1.4.6 Supplier Stock Level Monitoring (Minimum and Maximum)

JVs may have regulations on the stock levels required by Suppliers or local legislation. The JV Manager should have a process in place to monitor such stock levels, including a trigger level to inform the Supplier that levels are getting close to the limit.

### 1.4.7 Independent Verification of Stock

To provide assurance to Suppliers of accurate stock accounting records, an independent verification of all JV stocks should be completed at one month-end during the year. This annual independent stock verification is to confirm that reported Physical Stock is

accurate. Stock verification findings are to be reported to the JV Manager and Board/Management Committee plus to individual Suppliers on request. Where such checks are performed by Statutory Auditors, Customs or other Government authority this will satisfy the need, if the process and documentation provided is of the standard required by the JV Participants.

**1.5 Oil Loss**

**1.5.1 Components**

Transportation Losses should be recorded separately from on-airport storage, handling and delivery loss (Operating Loss).

**1.5.2 Operating Loss**

The Operating Oil Loss for each product shall be defined as:

Opening stock + Receipts or returns (e.g. defuels) into airport storage – Sales – Consumed in operations = Book stock.

Physical Stock - Book Stock = (loss)/gain. Loss if negative and gain if positive value.

The Oil Loss percentage calculation formula should be defined as:

$$\text{Oil Loss \%} = \frac{\text{Loss}}{\text{Receipts} + (n/12 \text{ of opening physical stock})} \times 100$$

n = number of months in the period of analysis (e.g., n = 1 when calculating the monthly loss percentage and n = months year to date when calculating the year to date percentage, e.g. July = 7. The relevant month opening stock should be used for monthly calculations and January 1st stock used for year to date calculations).

The use of sales throughput as the divisor is also acceptable if agreed upon and documented by JV Participants.

**1.5.3 Targets and Tolerances**

The target is set for the expected value of standard loss based on the nature of the product. A tolerance allows some allowance for measurement inaccuracies or estimations. For example, for Avgas below the target is -0.5% and the tolerance is +/- 0.5% so the accepted range is zero to 1.0% loss. Potentially, monthly fluctuations will be higher than a full 12 months figure. Recommended targets and tolerances are:

Product	Target	Annual Tolerance	Monthly Tolerance
Jet fuel	Zero	+/- 0.1%	+/- 0.2%
Avgas	-0.5%	+/- 0.5%	+/- 1%

Where there are specific reasons for Losses not consistent with the above profile and agreed by the JV Participants, the annual target can be based on historical data instead of the targets above but should not exceed +/- 0.1% for jet fuels and - 1.0% for Avgas. However, a revised target at or above this level should only be set after analysis of the facilities' configuration, fuelling equipment type and average ambient temperature. It is

recognised that this may be particularly applicable to Avgas due to the nature of the product and lower sales volumes. Also see Smaller Airports below (1.7.1).

### 1.5.4 Allocation of Oil Loss between Suppliers

Oil Loss shall be allocated to the Suppliers on the basis as agreed in the JV Agreement or as agreed by the JV Board/ Committee. Best practice is to allocate based on Suppliers' standard temperature sales volumes (see Appendix 1 for example calculations). The reasons should be documented if another allocation basis is chosen.

### 1.5.5 Oil Loss Investigation Suggestions

Records of any investigations should be maintained. Such investigations may include the following checks:

- completeness and accuracy of recording of receipts, sales and other stock movements
- correct recording of temperature and conversion calculation for standard volume records (as ambient sales volume is controlled via meter reconciliations)
- accuracy of stock dips and calculations
- condition of measuring equipment to ensure no damage
- condition of tanks and pipework to confirm no evidence of physical leaks
- operational changes such as receipt procedures or engineering work
- follow up with Suppliers where issues with Transportation Loss.

## 1.6 Recording and Reporting

### 1.6.1 Record Keeping

A documented stock accounting process shall exist. This should include capture and recording of the following records:

- a) receipt volumes by transaction
- b) sales volumes , either by transaction if into-plane or daily otherwise
- c) internal sales, e.g. in-tank sales between Suppliers
- d) internal transfers e.g. fueller loadings, tank to tank transfers, product flushings
- e) product returns, e.g. defuels,
- f) Physical and Book Stock volumes
- g) Oil Loss volumes
- h) product write offs where significant volume

Supporting documentation should exist for all the above.

