

TANK WAGON LOADING/UNLOADING OPERATIONS

It is of paramount importance that the wagon after being loaded is absolutely leak-free before it is ready for draw-out.

IMPORTANT FITTINGS OF TANK WAGONS

- **SAFETY VALVE** - The safety valve is provided to prevent building up of excess pressure inside the barrel.
- **SAFETY VENT** - This consists of a frangible disk (lead or any approved material not affected by loading) which ruptures at specified pressure.
- **VAPOUR EXTRACTOR COCK** - Its function is to extract vapour from the tank while filling.

MASTER VALVE ASSEMBLY - It is a gravity discharge valve fitted with a hand wheel in the dome for manual operation.

BOTTOM DISCHARGE VALVE - It should be in proper working condition and fluid tight.

BLANK FLANGE - This is made to correct thickness out of steel plate and with a gasket of proper material between the blank flange and bottom discharge valve flange which should be tightened by six bolts and nuts.

BTPN WAGON

- ESTIMATE TARE: 27.00 T
- AXLE LOAD : 20.32 T
- GROSS LOAD : 81.28 T



BTPN WAGON

- **Top dome cover of BTPN wagon indicating fill pipe, fill pipe cover, vapor extractor cock, and master valve control wheel which is used for opening/closing the master valve**



BTPN WAGON

- **Top view of BTPN wagon after the wagon is loaded, dome cover is closed and sealed**



BTPN WAGON DISCHARGE VALVE

4" BTPN discharge valve which is to be opened at the time of unloading the wagon. this should be in closed position when the wagon is under loading



CONVENTIONAL TYPE WAGON

Image showing bottom discharge valve and flange in hanging position. After wagon is loaded bottom discharge valve will be closed with a dummy gasket and flange



PRE-LOADING ACTIVITIES

- **Ensure proper placement of the rake in alignment with filling points and all swing ladders in position before placement.**
- **Ensure that the tank wagons to be loaded are placed in position and secured properly against any movement by placing wheel chokes .**
- **On completion of placement, take down wagon numbers**
- **Allocation of wagon-wise product**
- **Check all the wagons for fitness with the help of RLY TXR and intimate wagon rejections, if any, to RLYs with reasons thereof.**

RLY TXR to use only non sparking tools (brass hammer) for operation of valves.

Forwarding wagon-wise allotment sheet to computer operator for dip chart generation.

Ensure that sick wagons are not loaded by chance.

Ensure wagons are all in readiness for commencing loading operation by checking top/bottom valves position

On receipt of dip chart, officer to record dips against each wagon

SAFETY ASPECTS - PRE LOADING

- **Ensure all tank wagon fittings are in working condition**
- **Ensure that the safety valves of the tank wagons are in tact and the master valve is fluid tight.**
- **Ensure that the bottom discharge valve is fully closed before commencing loading.**
- **To check the vapour extractor cock and vent plug are open before commencement of loading.**

SAFETY ASPECTS - PRE LOADING

- **Ensure that the tank wagons are loaded under supervision of a responsible and competent person.**
- **Filling operators are properly trained in loading operations.**
- **Ensure proper identification colour code/name stenciled on each product line/loading arm.**
- **At the time of placement, the loco speed 10 kmph(max) . also it should not cross the "no entry" zone at the "siding". A caution board mentioning " ENGINE STOP" should be there at the no entry zone.**

- **Before the loading commences, ensure that at least two fire extinguishers are placed for every 15 mtrs on the loading gantry where it will be clearly visible and readily accessible.**
- **The personnel on the T/W gantry should be familiar with the use of fire fighting equipment and regular training to be conducted for TW personnel for operation of the fire fighting equipment.**

- **Ensure proper/adequate illumination on the T/W gantry**
- **To check the swing ladders on the gantry regularly**
- **Ensure that the valves in sumps are in proper working order and no oil leaks visible inside sumps.**

LOADING ACTIVITIES

- To advise operators to be in all readiness for commencing the loading operation and intimate to pump operator to start the pumps
- Officer to monitor pumping pressure depending on the stages of completion of wagons
- Release of **forwarding(f)**-notes to RLYs
- Advise pump operator promptly about switching off of the pumps
- Recording of temperatures/densities
- Give intimation to IOC/BPC for joint witnessing of dips / samples

SAFETY ASPECTS - DURING LOADING

- **To dis-continue transfer operation, all loading connections must be slightly closed and closure of all other concerned components strictly ensured.**
- **Officer and the operators should be alert throughout the loading.**
- **Wearing of helmets, safety shoes, etc. The loading arm should always be operated by hand.**
- **Ensure that the loading is done through the fill pipe only.**
- **Loading to be started only after the hoses are properly secured/tied to the wagon to prevent the hose from coming out during loading.**

- **Shunting of any kind of the wagons under loading must be strictly avoided.**
- **During lightening/thundering, stop loading and close dome covers.**
- **Under no circumstances, loading should be continued with leaky or ruptured hose.**
- **Ensure recommended air space as specified.**
- **Seals and other substances must not be thrown into the wagon/drains under loading.**
- **All tools and implements used in connection with transfer operations must be kept free from oil, grease, dirt and should be kept at a dedicated place.**

POST LOADING ACTIVITIES

- **Give a settling time before commencing dip checking**
- **Dip checking with master dip rod in both manholes (for 8 wheeler) and taking the average. Ensuring "water free" by checking with water finding paste.**
- **Top up under-filled wagons**
- **Product from over-filled wagons to be sucked back to tank. But this is to be avoided**
- **On completion of dip checking, IOC/BPC reps signature to be obtained on loading chart**
- **Ensure proper sealing of all wagons.**
- **Affix paste-on labels mentioning product, dip, volume, density, temp & name of the consignee.**

SAFETY ASPECTS - POST LOADING

- **On completion of loading, the loading arm valves should be properly closed and tank wagon dome covers properly closed & sealed (after dip checking is completed).**
- **Remember to close the vapour extractor cock after loading.**
- **Remember to fit the cap on the vapour extractor cock after loading is over.**
- **Ensure to fit the cap on the filling pipe after loading.**
- **Ensure closure of the vent plug cock after loading.**

- **Provide proper sealing of dome cover and bolt nuts are tightened.**
- **After loading completion, ensure pull back of loading hoses to avoid hitting. Hoses are very expensive.**
- **Ensure that the wheel chokes are removed before the rake is drawn out.**
- **Never allow tank wagons stand with loading connections attached after loading is completed.**
- **Ensure loco does not travel more than 10 kmph when rake drawn out.**

QC CHECKS AT T/ W LOADING GANTRY

- To ensure product released for T/W loading is from a tank "batch formation" after cleared by lab.
- Ensure use of only calibrated equipment on the gantry like thermometers, hydrometers etc
- Match 15 deg density of sample taken from tank wagon under loading with the parent tank density provided.
- Check empty T/Ws before loading so that no discolourisation of product in tank wagon. All loaded tank wagons samples should be checked for colour of the product.

