



Product Transfer Inspection Manual

**Prepared by
Transportation and Logistics Services
Chevron Phillips Chemical Company LP**

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Motor Carrier and Terminal Services
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Document Control

The CPChem Product Transfer Inspection Manual is a controlled document and may not be changed or altered without the written consent of Petrochemical Logistics (Motor Carrier & Terminal Services/Transportation & Logistics Services/Olefins & Polyolefins Division of the Chevron Phillips Chemical Company LP, The Woodlands, Texas).

Printed copies of this document are good for the day they are printed. It is the recommendation of the Chevron Phillips Chemical Company LP that the users of this manual make frequent checks of the cpchem.com web site to assure the most up to date version of the manual is used.

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Overall:

- 1. Changed Customer Account Representative (CSR or CSR's) to Customer Account Coordinator (CAC or CAC's) throughout the document**

Added new procedure:

- 1. PINS 01: Barge pre-inspection at shipyard or cleaning facility**

Revised procedures:

- 1. INS 03: Change deadline for reports**
- 2. INS 04: Invoicing – revised Step 3**
- 3. INS 05: Inspecting Receiving Tanks and Transfer Piping for Suitability – revised Responsibilities section, Step 1, and Step 3; added Step 5 and Step 6**
- 4. INS 10: Collecting Samples – added Chain of Custody to list of required forms and revised Note**
- 5. INS 11: Inspecting During Loading – revised Step 1 and Step 10**

Revised documents:

- 1. Certificate of Shore Quantities – revised list of reporting units**
- 2. Certificate of Vessel or Tank Cleanliness – revised list of required elements**
- 3. Certificate of Vessel Quantities (Opening and Closing) – revised list of reporting units**
- 4. Distribution of Samples/Sample Receipts – revised retain period**
- 5. Summary Report – revised list of required elements**
- 6. Scale Tickets – revised list of required elements**

Deleted reference materials:

- 1. Tank Preparation Chart**
- 2. Tank Preparation Additional Notes**

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Preface

Chevron Phillips Chemical Company LP delivers products to our customers and exchange partners and receives products from our suppliers and other exchange partners that meet or exceed required specifications 100% of the time. This high quality approach requires improving programs to maintain product quality when feedback and experience show such improvements are warranted. The Product Transfer Inspection Program described herein is a clarification of the guidance previously issued by Chevron Chemical Company, LLP as the “Product Transfer Instruction Manual, dated April, 2000.” This clarification formalizes requirements and guidance for minimizing the number of product integrity, product quality, and stock loss incidents involved in product transfers by outlining the roles of the partners involved, principally, the independent inspection companies.

The independence and quality of the product transfer inspection companies add to the confidence level of all parties in the results of inspections that meet company requirements. These inspection results have a direct impact on the company’s ability to maintain product integrity and to track and invoice product shipments accurately and to the satisfaction of all parties to the transfers. As such these inspections are essential to continuing good business relations. The inspection parameters outlined in this Product Transfer Inspection Program affect selecting qualified inspection companies, contracting for specific product transfer inspection services, and outlining the scope of inspection procedures meeting CPChem requirements.

Outlining requirements and guidance establishes the scope of tasks that meet requirements without restricting how the parties fulfill their respective responsibilities. Although the company’s expectations for quality are the same world-wide, specific techniques and methodology may differ for meeting company requirements; therefore, this document does not prescribe how to achieve the outlined requirements. The process for qualifying independent inspection companies provides adequate assurance that the methodologies these companies employ yield highly reliable results.

Suggestions are incorporated herein for how to use these requirements and guidelines. These requirements and guidelines apply to company facilities and personnel as well as independent inspection companies.

This document has been reviewed by a sample of prospective users and their comments have been considered to make the content both practical and cost effective.

This Document can viewed on the worldwide web (internet) at the following URL;
http://www.cpchem.com/enu/docs_corporate/ProductTransferInspectionManual.pdf

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PROGRAM INFORMATION

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Product Transfer Inspection Program

Purpose

The Product Transfer Inspection Program enables Chevron Phillips Chemical to:

- work with qualified inspection companies
- receive higher quality service
- ensure delivery of high quality products
- improve joint processes
- address excessive variance.

Criteria for Selecting Inspection Companies

Chevron Phillips Chemical uses a selection process to develop a list of approved inspection companies involving the review and approval of the inspection companies' operations applicable to services for Chevron Phillips Chemical. This includes the following functions:

- safety program
- quality program
- formal training program
- drug, alcohol, and firearms program
- U.S. Customs approval
- ISO certification
- laboratory capabilities for required testing.

Once part of the program, inspection companies are expected to:

- communicate effectively with all parties involved in the inspection
- perform requested services to the highest of CPChem and industry standards.

Inspection companies are continuously evaluated through:

- feedback from the CPChem participants on the quality of their performance
- spot field audits by CPChem's Petrochemical Logistics and Customer Tech Service Group
- feedback from CPChem Customer Account Coordinators (CAC); hereafter CAC's

Responsibilities of the Inspection Company

CPChem CAC's nominate companies for inspections based on the:

- professionalism of the service
- expertise of individual inspector/surveyors
- lab capabilities
- quality of the inspection companies' reporting procedures
- thoroughness of the reported data.

IF more than one inspection company is appointed, **THEN** all parties must:

- be present for all inspection and/or sampling activities during the transfer
- agree on all quantities prior to departing from the terminal.

CPChem relies upon inspector/surveyors to:

- identify opportunities for improvement
- make recommendations for corrective action to the CPChem CAC.

IF a problem occurs during the transfer, **THEN**

- complete an initial assessment
- discuss possible corrective actions with the CAC.

Equipment Requirements

The inspector/surveyor will bring:

- gauging tape
- thermometers
- sample equipment
- all other equipment required for a clean water-white chemical inspection.

Equipment must be:

- compliant with API RP 2003, Section 4.5.6.3 regarding static electricity
- clean
- in good condition
- regularly calibrated.

Inspectors/surveyors will use their own equipment. Vessel thermometers and gauging tapes **are not to be used**. The constant wear this equipment receives may cause variances in the calculations.

--END--

Personnel Policies

CPChem's concern for the safety of employees, the public, and the environment is expressed in the corporate policies that define management expectations and employee guidance. These same policies are applicable to contractors and subcontractors operating on CPChem premises and/or handling CPChem products. A summary of the policy points applicable to inspection companies and their employees contracted by CPChem for product transfer services is given below.

CPChem may suspend work or terminate a contract as a result of violation of these policies. When appropriate, local law enforcement agencies will be advised of violations.

Drug, Alcohol and Firearms Policy

CPChem policy prohibits the use, sale, possession, distribution, purchase, or transportation of:

- illegal drugs
- controlled substances
- alcohol
- explosives
- unauthorized flammable materials
- firearms
- other weapons.

Definitions

Controlled Substance

Controlled substances include:

- opiates
- heroin
- hallucinogens
- marijuana
- mescaline
- peyote
- cocaine
- PCP.

In addition, prescription drugs are considered controlled substances if they:

- are not obtained and used under a prescription lawfully issued to the person possessing them
- are not authorized by CPChem medical staff
- are included in the Federal Controlled Substance Act or its regulations.

Controlled Substance/Alcohol Test

A controlled substance or alcohol test is any test using blood, urine, breath or other samples to determine the presence of controlled substances or alcohol in the body.

Company Premises

The following constitute company premises if they are owned, leased, or in use by CPChem for any purpose:

- land
- property
- buildings
- structures
- installations
- vehicles
- equipment
- aircraft
- water craft.

Under the Influence of Alcohol

An individual having a blood alcohol concentration (%BAC) of 0.04% or above is defined as being under the influence of alcohol.

Policy Enforcement for Contractors and Subcontractors

The Drug, Alcohol and Firearms Policy applies to contractors and subcontractors to the same extent as it does to CPChem employees. Any person violating this policy will be removed from company premises and denied future access to the premises and affiliated companies.

Searches

Unless prohibited by law, CPChem may search individuals and their personal effects:

- when entering CPChem premises
- while on CPChem premises
- when leaving CPChem premises.

The Company may require contractors and subcontractors to search their employees under the same circumstances as above.

Entry onto CPChem premises constitutes consent to search the individual and his or her effects, including:

- packages, including but limited to DOT containers and samples
- briefcases
- purses
- lunch boxes
- vehicle
- office
- locker
- closet
- desk.

Individuals may decline to cooperate, however, refusal shall be cause to bar the individual from the premises of CPChem or affiliated companies.

Testing

Unless prohibited by law, CPChem may request that contractors conduct controlled substance and/or alcohol tests on any of their employees or subcontractors' employees who are:

- on company premises
- engaged in company business
- operating company equipment.

Prior written consent will be obtained from any person who is being tested. A positive test on a contractor or subcontractor employee or failure to give written consent for a test is cause for removal from company premises. The employee will also be restricted or disqualified from performing services for CPChem or affiliated companies.

Notification of Search and/or Testing by Contractor

Prior to conducting a search and/or testing of its or subcontractors' employees on CPChem's company premises, contractor shall notify the local company facility manager.

--END--

Safety Policy

These requirements cover all personnel at any installation including:

- CPCChem employees
- contractors or
- visitors.

Safety requirements vary depending on operational conditions.

Inspection companies must review and comply with the safety requirements at the installations in which they work, including facility safety orientations.

Requirements

Minimum requirements state that inspector/surveyors wear:

- hard hat
- safety glasses
- long sleeves (fire retardant)
- long pants (fire retardant)
- substantial footwear
- suitable protective clothing for handling the product being inspected.
- U. S. Coast Guard (USGS) approved personal floatation device (PFD)
- photo identification issued by the employing company
- company name on Fire retardant clothing

Benzene Inspection Safety Requirements

Each inspection company will monitor employees to ensure proper personal protection equipment is worn while working near benzene.

Benzene inspections require additional personal protective equipment including:

- full face piece chemical cartridge respirator
- organic vapor cartridges or organic vapor canister
- benzene resistant slicker suit, boots and gloves.



**STATIC ELECTRICITY HAZARDS MAY EXIST.
Preventative measures should be followed to avoid ignitions from static discharges. Please refer to American Petroleum Institute Recommended Practice 2003 for more detailed information.**

NOTE: This stop sign symbol has been placed throughout the procedures in this manual to indicate where static electricity precautions must be applied.

--END--

Product Transfer Inspection Manual

Purpose

Outline the inspection manual's objective and scope.

Objective

This manual outlines the minimum requirements for quantity and/or quality inspections performed for CPChem. This includes all of its divisions, subsidiaries and joint ventures unless superceded by local instructions. These guidelines apply whether an inspection company is appointed solely or on a joint basis with one or more other companies.

IF additional instructions are necessary, **THEN** they will be itemized in the job nomination "Shipping Request/Job Nomination" via fax or e-mail.

Responsibilities of the inspector/surveyor

Each inspector/surveyor must:

- read and understand these instructions
- use the instructions as a guide for inspections

Scope

In addition to the inspections described in this manual, inspection companies may be requested to perform:

- investigations in the event of stock loss
- shore tank inspections
- annual physical inventories.

Instructions for these procedures are not included in this manual.

IF there are any questions or concerns regarding the inspection or these instructions, **THEN** call the CPChem Customer Account Coordinator (CAC), or Petrochemical Logistics.

--END--

PRE-INSPECTION PROCEDURES

Chapter Overview

This chapter covers the general requirements of pre-inspecting barges, vessels, and shore tanks

In this Chapter

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--END--

PINS 01: Barge pre-inspection at shipyard or cleaning facility

Purpose

This document addresses barges entering CPChem service either as a newly constructed unit or having just emerged from a shipyard or cleaning facility. The purpose of this procedure is to reduce the risk of contamination due to residues from the fabrication, cleaning, or repair process.