It is best practice to utilise a computerised stock accounting system that maintains the integrity of data when entered with an audit trail of changes. There are a number of packages available that perform this function for airport stock control. Regular back-ups should be taken. Where spreadsheets are used in the stock accounting process then consideration should be given to password protection of key formula and data.

### 1.6.2 Reporting to Suppliers

The JV Suppliers should be advised on a daily basis of their stock situation and of their sales to customer aircraft in accordance with their own company's sales data capture requirements. Other data may be provided to Suppliers or Participants as agreed with the JV.

A report of monthly stock movements should be prepared and sent to the designated contact for each Supplier within two working days of month end. This report should include the opening and closing stocks for the month, the receipts, transfers to other Suppliers, sales and stock loss by category, e.g., Transportation Loss and Operating Loss.

### 1.6.3 JV Core Principles

As a reminder of JIG JV Core Principles guidance, each Supplier shall only be provided with details of their own plus total JV figures.

### 1.6.4 Oil Loss Reporting and Analysis

Monthly data and periodic data such as year to date or rolling 12 months should be maintained and reported at the JV, both numerically and with graphs so that trends can be viewed. Results which differ from the norm at the airport should trigger an investigation.

### 1.6.5 Records Retention

Stock accounting documentation, e.g. Delivery Tickets, month end stock volumes, should be kept for a period of 7 years or according to local legal requirements if longer.

## 1.7 **Miscellaneous**

### 1.7.1 Smaller Airports

Smaller airports as defined in JIG 4 will not be required to monitor transportation loss separately. These airports may set greater tolerances for Operating Loss. To achieve this, it is suggested to set volume levels below which investigations will not be automatically required e.g. 2000 litres annual Oil Loss

### 1.7.2 Preferred Equipment and Calibration

Calibrated meters shall be used for product custody transfer to customers and should be used for product transfer between facilities.

All meters or other equipment used for stock control or for measuring product transfers to third parties shall be calibrated in accordance with JIG Guidelines or local regulations whichever is more stringent.

All storage tanks shall have a certified calibration table for determining stock level. Tanks and calibration tables may need to be recalibrated occasionally to ensure accurate measurement, e.g. as a result of tank modification (new bottom or internal changes), tank settlement, to meet local regulatory requirements or as otherwise agreed by the JV Board/Committee

### 1.7.3 Stock Security

In addition to stock accounting controls, there should be adequate physical security measures in place to protect stock appropriate to local assessed risk and in line with other JIG Guidelines, e.g. seals on fuelling vehicles or locks on tank sampling points.

### 1.7.4 Staff Training

All staff should be adequately trained in the stock accounting processes and procedures in which they are involved. Training records should be maintained.

### 1.7.5 Packaged Stock (Additives and Lubricants)

Separate records should be maintained by individual packaged unit. Stock rotation practices should exist to sell oldest products first (i.e. FIFO basis) and regular checks be completed versus use by date. Out of date products should be written off from stock records. There should be an annual verification of stock. Stock loss percentages do not apply.

### 1.7.6 Own Consumption (e.g. Diesel, Kerosine)

The purpose of monitoring is to recognise and follow up on abnormal usage. All own consumption should be tracked and a stock reconciliation process should be in place to identify the Loss for the month. There is no requirement to monitor oil loss in standard accounting therefore, oil loss can be monitored in measured / ambient only. The JV should decide on the frequency of calibrating the diesel pump meter, which should be annual if used as a basis to invoice significant volumes to third parties. Product used in vehicles, heating systems and other purposes should be monitored individually and recorded to identify any abnormal usage.

**APPENDIX 1 – WORKED EXAMPLES OF SUPPLIER OIL LOSS ALLOCATION**

**a) Standard Temperature Basis**

This is the best practice method of allocating Loss between Suppliers. Below is a worked example of the process for allocation based on standard temperature sales per section 1.5.4. The example assumes similar average sales temperatures for each Supplier but different ticketed temperature for receipts. Calculation order is 1-4 and each Supplier gets the same percentage allocation of standard loss plus ambient & standard stock figures remain aligned.