- **Prior to filling aviation fuels, naphtha and solvents tank wagons must be adequately flushed**
- **“dedicated wagons” meant for loading special products can be used for loading any white oil products but not vice-versa.**
- **Tank wagons specified to carry "edible vegetable oils" should not be used for transshipping petroleum products because they are likely to be re-used for transshipping edible vegetable oils.**
- **Prior to loading tank wagons - ensure they are clean & dry. Where tank wagons carry sludge or a residue oil of different grades of product it may be necessary to flush the tank wagon with product being loaded until it is sufficiently cleaned.**

FACTORS LEADING TO WASTAGE OF PRODUCT DURING LOADING.

- LEAVING THE VALVE HALF-OPEN AND UN-ATTENDED WHEN LOADING IS IN PROGRESS
- HIGH PRESSURE PUMPING - BURSTING OF HOSE
- AN ELEMENT OF HUMAN ERROR WILL NOT ONLY LEAD TO UNSAFE OPERATION BUT ALSO LOSS OF PRODUCT (WHICH WILL HAVE A BEARING ON THE LOCATION'S STOCK LOSS PERFORMANCE).
- WRONG RECORDING OF CTCC DIP BY OFFICER RESULTING IN EXCESS FILLING
- COMMENCING LOADING WITHOUT CLOSING THE MASTER VALVE/BOTTOM VALVE RESULTING IN PRODUCT FINDING ITS WAY OUT.
- COMMENCING LOADING WITHOUT ENSURING WHETHER THE (JUST CHANGED) HOSE PROPERLY TIGHTENED OR NOT.
- OVER-FILLING OF TANK WAGON WITHOUT NOTICING OR WRONGLY NOTICING THE CTCC DIP.

VERIFICATION OF QUANTITIES BY DIP RODS

- **AFTER THE DIPS ARE RECORDED, TANK WAGONS LOADING IS DONE BY THE OPERATORS WITH 3 MTR LONG DIP RODS.**
- **FINAL DIP CHECKING ALONG WITH IOC/BPC REPRESENTATIVES IS HOWEVER CARRIED OUT WITH "MASTER DIP ROD" WHICH IS DULY CALIBRATED BY THE LEGAL METROLOGY DEPT.**

SICK WAGONS

- **WAGONS DECLARED SICK BEFORE DRAWN OUT BY RLY TXR - TO BE INFORMED TO RLYS AND INTIMATED IN COMPLETION MEMO - TO BE DECANTED BACK INTO TANK. THESE ARE RR NOT ISSUED WAGONS.**
- **WAGON BROUGHT BACK AFTER BEING DRAWN OUT DECLARED SICK AT RLY YARD, PRODUCT TO BE TRANSHIPPPED INTO ANOTHER "EMPTY FIT" SUPPLIED BY RLYS (RR ISSUED WAGON) TRANSHIPMENT MEMO TO BE GIVEN IN THIS CASE TO BE JOINTLY SIGNED BY OIL CO AND RLYS.**
- **FOR SICK WAGONS TRANSHIPMENT BELONGING TO OMCS THEIR REPRESENTATIVE MUST BE PRESENT AS WITNESS DURING TRANSHIPMENT PROCESS..**

POL RAILWAYTRACK MAINTENANCE

- **TO BE MAINTIANED BY EXPERIENCED & AUTHORISED PARTIES ON REGULAR BASIS.**
- **FITNESS CERTIFICATE TO BE OBTAINED FROM RLYS.**

HOUSEKEEPING/SIDING MAINTENANCE

- **NEAT & TIDY UPKEEP OF THE GANTRY BY REMOVING THE USED COTTON WASTE, UNUSED SEALING WIRE, BROKEN SEALS ETC.**
- **REGULAR CLEANING OF THE SWING LADDERS ON THE GANTRY, ESPECIALLY AFTER BLACK OIL RAKE LOADING.**
- **REGULARLY REMOVING OIL SPILLAGE /CLEANING THE SIDING WITH KEROSENE AFTER THE RAKE LOADING, REMOVING THE USED GASKETS, WOODEN CHOKES.**
- **REGULARLY CLEANING THE OIL DRAIN AT THE POL GANTRY SO THAT THERE IS NO JAM AND OIL FLOWS FREELY TO THE OWS.**
- **DAILY OPERATION OF SLOP PUMP AT THE POL GANTRY FOR RUNNING THE OIL FROM SUMP TANK TO MAIN TANK AND KEEP THE SUMP TANK EMPTY AT ALL TIMES.**
- **OWS TO BE MONITORED CAREFULLY DURING RAINY SEASONS AND WATER TO BE RELEASED TO ETP AND OIL TO SUMP TANK.**

ACTIVITIES IN LIASON WITH PORT RAILWAYS

- **ISSUANCE OF "COMPLETION MEMO" TO PORT RAILWAYS**
- **RECORD LOADING DETAILS IN RELEVANT REGISTER**
- **DECANTATION OF "TXR MARKED SICK WAGONS" BY
KEEPING THEM ON LOOP-LINE**
- **TRANSHIPMENT OF "SICK" WAGONS (RR ISSUED) TO
"EMPTY FIT WAGONS" AND ISSUANCE OF MEMO TO
PORT RLYS ON COMPLETION OF TRANSHIPMENT**