Required Forms

- Certificate of Vessel or Tank Cleanliness

7-Step Procedure

Step	Action						
1	Check in as instructed in Procedure INS 01						
2	<p>Perform a deck level inspection as instructed in paragraph 8 of the API “Manual of Petroleum Measurement Standards Chapter 17 – Marine Measurement; Section 8 – Guidelines for Pre-Loading Inspection of Marine Vessel Cargo Tanks”</p> <table border="1"> <thead> <tr> <th>IF ...</th> <th>THEN...</th> </tr> </thead> <tbody> <tr> <td>all the tanks are acceptable per the API guideline</td> <td>deck level pre-inspection is approved</td> </tr> <tr> <td>any of the tanks are not acceptable per the API guideline</td> <td>deck level pre-inspection is <u>not approved</u>: notify the CAC or Chevron Shipping contact (the barge may be washed or rejected)</td> </tr> </tbody> </table>	IF ...	THEN...	all the tanks are acceptable per the API guideline	deck level pre-inspection is approved	any of the tanks are not acceptable per the API guideline	deck level pre-inspection is <u>not approved</u> : notify the CAC or Chevron Shipping contact (the barge may be washed or rejected)
IF ...	THEN...						
all the tanks are acceptable per the API guideline	deck level pre-inspection is approved						
any of the tanks are not acceptable per the API guideline	deck level pre-inspection is <u>not approved</u> : notify the CAC or Chevron Shipping contact (the barge may be washed or rejected)						
3	<p>Witness blowing all the lines from the header into all the compartments.</p> <table border="1"> <thead> <tr> <th>IF ...</th> <th>THEN...</th> </tr> </thead> <tbody> <tr> <td>no liquid or solid material blown into the tanks</td> <td>blow down pre-inspection is approved</td> </tr> <tr> <td>liquid or solid material visible when the blow down is performed</td> <td>blow down pre-inspection is <u>not approved</u>: notify the CAC or Chevron Shipping contact (the barge may be washed or rejected)</td> </tr> </tbody> </table>	IF ...	THEN...	no liquid or solid material blown into the tanks	blow down pre-inspection is approved	liquid or solid material visible when the blow down is performed	blow down pre-inspection is <u>not approved</u> : notify the CAC or Chevron Shipping contact (the barge may be washed or rejected)
IF ...	THEN...						
no liquid or solid material blown into the tanks	blow down pre-inspection is approved						
liquid or solid material visible when the blow down is performed	blow down pre-inspection is <u>not approved</u> : notify the CAC or Chevron Shipping contact (the barge may be washed or rejected)						
4	<p>If instructed to perform a Wall Wash, THEN perform a Wall Wash per Procedure B of the API standard cited above. The CAC or Chevron Shipping contact will instruct whether Wall Wash will be Funnel Wall Wash (using Methanol or designated wash liquid), Blotter Wall Wash or both.</p>						

Page 2 of PINS 01: Barge Pre-inspection at shipyard or cleaning facility

Step	Action	
5	Label Wall Wash samples and deliver to the designated laboratory for analysis.	
	IF ...	THEN...
	the tanks are acceptable per the Wall Wash test results	Wall wash pre-inspection is approved
the tanks are not acceptable based on Wall Wash sample testing	wall wash pre-inspection is <u>not approved</u> : notify the CAC or Chevron Shipping contact (the barge may be washed or rejected)	
6	IF instructed to perform a tank entry inspection, THEN perform a tank entry inspection as instructed in paragraph 9 of the API standard cited above.	
	IF ...	THEN...
	the tanks are acceptable per the API guideline and more than 95% of the liner (if applicable) is intact,	tank entry pre-inspection is approved
the tanks are not acceptable per the API guideline OR less than 95% of the liner (if applicable) is intact	tank entry pre-inspection is <u>not approved</u> : notify the CAC or Chevron Shipping contact (the barge may be washed or rejected)	
7	Complete the Inspection Report and submit to the CAC or Chevron Shipping contact.	

--END--

Administrative Procedures

Chapter Overview

This chapter covers the general requirements of any inspection, including checking-in for the inspection, completing the final documentation, and invoicing.

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--END--

Prior to Inspection

INS 01: Checking in for the Inspection

Purpose

Describe the inspector/surveyor's responsibility upon arrival to perform the inspection.

Required Forms

- Shipping Request or Job Nomination Form

5-Step Procedure

Note: The dispatcher and the terminal will coordinate the timing of the inspection. The inspector/surveyor uses this procedure to check in on the day of the inspection.

Step	Action								
1	Is the Order written or verbal?								
	<table border="1"> <thead> <tr> <th>IF the Order is...</th> <th>THEN...</th> </tr> </thead> <tbody> <tr> <td>written</td> <td>Go to step 2</td> </tr> <tr> <td>verbal</td> <td>Inspector should document phone call <ul style="list-style-type: none"> • Who called • when • phone number • instructions • Go to step 2 </td> </tr> <tr> <td>verbal</td> <td>The CAC notifies terminal or destination</td> </tr> </tbody> </table>	IF the Order is...	THEN...	written	Go to step 2	verbal	Inspector should document phone call <ul style="list-style-type: none"> • Who called • when • phone number • instructions • Go to step 2 	verbal	The CAC notifies terminal or destination
	IF the Order is...	THEN...							
	written	Go to step 2							
verbal	Inspector should document phone call <ul style="list-style-type: none"> • Who called • when • phone number • instructions • Go to step 2 								
verbal	The CAC notifies terminal or destination								
2	Check the job nomination form to verify whether you are to inspect for: <ul style="list-style-type: none"> • quantity • quality • vessel suitability • all of the above. 								
3	From the inspection company office, collect: <ul style="list-style-type: none"> • a completed shipping request and/or job nomination form outlining the requirements for the inspection • Material Safety Data Sheet(s) • any other pertinent documents. 								
4	At the terminal: <ul style="list-style-type: none"> • check in at the main gate on time with proper identification (See Safety, pg. 17) • contact dock or shift supervisor. 								

Page 2 of INS 01:Checking in for the inspection

Step	Action
5	Join dock/shift supervisor and the person in charge of the vessel for a pre-transfer conference to verify: <ul style="list-style-type: none">• transfer loading rate• capacity limitations• minimum/maximum quantity of cargo to be transferred• MSDS information• sampling requirements• cleaning history• last three cargoes• special requests by customers.

-- END --

After Inspection

INS 02: Troubleshooting When the Variance is Greater than 0.3%

Purpose

This document outlines the procedure for rechecking variances in net volume transferred during loading or discharge operations.

Required Forms

- Letter of Protest (if applicable)
- Letter of Discrepancy (if applicable)
- Vessel Experience Factor (VEF) Calculation Report

8-Step Procedure

Step	Action						
1	Manually regauge and check the temperature of the shore and vessel cargo tanks.						
2	Check line displacement figures.						
3	Compare difference between hand gauge and auto gauge readings at open and close.						
4	IF the transfer was a discharge from vessel to shore tank, THEN <ul style="list-style-type: none"> • check amount of material left in the vessel cargo tank(s) • check CPChem's shore figures against load port figures. 						
5	Recheck line condition at closing tank gauge.						
6	Check: <ul style="list-style-type: none"> • vessel experience factor (VEF) • inventory changes in other tanks connected to the same piping system. 						
7	Compare vessel figures at load port versus arrival figures at discharge port, and compare shore figures between load and discharge port.						
8	<table border="1"> <thead> <tr> <th>IF recalculated quantities vary by...</th> <th>THEN...</th> </tr> </thead> <tbody> <tr> <td>less than 0.3%,</td> <td>begin filing the documentation as specified in <i>INS 03: Completing Final Documentation</i>.</td> </tr> <tr> <td>more than 0.3%,</td> <td> <ul style="list-style-type: none"> • issue a letter of protest to the facility and person in charge of the vessel before the vessel departs. Issue a <i>Letter of Discrepancy</i> to document the variance. • Notify the CAC. </td> </tr> </tbody> </table>	IF recalculated quantities vary by...	THEN...	less than 0.3%,	begin filing the documentation as specified in <i>INS 03: Completing Final Documentation</i> .	more than 0.3%,	<ul style="list-style-type: none"> • issue a letter of protest to the facility and person in charge of the vessel before the vessel departs. Issue a <i>Letter of Discrepancy</i> to document the variance. • Notify the CAC.
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more than 0.3%,	<ul style="list-style-type: none"> • issue a letter of protest to the facility and person in charge of the vessel before the vessel departs. Issue a <i>Letter of Discrepancy</i> to document the variance. • Notify the CAC. 						

-- END --

INS 03: Completing the Final Documentation

Purpose

Describe the development of the final inspection report. The document:

- lists required forms
- clarifies the deadline for filing
- gives instructions for distributing.

Required Forms

Descriptions of required forms are available in the *Document References* section of this Inspection Manual.

Filing the Reports

The following chart outlines the required documentation and filing deadlines.

Report	Required forms	Filing instructions	Deadline
Gross standard volume reconciliation	Draft of the Inspection Report	Deliver to the vessel	Prior to the vessel departure
24 Hour Notification	<ul style="list-style-type: none"> • Final gross and net standard volume reconciliation • Statement of Facts 	Fax or Email to the CPChem representative specified on the shipping request/job nomination form.	Within 24 hours of vessel departure
Final inspection report	<ul style="list-style-type: none"> • Company Certificate of Analysis • Letters of Protest (if any) • Certificate of Line Condition • Certificate of Analysis • Certificate of Shore Quantities • Certificate of Vessel Cleanliness • Certificate of Vessel Quantities • Distribution of Retain Samples • Letter of Discrepancy (if any) • Reconciliation Report • Summary Report • Statement of Facts • Shore/Vessel Seal Report • Vessel Experience Factor Report 	<ol style="list-style-type: none"> 1. Send copies via e-mail or fax to CPChem as instructed by shipping request/job nomination form. (See INS 04: Invoicing.) 2. Send one copy to the terminal or facility where the inspection occurred. 3. IF U.S. Customs is involved with the inspection, THEN send two copies of the report to the freight forwarder designated in the shipping request/job nomination instructions. 	Within 24 hours of vessel departure (or 72 hours if a holiday or weekend intervenes)

-- END --

INS 04: Invoicing

Purpose

This document specifies the procedure for preparing and distributing the invoice.

Required Forms

- Original invoice

3-Step Procedure

Step	Action
1	Prepare the invoice, including: <ul style="list-style-type: none"> • name of vessel, tank number or pipeline • name and quantity of product • location and date of movement • CPChem order number • full name of the shipping and receiving company(s).
2	Itemize the inspection services at the rates agreed to in the latest CPChem contract. The cost of inspection services, unless otherwise agreed, will be as published in the inspection company's latest price list.
3	Send the original invoice to Accounts Payable (Attention CAC that placed the order, Chevron Phillips Chemical Company, PO Box 4920, The Woodlands, TX 77387-4920) and copy the CAC, unless otherwise designated.

-- END --

INSPECTION PROCEDURES FOR TRANSFERS FROM SHORE TO VESSEL

Chapter Overview

This chapter outlines the inspector/surveyor's responsibilities for inspections before, during and after loading.

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Prior to the Transfer from Shore

INS 05: Inspecting Receiving Tanks and Transfer Piping for Suitability

Purpose

Describe the procedure for inspecting receiving tanks for suitability. This procedure applies to:

- ships
- barges
- shore tanks
- deck tanks

Required Forms

- Certificate of Vessel or Tank Cleanliness

Responsibilities

Inspectors/surveyors are responsible for verifying that the vessel owners have satisfactorily cleaned their tanks and record the cleaning method using the Visual Tank Inspection Report.

Piping inspection should include a visual check for evidence of external leakage and for residue inside the piping. Internal inspection should be made from all practical locations such as; manifold piping, blinds and flanges.

Inspectors/surveyors will inspect every vessel for suitability before loading regardless of whether the vessel/barge owners requested a pre-loading inspection at their last discharge port or shipyard.,

IF tanks and/or piping are not suitable, **THEN** the inspector/surveyor should notify the CAC with his/her recommendations.

Note: The CAC ensures that the appropriate recommendations are carried out.

Time Specifications

The inspector/surveyor must perform the suitability inspection early enough to minimize delays associated with any required additional cleaning.