<b>AIRPORT X</b>	<b>STANDARD BASIS</b>									
		SUPPLIER								
<b>Ambient</b>	Calc	A	B	C	D	Site Total				
		L	L	L	L	L				
O/Stock		1,000,000	1,000,000	1,000,000	1,000,000	4,000,000				
Receipts		2,000,000	1,000,000	1,000,000	1,000,000	5,000,000				
Deliveries		2,000,000	1,000,000	1,000,000	1,000,000	5,000,000				
Book Stock		1,000,000	1,000,000	1,000,000	1,000,000	4,000,000				
Physical	<b>3</b>	1,010,791	1,001,221	996,052	981,936	3,990,000				
Loss / Gain	<b>4</b>	10,791	1,221	-3,948	-18,064	-10,000				
Percent		0.54%	0.12%	-0.39%	-1.81%	-0.20%				
<b>Standard</b>		A	B	C	D	Site Total				
		L15	L15	L15	L15	L15				
O/Stock		1,006,000	1,006,000	1,006,000	1,006,000	4,024,000				
Receipts		2,018,800	1,005,200	1,000,000	985,800	5,009,800				
Deliveries		2,012,000	1,006,000	1,006,000	1,006,000	5,030,000				
Book Stock		1,012,800	1,005,200	1,000,000	985,800	4,003,800				
Physical	<b>2</b>	1,016,856	1,007,228	1,002,028	987,828	4,013,940				
Loss / Gain	<b>1</b>	4,056	2,028	2,028	2,028	10,140				
Percent		0.20%	0.20%	0.20%	0.20%	0.20%				
			temp	temp	temp	temp				
Receipt VCF		1.0094	5	1.0052	10	1.0000	15	0.9858	30	1.0020
Delivery VCF		1.0060	5	1.0060	5	1.0060	5	1.0060	5	1.0060
VCF Actual		1.006	9	1.006	9	1.006	9	1.006	9	1.006



**b) Ambient Temperature Basis**

There are some scenarios where an ambient temperature basis may be appropriate, though the reason for selecting this method should be documented. This is primarily where receipts are at the same temperature but Supplier sales have different average temperatures due to timing of fuellings or different temperature basis. This example assumes similar average receipts temperatures for each Supplier but different temperature for sales. Calculation order is 1-4 and each Supplier gets the same percentage allocation of ambient loss plus ambient & standard stock figures remain aligned. JVs should not allocated both ambient & standard loss according to Supplier throughput percentage as this will result in Supplier physical stock at ambient & standard getting out of line when using the period end volume correction factor (VCF).

<b><u>AIRPORT X</u></b>		<b><u>AMBIENT BASIS</u></b>								
<b>Ambient</b>	Calc	A L	B L	C L	D L	Site Total L				
O/Stock		1,000,000	1,000,000	1,000,000	1,000,000	4,000,000				
Receipts		2,000,000	1,000,000	1,000,000	1,000,000	5,000,000				
Deliveries		2,000,000	1,000,000	1,000,000	1,000,000	5,000,000				
Book Stock		1,000,000	1,000,000	1,000,000	1,000,000	4,000,000				
Physical	<b>2</b>	996,000	998,000	998,000	998,000	3,990,000				
Loss / Gain	<b>1</b>	-4,000 -0.20%	-2,000 -0.20%	-2,000 -0.20%	-2,000 -0.20%	-10,000 -0.20%				
<b>Standard</b>		A L15	B L15	C L15	D L15	Site Total L15				
O/Stock		1,006,000	1,006,000	1,006,000	1,006,000	4,024,000				
Receipts		2,012,000	1,006,000	1,006,000	1,006,000	5,030,000				
Deliveries		2,018,800	1,005,200	1,000,000	985,800	5,009,800				
Book Stock		999,200	1,006,800	1,012,000	1,026,200	4,044,200				
Physical	<b>3</b>	1,001,976	1,003,988	1,003,988	1,003,988	4,013,940				
Loss / Gain	<b>4</b>	2,776 0.14%	-2,812 -0.28%	-8,012 -0.80%	-22,212 -2.25%	-30,260 -0.60%				
			temp	temp	temp	temp				
Receipt VCF		1.0060	9	1.0060	9	1.0060	9	1.0060		
Delivery VCF		1.0094	5	1.0052	10	1.0000	15	0.9858	30	1.0020
VCF Actual		1.006	9	1.006	9	1.006	9	1.006	9	1.006

**APPENDIX 2 – JV STOCK CONTROL BASIS EXAMPLE**

An example of a document that can be prepared for agreement by the JV Board / Committee. Reasons should be stated if recommended practices within these Guidelines are not to be followed.