GENERAL ACTIVITIES

- **TO ENSURE ADEQUATE STOCK OF CONSUMABLES VIZ. DUMMY GASKETS, SEALING WIRE, WATER FINDING PASTE, OIL FINDING PASTE, COTTON WASTE, DIP RODS ETC.,**
- **CO-ORDINATION WITH M & R FOR ANY URGENT REPAIR JOBS**
- **IMMEDIATE REPLACEMENT OF DEFECTIVE HOSE WITH GOOD ONE**
- **TO CHECK, SIGN & RELEASE DOCUMENTS PREPARED BY COMPUTER OPERATOR ON COMPLETION OF RAKE LOADING**
- **TO CROSS CHECK WITH TANK FARM OFFICER FOR VARIATIONS IN QUANTITY LOADED TO TANK WAGONS AND RELEASED FROM TANK**
- **COLLECT RRS ON THE SAME DAY OF LOADING**

WHAT IS TRAIN LOAD CONCESSION

- TRAIN LOAD CONCESSION (TLC) IS A CONCESSION/REBATE ACCORDED BY RAILWAYS TO THE CONSIGNOR IN THE "FREIGHT"
- THE CONCESSION AMOUNT VARIES DEPENDING ON THE TYPE OF PRODUCTS LOADED AS THEY ARE CLASSIFIED INTO VARIOUS TYPES/CLASSES (AS PER RAILWAY CODES/GUIDELINES) AND ALSO THE DISTANCE INVOLVED.
- HOWEVER IF RLYS THEMSELVES ARE NOT ABLE TO GIVE REQUIRED SIZE OF RAKE, THEY ARE AUTHORIZED TO ACCORD TLC. BUT THESE INSTANCES ARE RARE.
- **TLC ELIGIBILITY FOR 8 WHEELERS - MINIMUM 46 WAGONS**
- **TLC ELIGIBILITY FOR 4 WHEELERS - MINIMUM 65 WAGONS.**

SIDING/SHUNTING CHARGES

- **SIDING CHARGES: THESE ARE CHARGES CLAIMED BY RAILWAYS FOR BRINGING EMPTY RAKES FROM MARSHALLING YARD TO THE LOADING BASE AND DRAWING OUT LOADED RAKES AND HANDING OVER TO THE MARSHALLING YARD.**
- **SHUNTING CHARGES: AMOUNT PAID TO RLYS FOR ACTUAL PLACEMENT OF WAGONS IN ALIGNMENT WITH FILLING POINTS IS CALLED SHUNTING CHARGES.**

SETTLEMENT OF PAYMENT AMONG OMCS FOR COMMON INDUSTRY SIDING

- **SIDING/SHUNTING CHARGES PAYABLE BY EACH OIL COMPANY.**
- **INITIALLY PAID BY THE LOADING COMPANY,**
 - **SUBSEQUENTLY JC RAISED AND SIGNED BY OMCS.**
- **SENT TO ZONAL OFFICE ON FORTNIGHTLY BASIS FOR COMPILATION.**
- **PAYMENT COLLECTED AT HQO.**

CALIBRATION OF TANK WAGONS

- **ONCE IN 5 YEARS OR WHENEVER ANY DIFFERENCE IS REPORTED/OBSERVED OR ON "SPECIAL" INSTRUCTIONS FROM RAILWAY AUTHORITIES.**
- **NON AVAILABILITY OF DIPS IN CTCC CHARTS.**
- **CALIBRATION IS ALSO NECESSITATED WHEN, BY OVERSIGHT, IN ANY "DEDICATED" BLACK OIL WAGON, WHITE OIL IS LOADED - OR VICE VERSA.**
- **CALIBRATION OF "DENTED WAGONS" DUE TO ACCIDENT..**

CALIBRATION OF TANK WAGONS

- **AFTER CALIBRATION IS DONE, THE BIO-DATA OF THE TANK WAGON IS TO BE FORWARDED TO THE BELOW MENTIONED ADDRESS THRU THE HEAD OF THE OIL INSTALLATION WHERE THE TANK WAGON IS CALIBRATED FOR INCORPORATING IN THE CENTRAL TANKWAGON CALIBRATION CHART (CTCC)**

**CHAIRMAN, CTCC,
C/O BHARAT PETROLEUM CORPORATION LTD,
12TH FLOOR, F-BLOCK,
CAFFE PARADE,
MUMBAI.**

STOCK LOSS - LOADING LOCATIONS

- **THE ALL IMPORTANT OBJECTIVE OF OIL CONSERVATION IN MARKETING IS TO IMPROVE THE PROFITABILITY OF THE OPERATION BY REDUCING AND CONTROLLING PRODUCT LOSS TO THE BAREST MINIMUM.**
- **ONE OF THE KEY PARAMETERS FOR FIXING A LOCATION'S PERFORMANCE.**

BASIC FACTORS

- **EVAPORATION**
- **INACCURATE GAUGING**
- **LEAKAGE**
- **PILFERAGE**
- **TEMPERATURE**
- **OPERATIONS**

PREDOMINANTLY STOCK LOSS IS AFFECTED BY TEMPERATURE LOSS & OPERATION LOSS.

THE STOCK LOSS CALCULATION ON LOADING OF A RAIL WAGON RAKE FROM A STORAGE TANK AT A LOADING TERMINAL IS DONE AS UNDER :

OPENING GAUGE & TEMPERATURE OF THE TANK LINED UP FOR DELIVERY SHALL BE TAKEN BEFORE THE ACTUAL DELIVERY STARTS. AFTER LOADING IS COMPLETED AND AFTER GIVING A SETTLEMENT TIME OF REASONABLE PERIOD, THE CLOSING GAUGE/TEMPERATURE WILL BE TAKEN AND COMPARED WITH THE TEMPERATURE OF TANK WAGON LOADING/QUANTITY ACTUALLY LOADED AND THEN THE VARIATION (LOSS OR GAIN) WILL BE ARRIVED..