10-Step Procedure

Page 2 of INS 05: Inspecting Receiving Tanks and Transfer Piping for Suitability

Step	Action								
1	<p>Examine the receiving tank(s) and associated piping for leaks, residue and corrosion.</p> <table border="1" data-bbox="358 445 1414 915"> <thead> <tr> <th data-bbox="358 445 875 493">IF there is...</th> <th data-bbox="875 445 1414 493">THEN...</th> </tr> </thead> <tbody> <tr> <td data-bbox="358 493 875 546">a leak,</td> <td data-bbox="875 493 1414 546">Reject the vessel and inform the CAC.</td> </tr> <tr> <td data-bbox="358 546 875 793">evidence of corrosion,</td> <td data-bbox="875 546 1414 793"> Record on the <u>Certificate of Vessel Cleanliness</u>: <ul style="list-style-type: none"> • the quantity of rust • its potential impact on the product • type (scale or powder). And inform the CAC </td> </tr> <tr> <td data-bbox="358 793 875 915">scale in the tank,</td> <td data-bbox="875 793 1414 915">Determine compatibility with the product to be loaded and inform the CAC.</td> </tr> </tbody> </table>	IF there is...	THEN...	a leak,	Reject the vessel and inform the CAC.	evidence of corrosion,	Record on the <u>Certificate of Vessel Cleanliness</u> : <ul style="list-style-type: none"> • the quantity of rust • its potential impact on the product • type (scale or powder). And inform the CAC	scale in the tank,	Determine compatibility with the product to be loaded and inform the CAC.
IF there is...	THEN...								
a leak,	Reject the vessel and inform the CAC.								
evidence of corrosion,	Record on the <u>Certificate of Vessel Cleanliness</u> : <ul style="list-style-type: none"> • the quantity of rust • its potential impact on the product • type (scale or powder). And inform the CAC								
scale in the tank,	Determine compatibility with the product to be loaded and inform the CAC.								
2	<p>Examine the receiving tank(s) to ensure:</p> <ul style="list-style-type: none"> • all bilges have been blanked off and sealed • the tank uses double valve separation • the tank uses a dedicated pipe system • the compatibility of products within a single cargo piping system. 								
3	<p>Check the receiving tank(s) and piping for:</p> <ul style="list-style-type: none"> • free water or condensation • coatings or linings • visible evidence of polymer build-up • traces of previous cargoes. <table border="1" data-bbox="358 1442 1414 1801"> <thead> <tr> <th data-bbox="358 1442 875 1491">IF the tank and/or piping...</th> <th data-bbox="875 1442 1414 1491">THEN...</th> </tr> </thead> <tbody> <tr> <td data-bbox="358 1491 875 1669">is coated or lined,</td> <td data-bbox="875 1491 1414 1669"> examine the coating or lining for <ul style="list-style-type: none"> • type • condition (must be at least 95% intact to be acceptable) </td> </tr> <tr> <td data-bbox="358 1669 875 1753">contains traces of previous cargoes,</td> <td data-bbox="875 1669 1414 1753">test traces for compatibility with the product to be loaded.</td> </tr> <tr> <td data-bbox="358 1753 875 1801">contains visible evidence of polymer</td> <td data-bbox="875 1753 1414 1801">the tank unsuitable.</td> </tr> </tbody> </table>	IF the tank and/or piping...	THEN...	is coated or lined,	examine the coating or lining for <ul style="list-style-type: none"> • type • condition (must be at least 95% intact to be acceptable) 	contains traces of previous cargoes,	test traces for compatibility with the product to be loaded.	contains visible evidence of polymer	the tank unsuitable.
IF the tank and/or piping...	THEN...								
is coated or lined,	examine the coating or lining for <ul style="list-style-type: none"> • type • condition (must be at least 95% intact to be acceptable) 								
contains traces of previous cargoes,	test traces for compatibility with the product to be loaded.								
contains visible evidence of polymer	the tank unsuitable.								

Page 3 of INS 05: Inspecting Receiving Tanks and Transfer Piping for Suitability

Step	Action						
4	For each receiving tank to be loaded, record: <ul style="list-style-type: none"> • last three cargoes • cleaning procedures used after each of the last three cargoes • capacity of each tank • vessel load plan for the current voyage • product currently stored in adjacent tanks and pipelines where a mixture could occur. 						
5	If instructed to perform a Wall Wash, then do so according to Procedure B of the API “Manual of Petroleum Measurement Standards Chapter 17 – Marine Measurement; Section 8 – Guidelines for Pre-Loading Inspection of Marine Vessel Cargo Tanks.” The CAC will instruct whether Wall Wash will be a Funnel Wall Wash (using Methanol or designated wash liquid), Blotter Wall Wash or both.						
6	Label Wall Wash samples and deliver to the designated laboratory for analysis. <table border="1" data-bbox="354 930 1425 1155"> <thead> <tr> <th data-bbox="354 930 862 982">IF...</th> <th data-bbox="862 930 1425 982">THEN...</th> </tr> </thead> <tbody> <tr> <td data-bbox="354 982 862 1066">the tanks are acceptable per the Wall Wash test results</td> <td data-bbox="862 982 1425 1066">Tanks are approved; notify the CAC</td> </tr> <tr> <td data-bbox="354 1066 862 1155">the tanks are not acceptable based on Wall Wash sample testing</td> <td data-bbox="862 1066 1425 1155">Tanks <u>not approved</u>: notify the CAC (the vessel may be washed or rejected)</td> </tr> </tbody> </table>	IF...	THEN...	the tanks are acceptable per the Wall Wash test results	Tanks are approved; notify the CAC	the tanks are not acceptable based on Wall Wash sample testing	Tanks <u>not approved</u> : notify the CAC (the vessel may be washed or rejected)
IF...	THEN...						
the tanks are acceptable per the Wall Wash test results	Tanks are approved; notify the CAC						
the tanks are not acceptable based on Wall Wash sample testing	Tanks <u>not approved</u> : notify the CAC (the vessel may be washed or rejected)						
7	After determining suitability: <table border="1" data-bbox="354 1249 1425 1680"> <thead> <tr> <th data-bbox="354 1249 862 1302">IF...</th> <th data-bbox="862 1249 1425 1302">THEN...</th> </tr> </thead> <tbody> <tr> <td data-bbox="354 1302 862 1591">the tank(s)and/or piping is/are unsuitable,</td> <td data-bbox="862 1302 1425 1591"> Reject the receiving tank(s) and call the CAC immediately with recommendations. IF the tank/piping needs additional cleaning, THEN go to <i>INS 06: Rejecting Receiving Tanks/Piping</i>. </td> </tr> <tr> <td data-bbox="354 1591 862 1680">the tank(s) is/are suitable,</td> <td data-bbox="862 1591 1425 1680">Complete the <i>Certificate of Vessel Cleanliness</i>.</td> </tr> </tbody> </table>	IF...	THEN...	the tank(s)and/or piping is/are unsuitable,	Reject the receiving tank(s) and call the CAC immediately with recommendations. IF the tank/piping needs additional cleaning, THEN go to <i>INS 06: Rejecting Receiving Tanks/Piping</i> .	the tank(s) is/are suitable,	Complete the <i>Certificate of Vessel Cleanliness</i> .
IF...	THEN...						
the tank(s)and/or piping is/are unsuitable,	Reject the receiving tank(s) and call the CAC immediately with recommendations. IF the tank/piping needs additional cleaning, THEN go to <i>INS 06: Rejecting Receiving Tanks/Piping</i> .						
the tank(s) is/are suitable,	Complete the <i>Certificate of Vessel Cleanliness</i> .						
8	Manually gauge tanks and record ullage.						
9	Record temperature of and sample any OBQ product in tank to be loaded on top.						
10	Record vessel draft and calculate trim (if applicable)						

-- END --

INS 06: Rejecting Receiving Tanks/Piping

Purpose

This outlines the procedure when rejecting a receiving tank/piping.

2-Step Procedure

Step	Action
1	Notify CAC with recommendations for making the receiving tank/piping suitable for use.
2	IF the vessel returns for loading after cleaning, THEN reinspect for suitability as described in <i>INS 05: Inspecting Receiving Tanks and Piping for Suitability</i> .

-- END --

INS 07: Verifying the Shore Tank Contents Before Loading

Purpose

Outline the procedure for gauging, sampling, and recording the contents of the shore tanks before loading a suitable barge or vessel.

Required Forms

- Certificate of Line Condition
- Certificate of Shore Quantities
- Ullage Report
- Certificate of Analysis


Policy

An authorized terminal representative must witness this procedure.

Time Specifications

Begin the inspection **at least one hour before** the vessel is expected to arrive to minimize vessel turn around time.

6-Step Procedure

Step	Action
1	Check the most recent Certificate of Analysis of the shore tank.
2	From each shore tank involved in the transfer, take average temperatures, water cuts and meter readings, if a custody transfer meter is used. (See the definition of "average temperatures" in the <i>Glossary</i> for more information).
	
3	Record all information on the ullage report.
4	Gauge each shore tank and record the following: <ul style="list-style-type: none"> • innage • calculated innage using the tank height stated on the strapping tables • difference between the innage and the calculated innage • difference between the actual gauge height and the strapping tables gauge height. <p><u>Note:</u> Calculated innage must be used for all custody transfer calculations.</p>
5	Take, label, test, and retain running samples as described in <i>INS 11: Collecting the Samples before Loading</i> .
6	Verify whether the shore line is empty or full by using the procedure in <i>INS 08: Verifying the Shore Line Condition</i> .

-- END --

INS 08: Verifying the Shore Line Condition

Purpose

This describes the procedure for checking the condition of the shore line and determining its contents before loading.

Required Forms

- Certificate of Line Condition

5-Step Procedure

Note: Use of pigging systems may improve accuracy where available.

Step	Action
1	Verify which shore line will be used in the transfer with one or more of the following: <ul style="list-style-type: none"> • plant representative • terminal representative • refinery representative.
2	Determine whether the shore line is dedicated and/or isolated.
3	Ensure that the shore line is empty or full, using one of the following two methods. Method 1 Circulate the capacity of the line back to the shore tank. Method 2 <ol style="list-style-type: none"> 1. Pump 1.5 times the volume of the shore line. 2. Shut down. 3. Gauge: <ul style="list-style-type: none"> • shore tank • vessel tank. 4. Calculate the net difference. Note: Method 2 is conducted at the start of a cargo transfer.
4	Use the Certificate of Line Condition to record gauge calculations, method and shore line capacity.
5	For all adjacent tanks and tanks on the same line where a mixture could occur, note: <ul style="list-style-type: none"> • type of product • ullage • temperature • quantity.

-- END --

INS 09: Taking Samples Before Loading

Purpose

Identify the points for taking retain and test samples before loading.

Time Specifications

The following samples must be taken before loading can begin.



STATIC ELECTRICITY HAZARDS MAY EXIST.
Preventative measures should be followed to avoid ignitions from static discharges

Location	Type	Quantity	Time
Shore tanks	retain sample	one quart, or as requested	within 8 hours of loading.
	test sample	one quart, or as requested	within 24 hours of vessel's arrival The Certificate of Analysis is valid for as long as the tank remains static, unless otherwise instructed.
Shore line manifold If the shore line is a Shared line with other products	test sample	one quart, or as requested	within 24 hours of vessel's arrival The Certificate of Analysis is valid for as long as the tank and shore line remains static, unless otherwise instructed.
Shore line manifold If the shore line is Dedicated	retain sample	one quart, or as requested	prior to opening shore manifold valve.
Vessel manifold	retain sample	one quart, or as requested	prior to opening vessel's manifold valve.

Collecting Samples

Use the procedure in INS 10: Collecting Samples.

-- END --

INS 10: Collecting Samples

Purpose

This describes the general procedure for collecting samples during an inspection.

Policy

The inspector/surveyor must personally verify that the samples are collected in accordance with the instructions stated in the nomination fax/e-mail for CPChem, as well as for CPChem's customers, suppliers and/or exchange partners.

Required Forms

- Distribution of Retain Samples
- Statement of Facts
- 24 hour Notification
- Job Nomination Form
- Chain of Custody Form

CAUTION: When transporting product samples on public roads, inspectors/surveyors must comply with all appropriate U S Department of Transportation or other local regulations.



**STATIC ELECTRICITY HAZARDS MAY EXIST.
Preventative measures should be followed to avoid ignitions from static discharges**

11-Step Procedure

Step	Action
1	Fill the bottle. See note “*” for type bottle to be used.
2	Close the cap and secure it.
3	Place a plastic bag over the bottle, and apply the custody seals.
4	Document and label the samples with following information, as applies: <ul style="list-style-type: none"> • date obtained • vessel/tank facility designation obtained from • product • seal numbers • amount of sample • disposal company • tracking number • disposal date • type of disposal.

Page 2 of INS 10: Collecting Samples

Step	Action								
5	<table border="1"> <thead> <tr> <th>IF the sample is a...</th> <th>THEN ...</th> </tr> </thead> <tbody> <tr> <td>test sample</td> <td>Go to step 6</td> </tr> <tr> <td>retain sample</td> <td>Go to step 9.</td> </tr> </tbody> </table>	IF the sample is a...	THEN ...	test sample	Go to step 6	retain sample	Go to step 9.		
	IF the sample is a...	THEN ...							
	test sample	Go to step 6							
retain sample	Go to step 9.								
6	<p>Visually examine the samples for:</p> <ul style="list-style-type: none"> • water • color • appearance • sediment. 								
7	Send the samples for testing. Have the lab test all level running samples as outlined in the shipping request/job nomination.								
8	<table border="1"> <thead> <tr> <th>IF the test results...</th> <th>THEN ...</th> </tr> </thead> <tbody> <tr> <td>do not meet the specifications as stated by: <ul style="list-style-type: none"> • the job nomination fax/e-mail • CPChem representative </td> <td> <ul style="list-style-type: none"> • call the CAC immediately <p><u>Note:</u> Discuss all differences in the test results from the stated specifications.</p> </td> </tr> <tr> <td>meet the specifications</td> <td>Go to step 9.</td> </tr> </tbody> </table>	IF the test results...	THEN ...	do not meet the specifications as stated by: <ul style="list-style-type: none"> • the job nomination fax/e-mail • CPChem representative 	<ul style="list-style-type: none"> • call the CAC immediately <p><u>Note:</u> Discuss all differences in the test results from the stated specifications.</p>	meet the specifications	Go to step 9.		
	IF the test results...	THEN ...							
	do not meet the specifications as stated by: <ul style="list-style-type: none"> • the job nomination fax/e-mail • CPChem representative 	<ul style="list-style-type: none"> • call the CAC immediately <p><u>Note:</u> Discuss all differences in the test results from the stated specifications.</p>							
meet the specifications	Go to step 9.								
9	Retain one-quart samples for 90 days.								
	<table border="1"> <thead> <tr> <th>IF ...</th> <th>THEN ...</th> </tr> </thead> <tbody> <tr> <td>the CPChem facility cannot retain the samples,</td> <td> <ul style="list-style-type: none"> • retain the samples for 90 days • inform CPChem where the samples are stored. </td> </tr> <tr> <td>the sample is benzene,</td> <td>tape, seal and retain for 90 days at the transfer facility.</td> </tr> <tr> <td>the sample is cumene or styrene,</td> <td>Store under refrigeration for the specified retention period.</td> </tr> </tbody> </table>	IF ...	THEN ...	the CPChem facility cannot retain the samples,	<ul style="list-style-type: none"> • retain the samples for 90 days • inform CPChem where the samples are stored. 	the sample is benzene,	tape, seal and retain for 90 days at the transfer facility.	the sample is cumene or styrene,	Store under refrigeration for the specified retention period.
	IF ...	THEN ...							
	the CPChem facility cannot retain the samples,	<ul style="list-style-type: none"> • retain the samples for 90 days • inform CPChem where the samples are stored. 							
the sample is benzene,	tape, seal and retain for 90 days at the transfer facility.								
the sample is cumene or styrene,	Store under refrigeration for the specified retention period.								