The agreed basis of stock control for *JV name* is:

**SYSTEM**

The stock control system used is *system name or via spreadsheet name*

**RECEIPTS**

Product is received by truck and receipts are recorded based on information on the Supplier Delivery Ticket. The JV uses receipt meters to verify receipt volume and use the temperature as recorded by the temperature probe to adjust to standard litres. Transportation Loss is calculated by individual truck delivery and further checks done where the loss is over 0.5% per delivery or 0.2% for the month.

**SALES**

Sales to customers are based on the calibrated truck meters. For stock accounting purposes, a sample temperature & density is taken 3 times per day from the temperature probe installed in one refueller vehicle. This is used to calculate standard temperature sales in the timebands of 00.00-10.00, 10.00-17,00 & 17.00-24.00.

**STOCK MEASUREMENT**

Month end stock in storage tanks is measured using the dip tape and in trucks using dip sticks. Temperatures and densities are taken from each storage tank plus a sample truck for conversion to standard temperature. Deadstock is calculated & confirmed annually or on a major pipework change.

**INDEPENDENT VERIFICATION**

This is completed by *xyz company* at one month end each year and a report sent to Suppliers.

**OIL LOSS**

The oil loss percent is calculated based on sales throughput as a divisor and results outside the agreed tolerances as below are investigated:

<b>Product</b>	<b>Target</b>	<b>Annual Tolerance</b>	<b>Monthly Tolerance</b>
Jet fuel	Zero	+/- 0.1%	+/- 0.2%
Avgas	-0.5%	+/- 0.5%	+/- 1%

Allocation of standard temperature loss between Suppliers each month will be based on individual Suppliers percent of overall JV standard temperature sales throughput,

**DETAILED PROCEDURES**

Full procedures are contained in the JV Operating Procedures File.

**Attachment 1 CP 5.02 JIG Stock Control Guideline Review Form**

Section	Description	Gap Y/N	Reason why alternative processes are used plus any action plan to change
1	GUIDELINES FOR STOCK CONTROL AT JOINT VENTURE AIRPORT OPERATIONS		
1.2	Receipts		
1.2.1	Product Transfer Point		
1.2.2	Transportation Loss		
1.2.3	Fuel Supply Schedules		
1.2.4	Supplier Delivery Ticket Requirements		
1.2.5	JV Receipt Procedures and Verification		
1.2.6	Transportation Loss Procedure and Follow-up		
1.3	Sales and Transfers		
1.3.1	Measurement at Ambient Litres		
1.3.2	Temperature and Density Measurement		
1.3.3	Sales Delivery Ticket Requirements		
1.3.4	Tank and Into-truck Sales or Transfers		
1.3.5	Sales Meters Reconciliation Process and Controls		
1.3.6	Consistent Process if Separate Storage, Hydrant and Into-plane Operators		
1.3.7	Downgraded Product - Disposal of Off-specification Fuel / Slops		
1.4	Stock Measurement		
1.4.1	Measurement Practices – Dip Levels, Temperature and Density		
1.4.2	Deadstock		
1.4.3	Measurement Equipment Accuracy and Verification		
1.4.4	Daily Stock Reconciliation		
1.4.5	Month End Stock Reconciliation		
1.4.6	Supplier Stock Level Monitoring (Minimum and Maximum)		
1.4.7	Independent Verification of Stock		
1.5	Oil Loss		
1.5.1	Components		
1.5.2	Operating Loss		
1.5.3	Targets and Tolerances		
1.5.4	Allocation of Oil Loss between Suppliers		
1.5.5	Oil Loss Investigation Suggestions		
1.6	Recording and Reporting		
1.6.1	Record Keeping		
1.6.2	Reporting to Suppliers		
1.6.3	JV Core Principles		
1.6.4	Oil Loss Reporting and Analysis		
1.6.5	Records Retention		
1.7	Miscellaneous		

## GUIDELINES FOR STOCK CONTROL AT JOINT VENTURE AIRPORT OPERATIONS

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Section	Description	Gap Y/N	Reason why alternative processes are used plus any action plan to change
1.7.1	Smaller Airports		
1.7.2	Preferred Equipment and Calibration		
1.7.3	Stock Security		
1.7.4	Staff Training		
1.7.5	Packaged Stock (Additives and Lubricants)		
1.7.6	Own Consumption (e.g. Diesel, Kerosine)		