RECORD KEEPING AT LOADING LOCATIONS

- **LETTERS FROM PORT RLYS DECLARING LOADED WAGONS AS "SICK" (RR NOT ISSUED WAGONS)**
- **LETTERS FROM PORT RLYS ADVISING PLACEMENT OF SICK LOADED WAGONS ALONG WITH EMPTY FITS FOR TRANSHIPMENT (RR ISSUED WAGONS)**
- **COPIES OF TRANSHIPMENT CERTIFICATES**
- **SEALS ISSUED RECORD**
- **LOADING CHART JOINTLY SIGNED BY OMC REPS**
- **COMPLETION MEMOS**
- **EMPLOYEES ATTENDANCE**
- **SUMMARY OF LOADING, TOA, PDRS**
- **FREIGHT PAYMENT DETAILS**

TANK WAGON UNLOADING OPERATIONS

- **AS PER RAILWAY NORMS, UNLOADING OPERATION IS TO BE UNDERTAKEN BETWEEN 0600 HRS TO 1800 HRS ONLY. BALANCE LEFT OVER IF ANY TO BE CARRIED FORWARDED TO NEXT DAY. FREE TIME ALLOWED FOR UNLOADING THE TANK WAGONS - REFER DEMURRAGE CHARGES.**
- **CHECK THE TANK WAGONS PLACED FOR ALL REQUISITE FORMALITIES BEFORE UNLOADING.**
- **ENSURE SUFFICIENT ULLAGE IN RECEIVING TANK.**
- **ENSURE POSITIVE SEGREGATION OF RECEIVING TANK**

TANK WAGON UNLOADING OPERATIONS

- **ENSURE SUFFICIENT INVENTORY OF GOOD QUALITY UNLOADING HOSES.**
- **ENSURE SUMP POINTS HAVE PROPER COLOUR CODING AND CHECKED FOR CLOSED POSITION BEFORE WAGON CONNECTIONS. ALL VALVES OF THE NOMINATED STORAGE TANK TOWARDS UNLOADING RAKE IS TO BE OPENED.**

- **ENSURE SUMP POINTS HAVE PROPER COLOUR CODING AND CHECKED FOR CLOSED POSITION BEFORE WAGON CONNECTIONS.**
- **AT LEAST TWO PORTABLE FIRE EXTINGUISHERS ARE TO BE PLACED NEAR THE WAGONS TO BE UNLOADED IN A LOCATION WHERE THEY WILL BE VISIBLE PROMINENTLY AND CAN BE EASILY ACCESSED.**
- **CHECK SEALS ON DOME COVER / VALVES OF WAGONS.**
- **EACH TANK WAGON IS TO BE GAUGED AND SAMPLED BEFORE DECANTATION. ANY WATER PRESENCE IN THE WAGON IS TO BE RECORDED FOR FURTHER TAKING UP WITH LOADING LOCATION.**
- **IF THE WAGON SAMPLE IS HAZY IN APPEARANCE OR OFF-COLOUR, TANK WAGON TO BE KEPT ASIDE**

- **A TUB IS TO BE PLACED IN A POSITION TO CATCH ANY FUEL THAT MAY BE IN THE OUTLET CHAMBER BY SLIGHTLY LOOSENING THE BLANK FLANGE BEFORE ATTEMPTING TO REMOVE IT. UNLOADING HOSES MUST BE SECURELY CONNECTED DISCHARGE OUTLETS OF WAGONS**
- **WHILE DECANTATION TAKES PLACE , DOME COVER IS TO BE PLACED IN SUCH A WAY THAT AIR MAY ENTER THE WAGON.**
- **ENSURE NRV IN WORKING CONDITION AND CONTINUOUS PRESENCE AT SIDING WHILE T/W UNLOADING.**

- **STOP UNLOADING OPERATIONS IN THE EVENT OF A FIRE OR APPROACH OF THEREUNDER STORM,**
- **WHENEVER UNLOADING IS IN PROGRESS, STORAGE TANK LEVEL IS TO BE CHECKED TO ENSURE THAT PRODUCT IS RECEIVING AND TO PREVENT OVER FILLING.**
- **CLOSE ALL VALVES ON COMPLETION OF UNLOADING OF A TANK WAGON RAKE, GAUGE STORAGE TANK AND SAMPLED.**
- **CALCULATE LOSS/GAIN**
- **CLOSE THE WAGON MANHOLE COVER, VALVES AND CHECK FOR EMPTINESS**
- **UNLOADING HOSES ARE TO BE FULLY DRAINED, DISCONNECTED AND STORED SECURELY.**
- **RLYS TO BE BE ADVISED THAT THE WAGONS ARE READY FOR REMOVAL IN WRITING INDICATING TIME OF RELEASE.**

WAGON DEVELOPING A TECHNICAL DEFECT ENROUTE & PLACED FOR UNLOADING

- **SOMETIMES A LOADED WAGON DEVELOPS A TECHNICAL DEFECT ON THE RUN FROM THE LOADING BASE TO DESTINATION**
- **GETS PLACED FOR DECANTATION ALONG WITH THE RAKE**
- **UNLOADING LOCATION NOTICES THE DEFECT - FINDS IT DIFFICULT TO START THE OPERATION**
- **TO IMMEDIATELY ADVISE RLYS THROUGH A MEMO INDICATING THE DEFECT NOTICED INTIMATING INABILITY TO UNLOAD THE WAGON.**
- **RAILWAYS GIVES ACKNOWLEDGEMENT AND SENDS MESSAGE TO THE NEAREST LOCO SHED FOR SENDING TXR STAFF FOR ATTENDING TO THE COMPLAINT.**

- UNLOADING LOCATION TO SEAL THE WAGON AND WAIT TILL THE DEFECT IS RECTIFIED AND START THE OPERATION ONLY AFTER WRITTEN CONFIRMATION FROM RLYS ABOUT DEFECT RECTIFICATION.
- AFTER THIS, COMPLETION MEMO TO BE GIVEN.
- UNLOADING LOCATION TO NOTE DOWN THE WAGON NUMBER, DATE ON WHICH IT WAS LOADED AND INTIMATE TO LOCAL RAILWAYS, LOADING BASE AND OTHERS CONCERNED LIKE ZONE ABOUT THE WAGON, REQUESTING TO DELETE THE WAGON FROM THE RUNNING FLEET AND NOT TO LOAD/PLACE SUCH DEFECTIVE WAGONS TILL THEY ARE RECTIFIED AND MADE FIT.