* - Glass bottles are to be new, clear, clean, and dry, inside and out, for visual inspections and laboratory testing. **Exception:** for Styrene sampling and testing, amber-type bottles are to be used for laboratory testing and clear bottles to be used for visual testing only. Amber-type bottles will reduce the degradation of the TBC inhibitor should further testing be required. Caps shall be Teflon® lined.

Page 3 of INS 10: Collecting Samples

Step	Action
10	Distribute any other retain samples in accordance with the shipping request/job nomination form.
11	Submit the following to the CAC: <ul style="list-style-type: none">• results of the analysis• sample receipts for retain and tested samples, signed by any of the following:<ul style="list-style-type: none">• terminal representative• the inspector/surveyor• vessel person in charge (PIC).

--END--

During the Transfer from Shore to the Vessel

INS 11: Inspecting During Loading

Purpose

This procedure outlines the requirements for inspections during loading including:

- collecting and analyzing first-in samples
- gauging tanks
- collecting and analyzing final cargo tank samples.

Required Forms

- Shipping Request and/or Job Nomination Form




STATIC ELECTRICITY HAZARDS MAY EXIST.
Preventative measures should be followed to avoid ignitions from static discharges

10-Step Procedure

Step	Action								
1	Witness loading, as instructed by the CAC in the Job Nomination form, the following:								
	<table border="1"> <thead> <tr> <th>IF ...</th> <th>THEN...</th> </tr> </thead> <tbody> <tr> <td>Heel in one barge compartment</td> <td>Load the greater of: <ul style="list-style-type: none"> • one foot heel in one barge compartment • 1.5 times the volume of the shore line </td> </tr> <tr> <td>Heel in all barge compartments</td> <td>One foot heel in all barge compartments</td> </tr> <tr> <td>Heel in all ship's tanks</td> <td>One foot heel in all ship's tanks</td> </tr> </tbody> </table>	IF ...	THEN...	Heel in one barge compartment	Load the greater of: <ul style="list-style-type: none"> • one foot heel in one barge compartment • 1.5 times the volume of the shore line 	Heel in all barge compartments	One foot heel in all barge compartments	Heel in all ship's tanks	One foot heel in all ship's tanks
	IF ...	THEN...							
	Heel in one barge compartment	Load the greater of: <ul style="list-style-type: none"> • one foot heel in one barge compartment • 1.5 times the volume of the shore line 							
Heel in all barge compartments	One foot heel in all barge compartments								
Heel in all ship's tanks	One foot heel in all ship's tanks								
2	Observe the 30-minute relaxation period, THEN draw two samples, per shipping request/job nomination instructions, from each of the vessel cargo tanks.								
3	Follow the procedure in <u>INS 10: Collecting Samples</u> to collect, label, and send the samples for testing.								
4	Manually gauge and take the temperature of the one-foot heel.								
5	Manually gauge and take the temperature of the shore tank.								
6	Calculate the line verification using the procedure in <u>INS 08: Verifying the Shore Line Condition</u> .								

Page 2 of INS 11: Inspecting During Loading

Step	Action						
7	Review the first-in sample analysis. <table border="1" data-bbox="354 327 1393 478"> <thead> <tr> <th data-bbox="354 327 865 380">IF product...</th> <th data-bbox="865 327 1393 380">THEN...</th> </tr> </thead> <tbody> <tr> <td data-bbox="354 380 865 432">meets specifications,</td> <td data-bbox="865 380 1393 432">resume loading. Go to step 8.</td> </tr> <tr> <td data-bbox="354 432 865 478">does not meet specifications,</td> <td data-bbox="865 432 1393 478">call CAC for instructions.</td> </tr> </tbody> </table>	IF product...	THEN...	meets specifications,	resume loading. Go to step 8.	does not meet specifications,	call CAC for instructions.
IF product...	THEN...						
meets specifications,	resume loading. Go to step 8.						
does not meet specifications,	call CAC for instructions.						
8	Load the quantity of product specified on the Shipment Request/Job Nomination from the CAC . Note: The Master of the vessel is not authorized to change quantities to be loaded.						
9 	After observing the 30-minute relaxation period, draw two one-quart running samples from each of the vessel Cargo tanks. These samples should be volumetric composites. Use the procedure in <i>INS 10: Collecting Samples</i> .						
10	Have the samples analyzed as instructed on Shipment Request/Job Nomination form or per standing orders.						

-- END --

INS 12: Collecting Samples During Tank-to-Tank Transfers

Purpose

This outlines the procedure for taking retain and test samples during tank-to-tank transfers.

Required Forms

- Certificate of Analysis

Time Specifications

Inspector/surveyors must draw retain and test samples before transfer begins.



STATIC ELECTRICITY HAZARDS MAY EXIST.
Preventative measures should be followed to avoid ignitions from static discharges

Inspector/surveyors will use the following procedure to sample tanks for a tank-to-tank transfer.

5-Step Procedure

Step	Action									
1	<p>Draw the following samples using the procedure in <i>INS 10: Collecting Samples</i>.</p> <table border="1"> <thead> <tr> <th>Location</th> <th>Type</th> <th>Quantity</th> </tr> </thead> <tbody> <tr> <td>delivery tank</td> <td>running sample</td> <td>1 sample (2 quarts)</td> </tr> <tr> <td>point on line nearest the receiving tank</td> <td>line sample</td> <td>2 samples (1 quart each, or as requested)</td> </tr> </tbody> </table>	Location	Type	Quantity	delivery tank	running sample	1 sample (2 quarts)	point on line nearest the receiving tank	line sample	2 samples (1 quart each, or as requested)
Location	Type	Quantity								
delivery tank	running sample	1 sample (2 quarts)								
point on line nearest the receiving tank	line sample	2 samples (1 quart each, or as requested)								
2	<table border="1"> <thead> <tr> <th>IF the receiving tank ...</th> <th>THEN...</th> </tr> </thead> <tbody> <tr> <td>is empty,</td> <td> <ul style="list-style-type: none"> • transfer a three-foot heel into the receiving tank and then STOP the transfer • draw a 2-quart running sample from the receiving tank using the procedure in <i>INS 10: Collecting Samples</i>. </td> </tr> <tr> <td>contains product,</td> <td>draw a 2-quart running sample from the receiving tank using the procedure in <i>INS 10: Collecting Samples</i>.</td> </tr> </tbody> </table>	IF the receiving tank ...	THEN...	is empty,	<ul style="list-style-type: none"> • transfer a three-foot heel into the receiving tank and then STOP the transfer • draw a 2-quart running sample from the receiving tank using the procedure in <i>INS 10: Collecting Samples</i>. 	contains product,	draw a 2-quart running sample from the receiving tank using the procedure in <i>INS 10: Collecting Samples</i> .			
IF the receiving tank ...	THEN...									
is empty,	<ul style="list-style-type: none"> • transfer a three-foot heel into the receiving tank and then STOP the transfer • draw a 2-quart running sample from the receiving tank using the procedure in <i>INS 10: Collecting Samples</i>. 									
contains product,	draw a 2-quart running sample from the receiving tank using the procedure in <i>INS 10: Collecting Samples</i> .									

Page 2 of INS 12: Collecting Samples during Tank-to-Tank Transfers

Step	Action						
3	Analyze one container of the sample. <table border="1" data-bbox="354 380 1393 527"> <thead> <tr> <th data-bbox="354 380 862 428">IF product...</th> <th data-bbox="862 380 1393 428">THEN...</th> </tr> </thead> <tbody> <tr> <td data-bbox="354 428 862 476">meets specifications,</td> <td data-bbox="862 428 1393 476">resume transfer.</td> </tr> <tr> <td data-bbox="354 476 862 527">does not meet specifications,</td> <td data-bbox="862 476 1393 527">call CAC.</td> </tr> </tbody> </table>	IF product...	THEN...	meets specifications,	resume transfer.	does not meet specifications,	call CAC.
IF product...	THEN...						
meets specifications,	resume transfer.						
does not meet specifications,	call CAC.						
4	Include the results of the analysis in the <i>Certificate of Analysis</i> .						
5	Seal and store retain samples as instructed in <i>INS 10: Collecting Samples</i> .						

-- END --

INS 13: Monitoring Transfers with a Running Gauge (Live Tank)

Purpose

This document describes:

- consequences of transferring product based on a running gauge
- how to monitor a transfer using a running gauge, if operating circumstances require the use of the running gauge.

Required Forms

- Certificate of Shore Quantities
- Vessel Experience Factor Report (VEF)

Consequences of Transferring Product Based on a Running Gauge

Measuring transfers with a running gauge generally means that shore tank quantities cannot be calculated accurately. Inspector/surveyors should avoid using running gauges whenever possible.

Inspector/surveyors should use the following procedure when monitoring transfers using a running gauge.

7-Step Procedure

Step	Action
1	Call the CPChem CAC for instructions.
2	Compile a vessel experience factor based on information supplied by the vessel on the VEF Report. Include this form in the inspection report. IF this information is not available, THEN note this on the inspection report.
3	Use the vessel's loaded gauge figures to calculate the transfer quantities and set a stop gauge on the vessel tank(s). <u>Note:</u> Do not adjust the load figures to account for the vessel's historical experience factor.
4	Record meter readings when a meter is used.
5	Communicate hourly rate to shore tank.
6	Include the <i>Certificate of Shore Quantities</i> in the final inspection report for reference purposes only.
7	Note in the final report that running gauges were used.

-- END --

INS 14: Accommodating Other Transfers during Vessel Operations

Purpose

This describes how to accommodate other transfers to/from rail cars, tank trucks or other containers during loading or discharge operations.

Policy



Simultaneous transfers to/from rail cars, tank trucks or other containers, made from a shore line or shore tank during the ongoing movement of product to/from a vessel using a common pipeline, **IS PROHIBITED**.

IF a transfer to/from a tank truck/rail car or other container must occur during an ongoing operation, the ongoing operation **MUST BE TEMPORARILY SHUT DOWN** until the interceding transfer is **COMPLETED**. Only then can the original operation be resumed.

Conducting such an interceding transfer must be done only in accordance with written instructions from the CAC.

Use the following procedure to conduct and monitor these transfers.

6-Step Procedure

Step	Action
1	Shut down the ongoing transfer operation.
2	Gauge the shore tank and the vessel tank(s) and record the results.
	
3	Proceed with loading the tank truck/rail car or other container using the procedure <i>INS 15: Transferring to Tank Trucks and Rail Cars</i> .
4	When the tank truck/rail car transfer is complete: <ul style="list-style-type: none"> gauge the shore tank and the vessel tank(s) again use weigh bridge weights to confirm and/or reconcile quantities transferred.
	
5	Check shore pipelines after the transfer to determine whether they are empty or full. Account for this in the inspection.
6	Resume the previously interrupted operation.

-- END --

INS 15: Transferring to Tank Trucks and Railcars


Purpose

This discusses the procedure for monitoring a transfer into tank trucks and railcars.

Required Forms

- Certificate of Vessel Cleanliness (for each tank truck and railcar)
- Scale Tickets

4-Step Procedure

Step	Action
1	Inspect each tank truck or railcar for suitability as described in <i>INS 05: Inspecting Receiving Tanks for Suitability</i> .
2	For each tank truck or railcar, include in the report: <ul style="list-style-type: none"> • Certificate of Vessel Cleanliness • truck and trailer or railcar identification • truck destination.
3 	Load the truck or railcar.
4	Note the following information: <ul style="list-style-type: none"> • reasons for any delay in the loading process • tare weight • time hose on • time hose off • gross weight • net weight • copies of scale tickets for each truck.

-- END --

After the Transfer to the Vessel

INS 16: Verifying the Delivery from the Shore Tanks to the Vessel


Purpose

This outlines the procedure for gauging, sampling, and recording the contents of the shore tanks after loading a suitable barge or vessel.

Required Forms

- Shipping Request and/or Job Nomination Form
- Certificate of Line Condition
- Certificate of Shore Quantities
- Summary Report
- Shore Tank Ullage Report

6-Step Procedure

Step	Action
1 	Record the following in the ullage report for each shore tank involved in the transfer: <ul style="list-style-type: none"> • closing gauges • average temperatures • water cuts.
2	Determine quantity in shore tank(s).
3	Verify whether the shore line is empty or full by using the procedure in <i>INS 08: Verifying the Shore Line Condition</i> .
4	Calculate gross standard volume delivered based on the quantity remaining in the shore tanks and shore line.
5	Witness or perform any testing as instructed in the job nomination form.
6	Record all findings in the inspection report.

-- END --

INS 17: Verifying the Product Loaded into the Vessel Cargo Tanks



Purpose

This document outlines the procedure for gauging, sampling, and recording the contents of the vessel cargo tanks after loading.

Required Forms

- Certificate of Vessel Quantities
- Ullage Report

7-Step Procedure

Step	Action
1	Record draft.
2 	From all tanks loaded, record: <ul style="list-style-type: none"> • innage/ullage • water cuts • average temperatures.
3 	Draw and label running sample from each vessel tank containing the designated product using the procedure in <i>INS 10: Collecting Samples</i> .
4	Regauge any adjacent tanks or tanks on the same line containing the product.
5	Record in the ullage report any factors that affect accurate measurement. These factors include, but are not limited to: <ul style="list-style-type: none"> • inconsistencies in the vessel's calibration tables • obstructions in the tank preventing a gauge from touching bottom.
6	<ul style="list-style-type: none"> • Apply seals to all compartment manways, lids, gauge openings, and flanged connections. • Record seal number and seal location and report accordingly on the Shore/Vessel Seal Report (page xx)
7	Calculate and record in the inspection report: <ul style="list-style-type: none"> • gross standard volume received • gross standard volume received with trim correction • net standard volume received • net standard volume received with trim correction.

-- END --

INS 18: Reconciling Net Volumes Transferred from Shore to Vessel after Loading

Purpose

This document outlines the procedure for reconciling and reporting the net volumes transferred from shore to vessel after loading.

Required Forms

- Reconciliation Report
- Letter of Protest (if applicable)
- Letter of Discrepancy (if applicable)

3-Step Procedure

Step	Action						
1	Compare the shore quantity calculated in <i>INS 16: Verifying the Delivery from the Shore Tanks to the Vessel</i> with the ship's cargo quantity calculated in <i>INS 17: Verifying the Product Loaded into the Vessel Cargo Tanks</i> .						
2	Reconcile net volumes between the shore tank and barge/vessel tank(s) using API or other acceptable standards. <table border="1" data-bbox="365 1039 1396 1375"> <thead> <tr> <th>IF the variance exceeds 0.3%...</th> <th>THEN...</th> </tr> </thead> <tbody> <tr> <td>after the initial reconciliation,</td> <td>reconfirm gauges and volumes using the procedure in <i>INS 02: Troubleshooting when the Variance is Greater than 0.3%</i>.</td> </tr> <tr> <td>after reconfirmation of figures,</td> <td>issue a <i>Letter of Discrepancy</i> to the facility and person in charge of the vessel before the vessel departs.</td> </tr> </tbody> </table>	IF the variance exceeds 0.3%...	THEN...	after the initial reconciliation,	reconfirm gauges and volumes using the procedure in <i>INS 02: Troubleshooting when the Variance is Greater than 0.3%</i> .	after reconfirmation of figures,	issue a <i>Letter of Discrepancy</i> to the facility and person in charge of the vessel before the vessel departs.
IF the variance exceeds 0.3%...	THEN...						
after the initial reconciliation,	reconfirm gauges and volumes using the procedure in <i>INS 02: Troubleshooting when the Variance is Greater than 0.3%</i> .						
after reconfirmation of figures,	issue a <i>Letter of Discrepancy</i> to the facility and person in charge of the vessel before the vessel departs.						
3	When the quantity is confirmed, complete the documentation as specified in <i>INS 03: Completing Final Documentation</i> .						

-- END --

INS 19: Ballast Operations

Purpose

This document describes the inspector/surveyor's responsibility in ballast operations.

Required Forms

- Inspection Report
- Shore/Vessel Seal Report

Responsibilities

The inspector/surveyor **must not sign** any certificate acknowledging or giving permission to commence ballast operations.

2-Step Procedure

Step	Action
1	For vessels that do not have a segregated ballast system, seal the sea suction valves.
2	Record the seal number(s) on the Shore/Vessel Seal Report.

-- END --

INSPECTION PROCEDURES FOR DISCHARGING FROM VESSEL TO SHORE

Chapter Overview

This chapter outlines the inspector/surveyors responsibilities for inspections during discharge operations.

In this Chapter

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After Discharging to the Shore

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INS 24: Completing the Remaining On-Board Inspections.....	55
INS 25: Verifying Quantity Received in Shore Tanks.....	57
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--END--

Prior to Discharge

INS 20: Verifying Shore Tank Contents Before Discharge

Purpose

This outlines the procedure for verifying the contents of the receiving shore tank(s) and shore lines before discharging into them.

Required Forms

- Certificate of Shore Quantities
- Summary Report
- Shore Tank Ullage report

Time Specifications

To minimize vessel turn around time, the inspector/surveyor will begin this procedure at least one hour before the vessel is due at the dock.

IF the product is an import, **THEN** the inspector/surveyor must schedule gauging of shore tanks to coincide with the timing established by the U.S. Customs Inspector/Surveyor.



STATIC ELECTRICITY HAZARDS MAY EXIST.
Preventative measures should be followed to avoid ignitions from static discharges

5-Step Procedure

Step	Action
1	From each shore tank involved in the transfer, take average temperatures and water cuts. (See "average temperatures" in the <i>Glossary</i>).
2	If an auto gauge is used, record auto gauge readings in the appropriate section of the shore tank ullage report.
3	Take opening gauges and record the following for each shore tank: <ul style="list-style-type: none"> • Innage • Calculated innage using the tank height stated on the strapping tables • Difference between the innage and the calculated innage • Difference between the actual gauge height and the strapping tables gauge height. <p><u>Note</u>: Calculated innage must be used for all custody transfer calculations.</p>

Page 2 of INS 20: Verifying Shore Tank Contents before Discharge

Step	Action									
4	<p data-bbox="337 289 1429 359">Draw and test the following samples using the procedures in <u>INS 09: Taking Samples Before Loading</u> and <u>INS 10: Collecting Samples</u>.</p> <table border="1" data-bbox="358 415 1425 638"> <thead> <tr> <th data-bbox="358 415 706 464">Location</th> <th data-bbox="706 415 1052 464">Type</th> <th data-bbox="1052 415 1425 464">Quantity</th> </tr> </thead> <tbody> <tr> <td data-bbox="358 464 706 552">shore tank(s)</td> <td data-bbox="706 464 1052 552">Sample</td> <td data-bbox="1052 464 1425 552">1 sample (1 quart, or as requested)</td> </tr> <tr> <td data-bbox="358 552 706 638">shore manifold</td> <td data-bbox="706 552 1052 638">line sample</td> <td data-bbox="1052 552 1425 638">1 sample (1 quart, or as requested)</td> </tr> </tbody> </table>	Location	Type	Quantity	shore tank(s)	Sample	1 sample (1 quart, or as requested)	shore manifold	line sample	1 sample (1 quart, or as requested)
Location	Type	Quantity								
shore tank(s)	Sample	1 sample (1 quart, or as requested)								
shore manifold	line sample	1 sample (1 quart, or as requested)								
5	<table border="1" data-bbox="358 737 1425 1062"> <thead> <tr> <th data-bbox="358 737 894 785">IF the test results...</th> <th data-bbox="894 737 1425 785">THEN ...</th> </tr> </thead> <tbody> <tr> <td data-bbox="358 785 894 1014"> <p data-bbox="370 800 818 869">does not meet the specifications as stated by:</p> <ul data-bbox="370 884 732 1008" style="list-style-type: none"> the shipping request/job nomination fax/e-mail CPChem representative </td> <td data-bbox="894 785 1425 1014"> <ul data-bbox="906 800 1289 835" style="list-style-type: none"> call the CAC immediately <p data-bbox="906 848 1409 917"><u>Note:</u> Discuss all differences in the test results from the stated specifications.</p> </td> </tr> <tr> <td data-bbox="358 1014 894 1062">meet the specifications</td> <td data-bbox="894 1014 1425 1062">continue inspection.</td> </tr> </tbody> </table>	IF the test results...	THEN ...	<p data-bbox="370 800 818 869">does not meet the specifications as stated by:</p> <ul data-bbox="370 884 732 1008" style="list-style-type: none"> the shipping request/job nomination fax/e-mail CPChem representative 	<ul data-bbox="906 800 1289 835" style="list-style-type: none"> call the CAC immediately <p data-bbox="906 848 1409 917"><u>Note:</u> Discuss all differences in the test results from the stated specifications.</p>	meet the specifications	continue inspection.			
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meet the specifications	continue inspection.									

--END--

INS 21: Verifying the Vessel Tank Contents Before Discharge


Purpose

This outlines the procedure for verifying vessel tank contents before discharge.


Required Forms

Certificate of Vessel Quantities

9-Step Procedure

Step	Action						
1	Record draft.						
2	If applicable check all seals. If a seal is missing note location. If a seal is missing from a product compartment or associated with a flanged connection whereby product is introduced into the vessel and can enter a compartment (versus a ballast compartment), procure sample from each potentially affected compartment and retain for testing per instructions <u>INS 10: Collecting Samples</u> .						
3	Note whether or not the vessel is inerted. IF the vessel is at a location other than the receiving terminal, THEN note its location.						
4	<div style="display: flex; align-items: center;">  <div> For each vessel tank involved in the transfer, record: <ul style="list-style-type: none"> • average temperatures (see "average temperatures" in the <u>Glossary</u>) • water cuts • innage/ullage • vessel auto gauges </div> </div>						
5	Calculate gross standard volumes using API or other acceptable standards.						
6	Compare vessel's arrival volume with: <ul style="list-style-type: none"> • Bill of Lading volume • shore load port figures • ship's load port figure. <table border="1" style="width: 100%; margin-top: 10px;"> <thead> <tr> <th>IF ...</th> <th>THEN ...</th> </tr> </thead> <tbody> <tr> <td>the variance between the vessel's arrival volume and the ship's load port figure is greater than 0.3%,</td> <td>regauge the vessel.</td> </tr> <tr> <td>the ship's variance is still greater than 0.3% after regauging the vessel,</td> <td> <ul style="list-style-type: none"> • issue a note of protest. • call the CAC. </td> </tr> </tbody> </table>	IF ...	THEN ...	the variance between the vessel's arrival volume and the ship's load port figure is greater than 0.3%,	regauge the vessel.	the ship's variance is still greater than 0.3% after regauging the vessel,	<ul style="list-style-type: none"> • issue a note of protest. • call the CAC.
IF ...	THEN ...						
the variance between the vessel's arrival volume and the ship's load port figure is greater than 0.3%,	regauge the vessel.						
the ship's variance is still greater than 0.3% after regauging the vessel,	<ul style="list-style-type: none"> • issue a note of protest. • call the CAC. 						