WAGON DEVELOPING HEAVY LEAKS ENROUTE

- **ONE OF THE WAGONS IN A RAKE ON THE RUN FROM THE LOADING BASE TO THE DESTINATION DEVELOPS A HEAVY LEAK IN AN ENROUTE LOCATION.**
- **RLY STAFF NOTICES THE SAME AND BRINGS IT TO THE ATTENTION OF NEAREST RLY STATION/TXR STAFF.**
- **TXR TRIES TO ATTEND TO THE COMPLAINT AND IF POSSIBLE RECTIFIES THE DEFECT.**
- **IF THE DEFECT IS A BIG ONE AND LEAK HEAVY/UNSTOPPABLE AND PRODUCT LOSS IS TAKING PLACE, RLY INFORMS THE NEAREST OIL COMPANY DEPOT (IOC/HPC/BPC) GIVING DETAILS LIKE WHERE IT WAS LOADED, ON WHOSE ACCOUNT AND THE DESTINATION IT WAS RUNNING TO.**

- **CONCERNED OIL COMPANY OR ANY ONE OF THE OIL COMPANIES TO ACT IMMEDIATELY - RUSHING TO THE SPOT WITH ONE OR TWO EMPTY TANK TRUCKS – MEN & MATERIAL - ARRANGE FOR TRANSHIPMENT.**
- **FROM SAFETY POINT OF VIEW IT IS ADVISABLE TO CARRY FEW PORTABLE FIRE EXTINGUISHERS ALONG WITH PERSONNEL WHO CAN OPERATE THE SAME.**
- **COMPLETE FORMALITIES LIKE PREPARATION OF INCIDENT REPORT, JOINT CERTIFICATE, TO BE SIGNED JOINTLY BY RLY, TXR, OIL COMPANY REP.**
- **RLYS TO INTIMATE THEIR DEPARTMENTS, LOADING LOCATION ABOUT THE INCIDENT GIVING ALL DETAILS.**

QUALITY CONTROL CHECKS AT UNLOADING LOCATIONS

- EACH TANK WAGON IS TO BE GAUGED AND SAMPLED FOR "SHORT TEST" BEFORE UNLOADING VIZ..
A) APPEARANCE B) COLOUR C) DENSITY
- AND WHEN THE DENSITY RECORDED IS COMPARABLE TO THE PARENT DENSITY, THE PRODUCT WILL BE UNLOADED INTO RESPECTIVE STORAGE TANK.
- IN CASE OF SKO - 750 ML SAMPLE TO BE DRAWN – TESTED FOR FLASH POINT – ONLY THEN UNLOADING TO BE TAKEN UP.
- UNLOADING LOCATION NOT CONVINCED WITH QUALITY – WAGON TO BE SET ASIDE FOR FURTHER FORMALITIES.
- IF ANY HOSE IS USED FOR DECANTING A BLACK OIL WAGON IN THE PREVIOUS RAKE, IT SHOULD BE STRICTLY ENSURED THAT THIS HOSE IS NOT IMMEDIATELY USED FOR DECANTING AN "MS" WAGON IN THE NEXT FOLLOWING RAKE AS THE PRODUCT MIGHT GET DIS-COLOURED.

RETENTION OF SAMPLES

- **IN CASE OF MS/HSD SAMPLES DRAWN FROM TANK WAGONS FOR TESTING PURPOSE, - RETENTION PERIOD 30 DAYS INDICATING WAGON NO. FROM WHICH IT IS DRAWN, DENSITY AND TEMPERATURE.**
- **IN CASE OF SKO IT SHALL BE RETAINED FOR A PERIOD OF ONE MONTH WITH DETAILS AS ABOVE.**

SAFETY ASPECTS DURING UNLOADING

- **CLOSE THE MASTER VALVE AFTER UNLOADING**
- **USE GLOVES FOR TIGHTENING VALVES/CAPS FOR STOPPING LEAKS.**
- **NEVER CONTINUE UNLOADING WITH A LEAKY OR RUPTURED HOSE. CHANGE THE SAME IMMEDIATELY**
- **ANY SPILLAGE AT SIDING - COVER IT WITH LOOSE MUD.**
- **WHEN OPERATIONS ARE COMMENCED, A FURTHER EXAMINATION FOR LEAKAGE AT CONNECTIONS SHALL BE CARRIED OUT**
- **ENSURE THE EMPLOYEES WORKING AT SIDING ALWAYS WEAR HELMETS, SAFETY SHOES.**

- **OFFICER AT THE SIDING TO BE IN CONSTANT TOUCH WITH THE DEPOT PERSONNEL INSIDE OVER WALKIE-TALKIE THROUGHOUT THE UNLOADING OPERATION, ESPECIALLY WHEN THERE IS NO ULLAGE TO RECEIVE THE ENTIRE PRODUCT INTO ONE TANK AND SWITCH OVER IS PLANNED SO THAT TANK OVER FLOW ETC ARE AVOIDED.**
- **CLOSE THE BOTTOM DISCHARGE VALVE AFTER UNLOADING**
- **FIT THE DUMMY FLANGE WITH GASKET AND ALL ITS BOLTS BACK IN POSITION AFTER UNLOADING.**

- **CLOSE THE DOME COVER AFTER UNLOADING.**
- **TIGHTEN EYE BOLT NUTS OF DOME COVER AFTER UNLOADING.**
- **DO NOT ALLOW ROUGH, HUMP OR LOOSE SHUNTING.**
- **DO NOT ALLOW UNAUTHORIZED PERSONS TO OPERATE VALVES.**
- **DO NOT ALLOW TANK WAGON TO MOVE FROM UNLOADING POINTS UNLESS THE TANK FITTINGS ARE PROPERLY REFITTED AND DOME COVER CLOSED.**
- **UNLOADING HOSES MUST BE DIS-CONNECTED AND PULLED BACK AND PLACED BEFORE THE EMPTY RAKE IS READY FOR DRAWN OUT.**

WASTAGE OF PRODUCT AT UNLOADING LOCATIONS

- **DUE TO IMPROPER DRAINING OF PRODUCT FROM UNLOADING HOSE BACK INTO PIPELINE.**
- **AFTER WAGON UNLOADING, HOSE TO BE PHYSICALLY LIFTED FOR DRAINING THE PRODUCT INTO THE PIPELINE, IF LEFT CARELESSLY PRODUCT WILL SPLASH ON TO THE SAND.**
- **OPERATORS TO KEEP RELEASING "AIR" FROM THE PIPELINE FOR SMOOTH FLOW OF PRODUCT. BUT IN THE PROCESS AVOID GUSHING OUT OF PRODUCT FROM THE PIPELINE.**
- **CONTINUATION OF DECANTATION WITH LEAKY OR RUPTURED HOSE RESULTS IN LOT OF WASTAGE**
- **OPENING THE MASTER VALVE/BOTTOM VALVE WITHOUT PROPERLY SECURING THE HOSE TO THE TANK WAGON.**

MAINTANCE OF RLY TRACK/SIDING AT UNLOADING LOCATIONS

MOSTLY MAINTENANCE OF SIDINGS AT UNLOADING LOCATIONS IS TAKEN CARE BY RAILWAYS (AGAINST PAYMENT BY THE OPERATORS I.E. OIL COMPANIES)

SOME OF THE IMPORTANT FACTORS TO BE OBSERVED ARE :

- **THERE IS SUFFICIENT SAND SPREAD ALL ALONG THE SIDING AS THE OIL COMPANY OFFICERS, THEIR WORKMEN AND CONTRACT LABOUR HAVE TO WALK ALONG THE SIDING WHILE CHECKING THE TANK WAGONS.**
- **SUFFICIENT & ADEQUATE ILLUMINATION IS PROVIDED BY RAILWAYS ALL ALONG THE SIDING SO THAT WHENEVER TANK WAGON UNLOADING IS EXTENDED LATE IN THE EVENINGS, ILLUMINATION IS VERY IMPORTANT.**

**RATE OF DEMURRAGE CHARGES AS ON
 ARE AS UNDER :**

TYPE OF WAGON	1ST 24 HRS	24 TO 48 HRS	48 TO 72 HRS
4 WHEELER	RS. 30/- PER HR PER WAGON	RS. 45/- PER HR PER WAGON	RS. 60/- PER HR PER WAGON
8 WHEELER	RS. 60/- -DO-	RS. 90/- DO-	RS. 120/- DO-

SHOULD REQUEST OMC TO DECANT - - IF NO ULLAGE

- **TO OPERATE ON HOLIDAY AND DECANT THE WAGONS TO AVOID DC.**
- **OIL COMPANIES TO APPLY TO RLYS FOR WAIVAL.**
- **TO APPLY FOR FURTHER WAIVAL IF NOT CONVINCED ON INITIAL WAIVAL.TO PAY DC AS PER LAM.**
- **IT IS SHARED BETWEEN THE OPERATING COMPANY AND THE RECEIVING COMPANY IN THE RATIO OF TANK WAGONS RECEIVED ON EACH COMPANY'S ACCOUNT IN CASE OF SITUATIONS BEYOND CONTROL LIKE TOTAL POWER FAILURE, NATURAL CALAMITIES ETC.**
- **IF THE DC IS ON ACCOUNT OF RECEIVING OF COMPANY DUE TO ULLAGE CONSTRAINTS, RECEIVING COMPANY TO BEAR THE DC CHARGES.**

RECORDS TO BE MAINTAINED AT UNLOADING LOCATIONS

- **WAGON REGISTER INDICATING OF WAGON NUMBERS, CTCC DIP ETC.**
- **DENSITY REGISTER TO BE MAINTAINED RAKE WISE, PRODUCT WISE.**
- **DOCUMENT/RR REGISTER**
- **HOSES CONTINUITY REGISTER**
- **REGISTER FOR PENDING/NON RECEIPT TANK WAGONS .**
- **FLASH POINT REGISTER - RAKE WISE**
- **RR REGISTER : AFTER THE RRS ARE RECEIVED THE SAME ARE HANDED OVER TO THE RAILWAYS AND THEIR ACKNOWLEDGEMENT OBTAINED. FOR THIS A SEPARATE REGISTER IS TO BE MAINTAINED.**
- **SIDING PIPELINE REGISTER INDICATING DATE OF PAINTING, PRESSURE TESTING**
- **SIDING MAINTENANCE REGISTER : TO INDICATE ANY DEFICIENCIES NOTICED.**
- **NON DELIVERY CERTIFICATES.**

RAILWAY CLAIM PROCEDURE

- **CLAIMS ARE LODGED ON RAILWAYS, MOSTLY BY THE RECEIVING LOCATION, FOR NON-RECEIPT OF TANK WAGONS BOOKED TO THEM.**
- **TO OBTAIN NON DELIVERY CERTIFICATE FROM RLYS IF WAGON NOT RECEIVED WITHIN 30 DAYS FOR LODGING PROVISIONAL CLAIM.**
- **NON-RECEIPT OF THE WAGON WITHIN 60 DAYS – FINAL CLAIM TO BE LODGED THRU ZONAL OFFICE.**
- **AT THE TIME OF PREFERRING FINAL CLAIM, ORIGINAL RR IS TO BE SUBMITTED,- LOCATION TO FORWARD IT TO ZONE.**
- **THE CLAIM FORM SHOULD GENERALLY CONSIST OF DETAILS LIKE TANK WAGON NUMBER (NOT RECEIVED), PRODUCT LOADED, NAME OF LOADING POINT WHERE IT WAS LOADED, LOCATION NAME IT WAS BOOKED TO, LOADING DIP, LOADING TEMPERATURE ETC.**

GUIDELINES:

- **VALUE UPTO RS.250/- NO CLAIM IS LODGED.**
- **DGS&D RATE IS APPLIED FOR SETTLEMENT OF CLAIMS**
- **EFFECT OF TEMPERATURE NOT TO BE TAKEN INTO ACCOUNT AS PER EXISTING RULES.**
- **CLAIMS INVOLVING OVER-FILLED WAGONS WOULD NOT BE ENTERTAINED BY RAILWAYS AS A POLICY.**

UN-CONNECTED WAGONS

- **UNCONNECTED WAGONS ARE THOSE, WHICH, AFTER BEING LOADED FROM A LOADING BASE, DEVELOPS TECHNICAL DEFECTS ENROUTE, GETS DIS-CONNECTED/SEPARATED FROM THE FORMATION, DETAINED AND ARE NOT SENT TO THE DESTINATION THEY ARE ACTUALLY MEANT FOR.**
- **INSTEAD, AFTER SOME ABNORMAL DELAY THEY FINALLY LAND UP IN SOME UN-CONNECTED LOCATION (WHICH HAS NO CONNECTION WITH THE LOCATION WHERE EXACTLY THE WAGON IS LOADED) - HENCE THEY ARE CALLED "UNCONNECTED WAGONS"**
- **IOC TO UNLOAD UNCONNECTED TANK WAGONS – INDUSTRY AGREEMENT.**
- **JOINT CERTIFICATION TO BE DONE BEFORE UNLOADING UNCONNECTED WAGONS AFTER IOC IS SATISFIED.**
- **IF THEY ARE NOT CONVINCED, THEY MAY REFUSE.**
- **IOC TO CONFIRM ON DECANTATION OF UN-CONNECTED WAGONS TO ALL CONCERNED.**