Page 2 of INS 21: Verifying the Vessel Tank Contents before Discharge

Step	Action									
<p data-bbox="256 296 289 327">7</p> 	<p data-bbox="337 296 1360 365">Draw the following samples using the procedure in <i>INS 10: Collecting Samples</i>. Samples should be volumetric composites.</p> <table border="1" data-bbox="358 401 1398 625"> <thead> <tr> <th data-bbox="358 401 704 449">Location</th> <th data-bbox="704 401 1050 449">Type</th> <th data-bbox="1050 401 1398 449">Quantity</th> </tr> </thead> <tbody> <tr> <td data-bbox="358 449 704 537">vessel tank(s)</td> <td data-bbox="704 449 1050 537">Sample</td> <td data-bbox="1050 449 1398 537">1 sample (1 quart, or as requested)</td> </tr> <tr> <td data-bbox="358 537 704 625">vessel manifold</td> <td data-bbox="704 537 1050 625">line sample</td> <td data-bbox="1050 537 1398 625">2 samples (1 quart, or as requested)</td> </tr> </tbody> </table>	Location	Type	Quantity	vessel tank(s)	Sample	1 sample (1 quart, or as requested)	vessel manifold	line sample	2 samples (1 quart, or as requested)
Location	Type	Quantity								
vessel tank(s)	Sample	1 sample (1 quart, or as requested)								
vessel manifold	line sample	2 samples (1 quart, or as requested)								
<p data-bbox="256 684 289 716">8</p>	<table border="1" data-bbox="358 726 1398 1014"> <thead> <tr> <th data-bbox="358 726 889 774">IF the test results...</th> <th data-bbox="889 726 1398 774">THEN ...</th> </tr> </thead> <tbody> <tr> <td data-bbox="358 774 889 963"> does not meet the specifications as stated by: <ul style="list-style-type: none"> • the job nomination fax/e-mail • CPChem representative </td> <td data-bbox="889 774 1398 963"> <ul style="list-style-type: none"> • call the CAC immediately <u>Note</u>: Discuss all differences in the test results from the stated specifications. </td> </tr> <tr> <td data-bbox="358 963 889 1014">meet the specifications</td> <td data-bbox="889 963 1398 1014">continue inspection.</td> </tr> </tbody> </table>	IF the test results...	THEN ...	does not meet the specifications as stated by: <ul style="list-style-type: none"> • the job nomination fax/e-mail • CPChem representative 	<ul style="list-style-type: none"> • call the CAC immediately <u>Note</u> : Discuss all differences in the test results from the stated specifications.	meet the specifications	continue inspection.			
IF the test results...	THEN ...									
does not meet the specifications as stated by: <ul style="list-style-type: none"> • the job nomination fax/e-mail • CPChem representative 	<ul style="list-style-type: none"> • call the CAC immediately <u>Note</u> : Discuss all differences in the test results from the stated specifications.									
meet the specifications	continue inspection.									
<p data-bbox="256 1073 289 1104">9</p>	<p data-bbox="337 1073 1360 1142">Record product currently in adjacent tanks and on any possible pipeline where a mixture could occur.</p>									

--END--

During the Discharge to Shore

INS 22: Inspecting During Discharge

Purpose

This document outlines the procedure for monitoring a discharge.

Required Forms

- Certificate of Line Condition

5-Step Procedure

Step	Action
1	Determine the shore line condition using the procedure in <i>INS 08: Verifying the Shore Line Condition</i> .
2	Calculate the line verification quantity.
3	Notify terminal and vessel personnel that operations can proceed when they are, in all respects, ready to do so.
4	Calculate and report the stop gauge, if necessary, for vessel to discharge the nominated quantity of product and note whether this will be a shore or ship stop gauge.
5	Record the results in the inspection report.

--END--

After Discharging to the Shore

INS 23: Verifying Quantity Discharged from Vessel

Purpose

This describes the procedure for verifying the quantity discharged from vessel matches the quantity expected.

Required Forms

- Ullage Report
- Inspection Report

4-Step Procedure

Step	Action
1	Record draft.
2	Record any factors that affect accurate measurement in the inspection report. These factors may include, but are not limited to: <ul style="list-style-type: none">• Inconsistencies in vessel calibration tables• an obstruction in a tank keeping a bob from touching bottom.
3	Complete remaining on board inspections as described in <i>INS 24: Completing Remaining On Board Inspections</i> .
4	Calculate the quantity discharged from the vessel and record in the ullage report.

--END--

INS 24: Completing the Remaining On-Board Inspections


Purpose

This document describes the procedure for calculating any product remaining on board (ROB) once the vessel has completed discharge operations.

Required Forms

- Letter of Protest
- Vessel Dry Certificate
- Inspection report

7-Step Procedure

Step	Action								
1	Have vessel continue pumping until nominated amount of product has been discharged.								
2	Gauge all discharge cargo tanks, ballast tanks, and void spaces for pumpable cargo.								
									
3	Recheck vessel tank gauges for product in adjacent tanks and any possible pipelines where a mixture could occur.								
4	<table border="1"> <thead> <tr> <th>IF...</th> <th>THEN...</th> </tr> </thead> <tbody> <tr> <td>there is no ROB product</td> <td>record in the report "No measurable ROB found by manual gauges" Do not use the phrase "M.T."</td> </tr> <tr> <td>Pumpable cargo remains on board,</td> <td>ask the vessel person in charge (PIC) to continue pumping IF the (PIC) refuses or cannot continue pumping, THEN: <ul style="list-style-type: none"> • issue a note of protest • inform the terminal representative and the CPChem CAC. </td> </tr> <tr> <td>No pumpable cargo remains on board,</td> <td>continue the inspection and complete procedure <i>INS 23: Verifying Quantity Discharged from Vessel.</i></td> </tr> </tbody> </table>	IF...	THEN...	there is no ROB product	record in the report "No measurable ROB found by manual gauges" Do not use the phrase "M.T."	Pumpable cargo remains on board,	ask the vessel person in charge (PIC) to continue pumping IF the (PIC) refuses or cannot continue pumping, THEN: <ul style="list-style-type: none"> • issue a note of protest • inform the terminal representative and the CPChem CAC. 	No pumpable cargo remains on board,	continue the inspection and complete procedure <i>INS 23: Verifying Quantity Discharged from Vessel.</i>
IF...	THEN...								
there is no ROB product	record in the report "No measurable ROB found by manual gauges" Do not use the phrase "M.T."								
Pumpable cargo remains on board,	ask the vessel person in charge (PIC) to continue pumping IF the (PIC) refuses or cannot continue pumping, THEN: <ul style="list-style-type: none"> • issue a note of protest • inform the terminal representative and the CPChem CAC. 								
No pumpable cargo remains on board,	continue the inspection and complete procedure <i>INS 23: Verifying Quantity Discharged from Vessel.</i>								

Page 2 of INS 24: Completing the Remaining on Board Inspections

Step	Action												
5	<p>Calculate the quantity of ROB product.</p> <table border="1" data-bbox="354 380 1414 688"> <thead> <tr> <th data-bbox="354 380 699 426">IF the ROB is..</th> <th data-bbox="699 380 1045 426">AND...</th> <th data-bbox="1045 380 1414 426">THEN...</th> </tr> </thead> <tbody> <tr> <td data-bbox="354 426 699 516">solid (unpumpable),</td> <td data-bbox="699 426 1045 516">--</td> <td data-bbox="1045 426 1414 516">Do not apply a trim correction to the gauges.</td> </tr> <tr> <td data-bbox="354 516 699 606">free-flowing (pumpable),</td> <td data-bbox="699 516 1045 606">completely covers tank bottom,</td> <td data-bbox="1045 516 1414 606">Apply a trim correction to the gauges.</td> </tr> <tr> <td data-bbox="354 606 699 688">free-flowing (pumpable),</td> <td data-bbox="699 606 1045 688">does not cover tank bottom,</td> <td data-bbox="1045 606 1414 688">Apply a wedge correction to the gauges.</td> </tr> </tbody> </table>	IF the ROB is..	AND...	THEN...	solid (unpumpable),	--	Do not apply a trim correction to the gauges.	free-flowing (pumpable),	completely covers tank bottom,	Apply a trim correction to the gauges.	free-flowing (pumpable),	does not cover tank bottom,	Apply a wedge correction to the gauges.
IF the ROB is..	AND...	THEN...											
solid (unpumpable),	--	Do not apply a trim correction to the gauges.											
free-flowing (pumpable),	completely covers tank bottom,	Apply a trim correction to the gauges.											
free-flowing (pumpable),	does not cover tank bottom,	Apply a wedge correction to the gauges.											
6	<p>In the inspection report, record:</p> <ul style="list-style-type: none"> • narrative of events • any letters of protest • whether the ROB is solid (unpumpable) or free-flowing (pumpable) • quantity of ROB product. <p>IF any clingage or puddle remains on board, THEN do not sign a vessel's "dry" certificate or any other similar document without stating/describing the ROB.</p>												
7	Complete procedure <i>INS 23: Verifying Quantity Discharged from Vessel</i> .												

--END--

INS 25: Verifying Quantity Received in Shore Tanks

Purpose

This document outlines the procedure for verifying the quantity received in the shore tanks upon completion of the transfer.

Required Forms

- Certificate of Line Condition
- Certificate of Shore Quantities
- Inspection Report
- Ullage Report



STATIC ELECTRICITY HAZARDS MAY EXIST.
Preventative measures should be followed to avoid ignitions from static discharges

8-Step Procedure

Step	Action
1	Observe the 30-minute relaxation period.
2	From each shore tank involved in the transfer, take average temperatures and water cuts. (See "average temperatures" in the <i>Glossary</i>).
3	If an auto gauge is used, record auto gauge readings in the appropriate section of the shore tank ullage report.
4	Take closing gauges and record the following for each shore tank: <ul style="list-style-type: none"> • innage • calculated innage using the tank height stated on the strapping tables • difference between the innage and the calculated innage • difference between the actual gauge height and the strapping tables gauge height. <p><u>Note:</u> Calculated innages must be used for all custody transfer calculations.</p>
5	Take samples using the procedure <i>INS 10: Collecting Samples</i> .
6	Verify whether the shore line is empty or full. Account for this when calculating the quantity received.
7	Calculate gross standard volume received.
8	Record quantity in the reference section of the ullage report.

--END--

INS 26: Reconciling Net Volumes Transferred from Vessel to Shore after Discharge

Purpose

This document outlines the procedure for reconciling the net volumes transferred from the vessel to shore after discharge.

Required Forms

- Letter of Protest (if applicable)
- Letter of Discrepancy (if applicable)
- Cargo Reconciliation Form

3-Step Procedure

Step	Action						
1	Compare the shore quantity calculated in <i>INS 23: <u>Verifying Quantity Discharged from the Vessel</u></i> with the ship's cargo quantity calculated in <i>INS 25: <u>Verifying Quantity Received in the Shore Tank</u></i> .						
2	Reconcile net volumes between the shore tank and barge/vessel tank(s) using the API or other acceptable standards. <table border="1" data-bbox="365 1031 1398 1367"> <thead> <tr> <th>IF the variance exceeds 0.3%...</th> <th>THEN...</th> </tr> </thead> <tbody> <tr> <td>after the initial reconciliation,</td> <td>reconfirm gauges and volumes using the procedure in <i>INS 02: <u>Troubleshooting when the Variance is Greater than 0.3%</u></i>.</td> </tr> <tr> <td>after reconfirmation,</td> <td>issue a <i>Letter of Discrepancy</i> to the facility and person in charge of the vessel before the vessel departs.</td> </tr> </tbody> </table>	IF the variance exceeds 0.3%...	THEN...	after the initial reconciliation,	reconfirm gauges and volumes using the procedure in <i>INS 02: <u>Troubleshooting when the Variance is Greater than 0.3%</u></i> .	after reconfirmation,	issue a <i>Letter of Discrepancy</i> to the facility and person in charge of the vessel before the vessel departs.
IF the variance exceeds 0.3%...	THEN...						
after the initial reconciliation,	reconfirm gauges and volumes using the procedure in <i>INS 02: <u>Troubleshooting when the Variance is Greater than 0.3%</u></i> .						
after reconfirmation,	issue a <i>Letter of Discrepancy</i> to the facility and person in charge of the vessel before the vessel departs.						
3	When the quantity is confirmed, complete the documentation as specified in <i>INS 03: <u>Completing Final Documentation</u></i> .						

-- END --

DOCUMENT REFERENCES

Chapter Overview

This chapter provides guidance for filing the inspection reports.

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--END--

24-hour Notification of Confirmed Figures

Purpose

This document supplies confirmed information to a specific individual (or individuals) in a specific department (or departments) that is pertinent to a particular job or movement.

Required Elements

Confirmed information needed, but not limited to, as follows:

- order or reference number
- vessel(s) name
- load or discharge
- product nomenclature
- origin/destination
- completion (stopped by vessel/shore) & confirmation times of figures
- conversion table
- specific gravity (API) and Lb/Gal @ 60°F or density (kg/cubic meters) @ 15°C
- stowage - shore/vessel tank(s) number(s)
- volumes: shore/vessel - reported in: barrels, gallons, pounds, long tons, short tons, metric tons, and kilograms
- differences: reported in barrels and percent
- delay(s)/reason(s)
- name of inspection company and inspector/surveyor(s)

Note: If any figures are not confirmed within 24 hrs, notify appropriate individual and explain reason for the delay.

--END--

Certificate of Line Condition

Purpose

This document lists the required elements for the Certificate of Line Condition.

Required Elements

- outline shore line condition (empty, full, slack) prior to and after product movement
- indicate nature of pipeline by way of sampling (when possible) and testing

Note: *Line quantity and quality determination is to be done in accordance with API Chapter 17.1.*

- account for any differences if the line fill condition after loading/discharging differs from the condition before loading/discharging.

--END--

Certificate of Analysis

Purpose

This document lists the required elements for the Certificate of Analysis.

Required Elements

Report the test results of all pre-load shore tank samples, shore line manifold samples (where applicable, *INS 09: Taking Samples Before Loading*) and vessel final/arrival composite samples run either by the Inspection Company or the CPChem facility.