INTERCEPTION OF TANK WAGONS

- **RAILWAY LOCO POINTS DETACHING SOME HSD WAGONS FROM THE FORMATION ENROUTE TO A PARTICULAR LOCATION AND UNLOADING IS CALLED INTERCEPTION. THEY ARE AUTHORIZED FOR THIS TO MEET EMERGENCY REQUIREMENTS.**
- **SIMILARLY DEFENSE ORGANIZATIONS LIKE ORDNANCE FACTORIES**

IN-TRANSIT LOSSES

- **THESE ARE LOSSES INCURRED IN THE TANK WAGONS ENROUTE FROM THE LOADING BASE TO THE DESTINATION.**
- **VARIOUS FACTORS CONTRIBUTE TO THESE LOSSES AND IT IS RATHER DIFFICULT TO ESTABLISH THE EXACT REASONS FOR THE SAME INCLUDING TEMPERATURE**

STOCK LOSS AT UNLOADING LOCATIONS

- **THE ALL IMPORTANT OBJECTIVE OF OIL CONSERVATION IN MARKETING IS TO IMPROVE THE PROFITABILITY OF THE OPERATION BY REDUCING AND CONTROLLING PRODUCT LOSS TO THE BAREST MINIMUM.**

ESTIMATION AND BOOKING OF TEMPERATURE LOSSES

RECORDING OF TEMPERATURE VARIATIONS AT UNLOADING TERMINALS/DEPOTS

DEPOTS ARE TO RECORD THE INVOICED QUANTITY AND NOT THE RECEIPTED QUANTITY - THEREFORE TEMPERATURE AND TRANSIT VARIATIONS ARE BOOKED SEPARATELY.

TEMPERATURE VARIATION IS WORKED OUT BY THE FOLLOWING FORMULAS

STOCK VARIATION = $(T1-T2) \times Q \times C$ WHERE

T1 = TEMPERATURE ADVISED OR DISPATCH TEMPERATURE

T2 = ARRIVAL TEMPERATURE OR THE RECEIPT TEMPERATURE OF THE STORAGE TANK AFTER DECANTING THE TANK WAGON.

Q = QUANTITY INVOICED

C = COEFFICIENT OF EXPANSION PER DEG C

ARRIVAL TEMPERATURE IS THE TEMPERATURE OF THE COMMINGLED STOCK OF THE STORAGE TANK AFTER DECANTING TANK WAGON.

COEFFICIENT FACTOR FOR SOME OF THE PRODUCTS IS :

MS = 0.00126

HSD = 0.0009

SKO = 0.0009

FO = 0.00072

LDO = 0.00072

- **GAUGE THE CONTENTS OF THE TANK WAGON IN THE MANNER PRESCRIBED. RECORD INFORMATION ON PROPER FORMS.**
- **GAUGE RECEIVING TANK AND MAKE SURE AVAILABLE CAPACITY IS ADEQUATE FOR RECEIPT**
- **PROPER LINE UP OF VALVES TO THE STORAGE TANK ASSIGNED TO RECEIVE PRODUCT.**
- **CHECK VALVES ON BRANCH LINES TO BE SURE THEY ARE TIGHT OR DROP CONNECTING SPOOL PIECES TO AVOID BYPASS OF PRODUCT.**
- **AFTER UNLOADING ENSURE THAT ALL THE TANK WAGONS HAVE BEEN CHECKED AND STRIPPED DRY.**
- **PROPER GAUGING OF RECEIVING TANK AFTER T/W DECANTATION.**

HOSPITALITY GUIDELINES - STOCK LOSS

- **OPERATING COMPANY IS RESPONSIBLE FOR CUSTODIANSHIP OF PRODUCT SHIPPED LESS 0.6% or 0.7% FOR MS AND 0.4% OF HSD/SKO/LDO/FO**
- **LOSSES CLAIMABLE FROM RAILWAYS TO BE DEBITED TO THE RECEIVING COMPANY AT ACTUAL PROVIDED THE OPERATING COMPANY FURNISHES APPROPRIATE DOCUMENTATION SUCH AS SHORTAGE CERTIFICATION ETC IN TIME.**

- **REGULAR AND SYSTEMATIC SURVEILLANCE OF ALL POTENTIAL SOURCES OF PRODUCT WASTAGE. TO BE ASSIGNED TO SPECIFIC PERSONNEL TO HANDLE THIS..**
- **TO DETECT POSSIBLE AREAS OF LOSSES AND CONTROL THE SAME.**
- **MANAGERS TO REVIEW PERIODICALLY THIS AND TAKE CORRECTIVE ACTION WHEREVER NECESSARY.**
- **ALL DEPARTMENTS VIZ OPERATIONS, ENGINEERING AND MAINTENANCE TO CO-OPERATE & COORDINATE FOR STOCK LOSS CONTROL..**
- **ROUTINE / PERIODIC INSPECTION AND PREVENTIVE MAINTENANCE IS NECESSARY TO KEEP EQUIPMENT IN GOOD CONDITION WHICH HAVE A BEARING ON THE STOCK LOSS OF THE LOCATION.**



THANK YOU

PRESENTATION ON
TANK WAGON LOADING/UNLOADING
OPERATIONS



HINDUSTAN PETROLEUM CORPORATION LIMITED

POL TANK WAGON LOADING OPERATIONS

HOW TANK WAGON RAKE LOADINGS ARE PLANNED

- Consolidation of indents from Locations, Zones and OMCs by the Base Coordinator and projecting to Rlys giving the destination, location name, siding name, type of wagons to be supplied

TYPES OF WAGONS

- BTPN (Bigger size - 8 wheeler type)
- Conventional (Smaller size - 4 wheeler type)
 - TP
 - TK
 - TL