Note: Independent laboratories must report analysis on their own letterhead.

IF this was a U.S. Customs transfer, **THEN** only an analysis performed by an independent company, facility, or laboratory can be used.

--END--

Certificate of Shore Quantities

Purpose

This document lists the required elements for the Certificate of Shore Quantities.

Required Elements

When completing the Certificate of Shore Quantities, include the following information:

- tank numbers
- roof corrections
- opening and closing gauges
- temperatures
- specific gravity/density
- water cuts
- opening and closing barrels at average tank temperature
- gross and standard volume
- total gross and net standard volume delivered/received
- whether pipelines and hoses were full or empty
- pipeline meter quantity (if appropriate).

In addition, note which correction tables were used and include a statement regarding the visual inspection of the shoreline.

Report quantities in:

- metric tons
- short tons (for domestic shipments)
- pounds
- gallons
- barrels
- liters.

Round:

- metric tons , short tons (for domestic shipments) to the thousandths place (xxx.000)
- pounds, gallons, barrels and liters to the hundredths place (XXX.00).

--END--

Certificate of Vessel or Tank Cleanliness

Purpose

This document lists the required elements of the Certificate of Vessel Cleanliness.

Required Elements

Record the following:

- tank coating or lining
 - type
 - compatibility
 - any cracks or bleeding (recorded as percent of failure)
 - blisters
 - flaking
- corrosion
 - quantity
 - effect on the product
 - type (scale or powder)
- three previous cargoes
 - cleaning method used after cargo
- remaining traces and compatibility
- amount of free water or condensation in the tank
- cleaning procedures
- structure
- leaks
- heating coils
 - cleanliness of coil structures
- whether the bilges are blanked off and sealed
- whether the tank uses double valve separation
- total capacity of the vessel tanks to be used in the transfer.
- acceptance or rejection of the tanks

--END--

Certificate of Vessel Quantities (Opening and Closing)

Purpose

This document lists the required elements for the Certificate of Vessel Quantities (opening and closing).

Required Elements

Include:

- tank numbers
- ullage
- temperature
- water cuts
- barrels at average tank temperature
- correction tables used
- total gross and net standard barrels on board
- measurements of each cargo tank and compartment including:
 - temperatures
 - correction factors
 - reference table used
 - conversions.

Also indicate whether the vessel is under inert gas.

Report quantities in:

- metric tons
- short tons (for domestic shipments)
- pounds
- gallons
- barrels
- liters.

Round:

- metric tons short tons (for domestic shipments) to the thousandths place (xxx.000)
- pounds, gallons, barrels and liters to the hundredths place (XXX.00).

--END--

Distribution of Samples/Sample Receipts

Purpose

This document lists the required elements for reporting sample distribution.

Required Elements

- company and person responsible for obtaining and/or delivering sample
- product nomenclature and quantity (i.e., pint, quart, gallon, etc.)
- location and condition of samples obtained:
 - vessel/shore tank
 - vessel/shore line
 - tank truck/rail car or other container
 - seals installed and numbers recorded
 - refrigerated or not
 - current location where sample is stored.
- date and time sample obtained
 - retain period to be no less than 90 days from date sampled or obtained by inspection company, unless otherwise specified.
 - Retain period to be no less than 120 days for shipments to Asia from U. S. Gulf Coast
- reason for drawing sample
- sample receipts signed by:
 - terminal representative
 - the inspector/surveyor and/or
 - vessel person in charge (PIC).

--END--

Letters of Protests and Discrepancies

Purpose

This document outlines the intent of Letters of Protest and Letters of Discrepancies.

Required Elements

Letters of Protest: Certificates that are issued to the vessel and/or shore facility, holding them responsible for the loss and damage thereby sustained, as well as any consequential loss and damage arising there from:

- slow pumping rate
- loss of suction-resulting in excessive ROB
- temperature of product, etc.

Letters of Discrepancies: Issued when a discrepancy between vessel/shore, vessel/vessel, or shore/shore occurs after the transfer of product and the difference between the two is excessive or outside the contractual limits. CPChem considers discrepancies greater than 0.3% to be excessive.

--END--

Reconciliation Report

Purpose

This document contains basic instructions for completing the Cargo Reconciliation Report.

Required Elements

The report should contain a comparison (gross standard volume and net standard volume) of vessel and shore figures including load port (BOL) figures if applicable.

There should be a narrative commenting on any discrepancy of factors that may affect the accuracy of the measurements, or any other subject influencing the outcome.

--END--

Summary Report

Purpose

This document lists the required elements for compiling a summary report.

Required Elements

- vessel name
- product
- location
- vessel quantity recorded
- quantity on arrival
- quantity on departure
- total delivered
- vessel/barge difference
- variance
- time log
- conversion factor(s)
- product temperature

--END--

Shore/Vessel Seal Report

Purpose

This document lists the required elements for reporting all custody seals that were installed during the course of an inspection.

Required Elements

- list of samples that required seals
 - identification of the samples that were sealed
 - name(s) of receiver(s) of sealed samples
- any other custody seal installed or removed, such as sealed ballast sea water intake valves on vessels that do not have a segregated ballast system, dome lids, hatch covers, manifolds, or gauge covers.

--END--

Statement of Facts

Purpose

This document lists the required elements for the Statement of Facts.

Required Elements

Note the times at which the following events occurred.

Arrivals and departures

Vessel

- end of sea passage
- arrival (first line fast)
- docking (all lines fast)
- gangway ashore
- release from terminal
- departure

Inspector/surveyor

- arrival
- boarding the ship
- departure

Pilot

- boarding the ship

Inspections

Suitability inspection

- visual/physical inspection
- approval for loading

Sampling, gauging and temping of shore tanks

- before loading
- during loading (first-in)
- during loading (final samples)

Sampling, gauging, and temping of vessel tanks

- before loading
- during loading (first-in)
- during loading (final samples)

Loading or discharge

Cargo arm(s)/hose(s)

- connection
- disconnection

Notice of readiness

- tendered
- accepted

Loading or discharge process

- commencement
- halt for testing of first-in samples and verification
- lab approval received
- resumption
- completion
- any other interruptions

Additional information

The Statement of Facts should also include the following:

- causes of any interruptions
- reasons for delays
- protests tendered or received
- calculated cargo

-- END --

Vessel Experience Factor Report

Purpose

This document:

- outlines the policy for computing the vessel experience factor (VEF)
- describes the procedure for compiling the VEF report
- contains a sample Vessel Experience Factor Report.

Policy

The VEF is a compilation of the history of the TCV vessel measurements, adjusted for OBQ or ROB, compared with the TCV shore measurements. Base VEF calculations on information compiled using accepted industry standards and practices, including:

- Voyage Analysis Report form
- inspection company reports
- information from all load or discharge terminals.

Express quantities in either barrels or cubic meters at standard temperature; do not mix terms. Do not use long or metric tons.

Use consistent calculation procedures for:

- temperature
- volume correction factor
- ROB
- OBQ
- wedge
- trim factor.

Use manual vessel measurements for volume determinations. **IF** all parties agree, **THEN** automatic gauging systems with accuracy measurement tolerance equal to or better than those of manual measurements may be used for custody transfers.

-- END --

Visual Tank Inspection Report

Purpose

Outline the required elements for inspecting tanks

Required Elements

- vessel compartment(s)
- product to load
- last Cargo
- 2nd last Cargo
- 3rd last Cargo
- method of cleaning after last three cargoes
- tank coating
- accepted/rejected
- tank/vessel data
- inspection results
- signature of vessel PIC and inspector/surveyor

--END--

Shipping Request/Job Nomination Form

Purpose

This document lists the information that will be provided by CPChem pertaining to a specific shipment and job nomination.

Required Elements

This information will be customer, product and location specific with regard to:

- product to be loaded/discharged or otherwise transferred
- quantity of product included in this shipment
- nominated inspection company and billing information
- special instructions
 - line verification
 - sampling/analysis instructions
- document instructions
- contact information
- product specifications
- testing requirements.

--END--

Ullage Report

Purpose

Identify and list the required elements for Ullage Reporting for vessel tanks.

Required Elements

- vessel compartment name/number
- ullage
- trim/list corrected ullage
- total observed volumes (TOV)
- free water innage/ullage
- free water volume
- gross observed volume (GOV)
- Cargo temperature °F or °C
- API @ 60°F or density @ 15°C
- volume correction factor (VCF)
- gross standard volume (GSV)
- capacity of vessel lines.

--END--

Scale Tickets

Purpose

This document lists the required elements for the scale tickets

Required Elements

Include:

- railcar/tank truck ID
- date
- gross weight
- tare weight
- net weight
- product name
- weigher
- any additional notes.

--END--

REFERENCE MATERIAL

Chapter Overview

The reference materials chapter contains the additional information and tables required to complete the necessary documentation after an inspection.

In this Chapter

General Glossary	79
Calculating the Quantity of TBC required to Increase TBC in Styrene.....	85
Tank Preparation Glossary	87

--END--

General Glossary

All-levels Sample

- Submerge a stoppered beaker or bottle to a point as near to the draw-off level as possible.
- Remove the stopper.
- Steadily raise the beaker or bottle so that it is $\frac{3}{4}$ full when it emerges from the liquid.

Apparent Weight in Air of a Liquid Product

To obtain the apparent weight in air of a liquid product, multiply its volume (expressed in liters or cubic meters) at given temperature by its apparent density in air at that temperature. Apparent weight in air is expressed as kilograms (kg) or metric tons (mt).

Automatic Sampler

When installed in a pipe or flow channel, an automatic sampler collects a representative sample of the fluid flowing through the channel. The sampler is controlled remotely.

Automatic Tank Gauge

An automatic tank gauge measures and displays liquid levels or ullages in one or more tanks. These measurements can be taken:

- continuously
- periodically **OR**
- on demand.

Average Temperature

The average of temperatures taken in the upper, middle, and lower levels of the product in a tank.

Bill of Lading (BOL or BIL)

The bill of lading specifies the type, quantity, and condition of the product consigned to a Shipmaster for delivery. When signed by the Shipmaster, the bill of lading binds him/her to deliver the product in similar condition and quantity to the designated recipient at a particular location upon payment of specified freight charges, unless prevented by the sea, fire, or enemy action.

Bottom Sediment

Bottom sediment includes any materials remaining on the bottom of a tank, such as:

- sludge
- sand
- scale

Calibration Table

A calibration table lists the capacity (or volume) in a tank for various liquid levels measured from the dip-point or from the ullage reference point. (Also referred to as an ullage chart or a tank capacity table.)

Clingage

The material clinging to all horizontal and vertical surfaces of emptied tanks.

Closing Gauge

The closing gauge measures the amount of product in a tank after delivery or receipt.

Composite Sample

To take a composite sample, draw one-third of the sample from each of three locations in the product layer:

- the bottom 1/6
- the midpoint
- the upper 1/6.

Datum Plate

A datum plate is a level metal plate that provides a smooth surface on which the innage bob rests. Datum plates are often attached to the tank shell directly under the reference point.

Deadwood

Deadwood is any tank fitting, appendage, or structure that affects the capacity of the tank.

Deep-Cut Case Thermometer

A deep-cut case thermometer is equipped with a small cup like metal container that holds the bulb of the thermometer and a small portion of the liquid being tested.

Density

The density of a material is the ratio of its mass to its volume. The density varies as the temperature changes and is therefore generally expressed as the mass per unit volume at a specified temperature.

Density (apparent in air)

The apparent density in air of a product is the mass which a unit volume of a product has when weighed in air using standard brass weights. In other words, the apparent density in air is the density of the product diminished by the combined effect of air buoyancy on the substance and the weights.

Note: In ASTM Test Method D-3505, apparent density in air is defined as the density calculated when:

- the pycnometer volume is calibrated with water and weighed in air
- the sample is weighed in air
- no air buoyancy correction is used for either weighing
- the density in vacuum of water is used in calculating the volume.

Density (in air)

To find the density in air using a pycnometer:

- Apply air buoyancy correction to the water weight
- Calculate the true volume of the pycnometer from the weight of water in vacuum
- Fill the pycnometer with sample
- Weigh in air
- Subtract the weight of the pycnometer in air. Do not apply an air buoyancy correction
- Divide the sample weight in air by the true volume in milliliters to obtain the density in air at experimental temperatures.

This calculation is used most often with ASTM Test Method D-3505.

Densities given in ASTM Table D-1250 are calculated using the above procedure.

Density (relative density in air)

Relative density in air is the density calculated when all weighings are in air and no air buoyancy correction was applied.

Density (true)

The true density is the mass of the product per unit volume at a specified temperature. The official SI unit for density is kg/m^3 , however, in practice it is expressed as grams per milliliter (g/ml) or kilograms per liter (kg/l). Note: Grams per milliliter (g/ml) and kilograms per liter (kg/l) are numerically equivalent

Flow Proportional Sample

Flow proportional samples are taken automatically from a pipeline during the entire transfer period, at a rate proportional to the rate of flow of the liquid in the pipeline.

Flushing Case Thermometer

A flushing case thermometer is a device containing a standard thermometer that is used to take the temperature of liquid at various levels. When the open thermometer is lowered through the product layer, liquid flushes through the chamber. When closed at the desired level, the device traps and takes the temperature of the liquid in that portion of the product layer.

Free Flowing

Oil left in Cargo tanks after discharge that is capable of free flow. (Also known as pumpable oil.)

Free Water (FW)

The volume of water present in a container and not suspended in the contained liquid at observed temperature.

Gross Observed Volume (GOV)

The gross observed volume is the total volume of all petroleum liquids and sediment and water (S&W), excluding free water, at observed temperature.

Gross Standard Volume (GSV)

The gross standard volume is the gross observed volume corrected to a standard temperature such as 60°F or 15°C. To correct the volume, use the appropriate correction factor for the observed temperature listed in ASTM Table 3 (Modified) – API Gravity to Specific Gravity and to Density.

Innage Gauge (Dip)

The innage gauge measures the depth of liquid in a tank. The measurement is taken from the surface of the liquid to the tank bottom or to a fixed datum plate.

Inspector/Surveyor

The person designated, by the nominated Inspection Company, to perform the duties outlined in the CPChem's Product Transfer Inspection Manual and any other specific instructions from the CPChem Customer Account Coordinator (CAC).

Interface Detector

An interface detector is a device used to locate an oil-water interface.

Mass

The mass of a substance is the quantity of matter it contains. Mass is independent of such external conditions as the buoyancy of the atmosphere or gravity. The official SI unit for mass is the kilogram (kg).

Mass of a Liquid Product

To obtain the mass of a liquid product, multiply the volume of the product in liters or cubic meters at a given temperature by its density at that temperature. Express mass in kilograms (kg) or metric tons (mt).

Net Observed Volume (NOV)

The net observed volume is the total volume of all petroleum liquids, excluding S&W and free water, at the observed temperature. In other words, the net observed volume is the gross observed volume minus S&W.

Net Standard Volume (NSV)

The net standard volume is the net observed volume corrected to a standard temperature. To correct the volume, use the appropriate correction factor for the observed temperature listed in ASTM Table 3 (Modified) – API Gravity to Specific Gravity and to Density.

No Measurable Quantity (NMQ)

No measurable quantity (NMQ) indicates that there is no pumpable or free-flowing product remaining. NMQ is sometimes called no pumpable quantity.

On Board Quantity (OBQ)

OBQ includes all materials in the cargo tanks, lines, and pumps on the vessel prior to loading.

These materials include:

- oil
- oil/water mixtures
- water and sediments
- anything else present.

Opening Gauge

The opening gauge measures the amount of product in a tank before a transfer.

Outage/Ullage Gauge

The outage/ullage gauge measures the distance from the reference point to the surface of the liquid in tank.

Reference Depth

The reference depth is an established standard distance from the reference point to the bottom of the tank.

Reference Point

The reference point is a fixed point or mark at or near the top of a tank from which measurements are made. A reference point may be:

- a bench mark or a small fixed plate inside the gauging hatch
- a narrow groove cut horizontally on the inside of the hatch **or**

the edge of a piece of metal attached to the tank shell that projects a short distance into the gauging hatch without coming into contact with it.

Remaining on Board (ROB)

All the materials in the cargo tanks, associated lines, and pumps on board the vessel after the discharge is complete. These materials include:

- oil in cargo tanks
- oil/water mixtures
- water and sediments in tanks
- anything else present.

ROB can be either pumpable or unpumpable material.

Running Sample

- Lower an unstoppered beaker or bottle from the top of the product to the level of the bottom of the outlet connection.
- Return the can or bottle to the top of the product at a uniform rate of speed.

Note: The beaker or bottle should be about three-quarters full when withdrawn from the product.

Sediment

Sediment includes all solid material such as sand or scale.

Sediment & Water (S&W)

Sediment and water includes all non-hydrocarbon materials suspended in oil, such as:

- Sand
- Clay
- Rust
- immiscible water

Ship Gross Volume

To calculate the ship gross volume, subtract the ship's ROB product volume at 60°F or 15°C from the ship's total gross standard volume at 60°F or 15°C prior to delivery.

Slops

Slops are the total contents of the slop tank(s) prior to loading.

Tank Capacity Table

See Calibration Table definition.

Total Calculated Volume (TCV)

The total observed volume corrected to a standard temperature such as 60°F or 15°C. To correct the volume, use the appropriate correction factor for the observed temperature listed in ASTM Table 3 (Modified) – API Gravity to Specific Gravity and to Density.

Total Observed Volume (TOV)

The total measured volume of all petroleum liquids, S&W, and free water at an observed temperature.

Ullage Chart

See Calibration Table definition.

--END--

Calculating the Quantity of TBC Required to Increase TBC in Styrene

Purpose

This document

- outlines the procedure for calculating the required quantity of TBC
- provides a sample calculation
- includes the table that provides the quantity of TBC required to increase the TBC in styrene by 1 PPM.

4-Step Procedure

To calculate the CCs of TBC required to increase the TBC level in styrene to the desired level:

Step	Action
1	Determine the volume of the styrene.
2	Use the following table to determine the amount of TBC required to increase the level of TBC by 1 PPM for that volume.
3	Subtract the current TBC level from the desired TBC level to determine how many PPMs of TBC are needed.
4	Multiply the number from the table by the difference to determine how much TBC to add.

Example

Given:

- Current TBC level is 8 PPM
- Desired TBC level is 15 PPM
- Volume of styrene is 5,800 gallons

Determine the amount of TBC required to raise the concentration of TBC to 15 PPM.

Step	Action	Result
1	Determine the volume of the styrene.	Given: 5,800 gallons
2	Use the following table to determine the amount of TBC required to increase the level of TBC by 1 PPM for that volume.	6 th Row, 9 th Column of Table: 22.69
3	Subtract the current TBC level from the desired TBC level.	15 PPM – 8 PPM = 7 PPM
4	Multiply the number from the table by the difference.	7 PPM * 22.69 = 159 CC of TBC

Table: CCs of TBC Required to Increase the TBC in Styrene by 1 PPM

(85% TBC and 15% Methanol)

	Gallons *7.586 = Pounds *515.6254 = CC of TBC/3785 = Gallons of TBC									
Gallons Styrene	0	100	200	300	400	500	600	700	800	900
	CC of TBC Required									
0	-	0.39	0.78	1.17	1.56	1.96	2.35	2.74	3.13	3.52
1000	3.91	4.30	4.69	5.08	5.48	5.87	6.26	6.65	7.04	7.43
2000	7.82	8.21	8.61	9.00	9.39	9.78	10.17	10.56	10.95	11.34
3000	11.73	12.13	12.52	12.91	13.30	13.69	14.08	14.47	14.86	15.25
4000	15.65	16.04	16.43	16.82	17.21	17.60	17.99	18.38	18.78	19.17
5000	19.56	19.95	20.34	20.73	21.12	21.51	21.90	22.30	22.69	23.08
6000	23.47	23.86	24.25	24.64	25.03	25.42	25.82	26.21	26.60	26.99
7000	27.38	27.77	28.16	28.55	28.95	29.34	29.73	30.12	30.51	30.90
8000	31.29	31.68	32.07	32.47	32.86	33.25	33.64	34.03	34.42	34.81
9000	35.20	35.59	35.99	36.38	36.77	37.16	37.55	37.94	38.33	38.72
10000	39.12	39.51	39.90	40.29	40.68	41.07	41.46	41.85	42.24	42.64
11000	43.03	43.42	43.81	44.20	44.59	44.98	45.37	45.76	46.16	46.55
12000	46.94	47.33	47.72	48.11	48.50	48.89	49.29	49.68	50.07	50.46
13000	50.85	51.24	51.63	52.02	52.41	52.81	53.20	53.59	53.98	54.37
14000	54.76	55.15	55.54	55.93	56.33	56.72	57.11	57.50	57.89	58.28
15000	58.67	59.06	59.46	59.85	60.24	60.63	61.02	61.41	61.80	62.19
16000	62.58	62.98	63.37	63.76	64.15	64.54	64.93	65.32	65.71	66.10
17000	66.50	66.89	67.28	67.67	68.06	68.45	68.84	69.23	69.63	70.02
18000	70.41	70.80	71.19	71.58	71.97	72.36	72.75	73.15	73.54	73.93
19000	74.32	74.71	75.10	75.49	75.88	76.27	76.67	77.06	77.45	77.84
20000	78.23	78.62	79.01	79.40	79.80	80.19	80.58	80.98	81.36	81.75
21000	82.14	82.53	82.92	83.32	83.71	84.10	84.49	84.88	85.27	85.66
22000	86.05	86.44	86.84	87.23	87.62	88.01	88.40	88.79	89.18	89.57
23000	89.97	90.36	90.75	91.14	91.53	91.92	92.31	92.70	93.09	93.49
24000	93.88	94.27	94.66	95.05	95.44	95.83	96.22	96.61	97.01	97.40
25000	97.79	98.18	98.57	98.96	99.35	99.74	100.14	100.53	100.92	101.31

--END--

Tank Preparation Glossary

LOT – Load on Top

Tanks are stripped out utilizing the main cargo pump and the fixed stripping system. Open cargo valves and remove bulk viable liquid from the tanks.

SLF – Stripped Liquid Free

Open cargo valves and remove bulk viable liquid from the tanks. Strip pipelines and deep wells and advise if not fitted with fixed stripping capability. Remove butterworth plates to facilitate stripping if necessary. The tanks may have puddles and the sumps may refill with the last cargo depending on:

- The amount of rust in the tank (rust traps liquid)
- The amount of time between stripping and loading
- The flatness of the cargo tank bottom plating

The cargo pump, check valve, valve seats, and stripping lines may still have liquid from the last cargo. Strip drip pans. Drain and/or strip attached cargo hoses. Furnish and install new gaskets, fasteners, and other parts as necessary on disturbed items and resecure for normal transfer operations.

Assumes Liquid Puddles in Cargo Tanks, Deep Wells, and Lines

SLFBD – Stripped Liquid Free and Blown Dry

Open all cargo valves and remove any liquid from the tanks. Ballast as necessary to improve draining of free liquid. Ventilate the cargo tanks, deep well, main cargo pipeline, stripping lines, attached hoses, pumps, and check valves with forced air. Enter the tanks to inspect for remains of previous cargo. Remove the flange from the base of the pump and mop and wipe dry. Remove rust scale. Strip drip pans. Drain and/or strip attached cargo hoses. Furnish and install new gaskets, fasteners, and other parts as necessary on disturbed items and resecure for normal transfer operations.

Assumes No Liquid in Cargo System

SLFBDOF – Stripped Liquid Free, Blown Dry and Odor Freed

Open all cargo valves and remove any liquid from the tanks. Ballast as necessary to improve draining of free liquid. Ventilate the cargo tanks, deep well, main cargo pipeline, stripping lines, attached hoses, pumps, and check valves with forced air until odor free. Enter the tanks to inspect for remains of previous cargo. Remove the flange from the base of the pump and mop and wipe dry. Remove rust scale. Strip drip pans. Drain and/or strip attached cargo hoses and blow with forced air until odor free. Furnish and install new gaskets, fasteners, and other parts as necessary on disturbed items and resecure for normal transfer operations.

Assumes No Liquid and No Odor in Cargo System

CWW – Cold Water Wash

Machine wash with cold fresh or seawater for 2 hours. Flush water through the pipeline system. Open all cargo valves and remove any liquid from the tanks. Flush all cargo tanks with fresh water. Drain the tank, lines, and pump (remove the flange from the base of the pump and mop and wipe dry). Ballast as necessary to improve draining of free liquid. Force ventilate the cargo tanks. Strip the tanks of visible water. Check the pump and check valve for cargo and water. Ventilate the pump and check valve with forced air. Remove any rust scale. Rinse, drain and ventilate cargo hoses. Furnish and install new gaskets, fasteners, and other parts as necessary on disturbed items and resecure for normal transfer operations.

HWW – Hot Water Wash

Machine wash with hot (80°C) fresh or seawater for 2 hours. Flush water through the pipeline system. Open all cargo valves and remove any liquid from the tanks. Flush all cargo tanks with fresh water. Drain the tank, lines, and pump (remove the flange from the base of the pump and mop and wipe dry). Ballast as necessary to improve draining of free liquid. Force ventilate the cargo tanks. Strip the tanks of visible water. Check the pump and check valve for Cargo and water. Ventilate the pump and check valve with forced air. Remove any rust scale. Rinse, drain and ventilate cargo hoses. Furnish and install new gaskets, fasteners, and other parts as necessary on disturbed items and resecure for normal transfer operations.

-- END --