ACTIVITIES AT RLY SIDING - BEFORE PLACEMENT OF THE RAKE

- Taking information from Base Coordinator regarding rake planning – coordinating with PLT office
- Ensure availability of required / sufficient manpower
- Present Loading norms Per Employee:
 - 9 Conventional
 - 6 BTPN
- Ensure loading completion within free time of 5 hours
- Obtain diary entry from Rlys regarding dispatch particulars of empty Rake

PRE-LOADING ACTIVITIES

- Ensure proper placement of the rake in alignment with filling points
- On completion of placement, take down wagon numbers
- Check all the wagons for fitness
- Allocation of wagon-wise product
- Intimate wagon rejections, if any, to Rlys with reasons thereof
- Forwarding wagon-wise allotment sheet to computer operator for dip chart generation
- Loading to be commenced only after this so that “No dip” wagons are not loaded
- Ensure wagons are all in readiness for commencing loading operation by checking top/bottom valves position
- On receipt of dip chart, officer to record dips against each wagon

LOADING ACTIVITIES

- To advise Operators to be in all readiness for commencing the loading operation and intimate to Pump Operator to start the pumps
- Officer to monitor pumping pressure depending on the stages of completion of wagons
- Release of F-Notes to Rlys
- Advise Pump Operator promptly about switching off of the pumps
- Recording of temperatures
- Give intimation to IOC/BPC for joint witnessing of dips / samples

POST LOADING OPERATIONS

- Give a settling time before commencing dip checking
- Dip checking with Master Dip Rod. Ensuring “water free”
- Sample checking
- Top up under-filled wagons
- Product from over-filled wagons to be sucked back to tank. But this is to be avoided
- On completion of dip checking, IOC/BPC Reps signature to be obtained on Loading Chart
- Ensure proper sealing of all wagons, including OMC wagons
- Affix of paste-on labels
- Keep one copy of dip chart in one of the wagons to the destination

ACTIVITIES IN LIASON WITH PORT RAILWAYS

- Issuance of “Completion Memo” to Port Railways
- Record loading details in relevant register
- Decantation of “TXR marked sick wagons” by keeping them on loop-line
- Transhipment of “sick” wagons (RR issued) to “empty fit wagons” and
- Issuance of Memo to Port Rlys on completion of transhipment

GENERAL ACTIVITIES

- To ensure adequate stock of consumables viz. dummy gaskets, sealing wire etc
- Co-ordination with M & R for any urgent repair jobs
- Immediate replacement of defective hose with good one
- To check sign & release documents prepared by computer operator on completion of rake loading / clearance from Rlys
- To cross check with Tank Farm Officer for variations in quantity loaded to tank wagons and released from tank
- Collect RRs on the same day of loading

TANK WAGON UNLOADING OPERATIONS

- Check the details with TOA
- Nomination of Tank and its segregation
- Sump Points with proper color coding
- Check the seals before unloading
- Check density / water presence
- Ensure tank product not gravitated into Tank wagons
- Ensure frequent checking of storage tank while unloading
- Ensure closing of all Valves after unloading
- Check wagons thoroughly for its emptiness after unloading

SAFETY ASPECTS

- Removal of wheel chokes before rake drawn out
- Loco Speed not to exceed 10 KMPH while giving placement & draw out
- Ensure sprinkler system on the Gantry in working condition by frequent operation & maintenance
- 2 Fire extinguishers to be positioned on the gantry every 15 mtrs readily accessible. Ensure employees working on the gantry aware of the fire fighting equipment operations
- Check the earthing continuity regularly
- Ensure siding rail track is insulated from the main track

- Officer & operators to be present while T/W operation is “ON”
- Regular maintenance of Audco valves
- Drain at POL should be always empty to allow free flow of oil from the drain to OWS
- Ensure all employees on the gantry wear helmets, safety shoes, masks when loading operation is on
- Ensure operation of loading arm by hand
- When loading is nearing completion rate of flow to be controlled to avoid spillage/possible bursting of hose

- Ensure sumps have proper covers and kept closed
- Valves in sumps to be kept in proper working condition
- Ensure product identification color code for all products
- Ensure loading area neat & clean from oil spills, tools, scrap items etc
- Ensure Pull-back of loading hoses after rake loading and keeping securely to avoid coming in contact with wagons at the time of draw out or placement
- Proper and adequate lighting to be provided on the gantry which is very vital to take care of night loading

- Swing ladders to be kept in proper working order
- Do not leave valve in half open position when loading is on
- Do not throw cotton waste, sealing wire, other waste material in POL drain
- Never continue loading with leaky or ruptured hose
- Cord extension light should not be used to check rising product level
- Do not remove the hose without completely draining of product

> L P G

Where an LPG siding/gantry is also located adjacent to POL loading gantry (like in Visakha Terminal) following safety precautions to be observed

- When LPG rake is under loading and if POL rake is to be taken for placement, suspend LPG loading till POL rake placement completion
- Similar precaution to be taken when LPG rake is under loading and POL rake is to be drawn out
- Same practice/precautions to be adhered to when POL rake is under loading and LPG rake is to be taken for placement / drawn out

- When POL rake is under loading and next rake is also expected, and if LPG rake is expected for placement, it is preferable to keep LPG rake in waiting
- LPG Safety Precautions: Daily checking of sensors for their proper working condition to ensure immediate detection of leak, if any. Ensuring required pressure is maintained in the air tank for automatic starting of Deluge valves. For pumping of air to the air tank it is necessary that the compressors are kept in working condition
- To maintain air compressor at its set pressure, keep air compressor in auto working condition.

RECORD KEEPING AT LOADING LOCATIONS

- Letters from Port Rlys declaring loaded wagons as “sick” (RR not issued wagons)
- Letters from Port Rlys advising placement of sick loaded wagons along with empty fits for transshipment (RR issued wagons)
- Copies of transshipment certificates
- Seals issued record
- Loading chart jointly signed by OMC Reps
- Completion Memos
- Employees attendance
- Summary of Loading, TOA, PDRs
- Freight payment details

RECORD KEEPING AT UNLOADING LOCATIONS

- Wagon Register
- Density Register
- Document / RR Register
- Hoses continuity register
- Register for pending Tank Wagons