

GPS and Control Centre Implementation at HZL

INTRODUCTION

Hindustan Zinc Limited (HZL) was created from the former Metal Corporation of India on January 10, 1966 as a PSU. In April 2002, Vedanta took over majority stake and became part of the Vedanta Group.

In order to regulate and automate tanker movement, HZL is interested to implement GPS based tanker tracking system. The project is planned to be implemented for movement of sulphuric acid from

BUSINESS REQUIREMENT

The business is looking for 100% GPS device installation and live tracking in all tankers loading acid from HZL on Ex Work's basis. The current requirement is from 3 plants of HZL:

Intimation of GPS Installation: On spot to GPS service provider

Chanderiya Plant, Dariba Plant and Debari Plant

Inventory of GPS

Inventories on 24x7 availability basis – Buffer of 50 GPS devices any time

VENDOR to provide GPS devices installation to approximate 850 tankers currently

ACID OPERATIONS

- 1) To provide service and resource 365 days and 24x7, at all locations of HZL in Rajasthan
- 2) Customer creates Sales Order and tankers are placed in that sales order for Pan India Basis
- 3) Tanker visits Plants for loading and there itself would be fitted with GPS device and activated
- 4) Vendor will install GPS system on the tanker
- 5) Sealing of GPS device so no change of tankers with same GPS
- 6) Sufficient man power and 24x7 support for installing GPS devices for any existing or new tanker reporting on any of the 3 plants
- 7) Vendor team will consolidate the tanker details – Sales Order/Customer Name/Tanker No/Transporter Name, GPS Device IMEI, Destination and weights as per WB slip, Seal No etc.
 - a. Daily Consolidated Email report will be sent to HZL staff with all tanker, trip and weight details
- 8) Control Centre (CC) will monitor the movement of the truck for any exceptions and will update CLEAN/UNCLEAN status of the tanker as per SOP

- 9) Once the tanker reports at Plant Geofence, the tanker details plus reporting time will be pushed to HZL's SAP system using a PI Bridge and stored in a Tanker Details Table (VDT) or Transaction Table
- 10) ITMS 2.0 integration
- 11) Allow Slip is created on ITMS 2.0 by HZL's Gate staff upon reporting at plant
 - a. If tanker is reporting for the first time, tanker is created on Masters and tanker's CLEAN/UNCLEAN status is updated as per VDT
 - b. If tanker's status is Clean, the Allow Slip is generated containing details of In Plant Route ID, Item Details, Purpose etc. and goes towards Allow Slip Approval
 - c. If tanker's status is Unclean, due to GPS related issue, Vendor team will evaluate and rectify the issue before changing the status to CLEAN
 - d. If tanker's Unclean status is due to Non-GPS related issue, the HZL Business Team is informed and after inspection can change the status to CLEAN
- 12) Once Allow Slip Approval is received, In Plant Trip of the tanker is created on Vendor's system and Control Centre starts monitoring In-Plant movement of the tanker
- 13) Control Centre will update CLEAN/UNCLEAN status of the tanker as per exceptions / violations generated inside the plant
 - a. Route Violation
 - b. Speed Violation
- 14) ITMS 2.0 will push data of tanker crossing RFID readers placed at Material Entry, Weigh Bridge, Material Exit Gate and any other readers to Vendor's systems
- 15) Tanker continues on its in-plant route, loads and returns to the Exit
- 16) Tanker live tracking starts till trip completion and again same repeated.

MIS Reports & Responsibilities

- Daily/Monthly GPS Monitoring/Compliance report
- Online tracking & real time alerts-24x7
- Exceptions reporting based on defined parameters
- Trip details spot/history of any tanker, sales order, given day etc
- Any other trip related information will be developed on Vendor portal
- Transshipment not allowed
- Turnaround time lapse reporting
- Route deviation...other than defined routes
- Tankers not returning within 30 days to HZL premises
- Live tracking and locating service
- GPS blackout
- GPS Tampering
- Trend Analysis as per requirement
- Or any other report as required by Acid Marketing Team from time to time
- Control Centre ownership and assurance of " EXCELLENT" operations
- All audit requirement data compliance for internal auditors of HZL

Please note that we would require all these reports every day and all report generation should be interfaced and linked to HZL SAP as well along with Vendor Portal/Website.

Penalty

To be imposed by HZL, if lapses in alerts/reports/non availability of GPS device

Contact Manager

Single coordination with HZL representative for alerts/deviations, or group of people to be kept in loop for all reporting

Device Capability and Working Philosophy

The devices will have mechanism to lock the device to the truck using a plastic tie with serial number and the same will be made available in our web application and in SAP also .

To streamline the process VENDOR will provide a web interface to create requirements. The requirement will be used as a input to VENDOR team to mobilize the resources.

The VENDOR team on the ground will install GPS devices, secure the device to the truck using a pre-printed serial numbered tie belt. This information will be made available in VENDOR website.

HZL will enter any deviation if they find during any day so that all the tankers of that day are minutely examined by the VENDOR team to find a possible trend.

To ensure that the security forces are properly doing the patrolling across the route, VENDOR will provide them an application which will help HZL trace them . It will also have the feature for the security team to photograph different tankers they are chasing during a day. All photo graphs taken by this application will be having time stamp and location details taken using GPS in the phone.

VENDOR will conduct a GAP analysis session for HZL For 3 days after the signing of the PO based on availability of HZL stake holders.

All required changes will be done by VENDOR team. Any change required in gap analysis will be done by VENDOR without any extra cost. HZL holds the right to ask for changes in the first 30 days of signing the PO.

Any change required in the software after expiry of these 30 days will be billable irrespective of the size of change. Any kind of effort required apart from tracking the tankers will not be rendered. HZL will have to use the website to see reports in graphical format apart from reports which will come daily in email.

Device Tampering and Loss of Device / SIM card

In case a device is purposefully made to fail by cutting the device wire, injecting water into the device or any process to forcefully spoil / stop the device from working properly will be considered as tampering.

As device tampering can lead to major system failure and wrong reporting hence it is very important to heavily discourage drivers from doing such activities. To be brought in notice with immediate effect.

Device warranty

The Device should carry a warranty of 3 year from the date of delivery to the customer. Any manufacturing defect is covered under warranty. Any device problem due to tampering or accident is not covered under warranty.

Per Month /Per Device Cost

This cost should be based on 36 month contract

OTHER RELEVANT DETAILS

- 1) Source Plant Operation Brief**
- 2) Emergency Status**
- 3) Clean / Unclean Status Changing SOP**
- 4) Integration Guidelines**
- 5) Exceptions List**

SOURCE PLANT

- 1) Allow Slip is created on ITMS 2.0 by HZL's Gate staff upon reporting at plant
 - a. If tanker is reporting for the first time, tanker is created on Masters and asked to report to Vendor team for installation
 - i. Tanker Details – Tanker No, GPS Device No, CLEAN/UNCLEAN status are pushed to SAP using PI bridge upon first time installation
 - b. If tanker's status is Clean, the Allow Slip is generated containing details of In Plant Route ID, Item Details, Purpose etc. and goes towards Allow Slip Approval
 - c. If tanker's status is Unclean, due to GPS related issue, Vendor team will evaluate and rectify the issue before changing the status to CLEAN
 - d. If tanker's Unclean status is due to Non-GPS related issue, the HZL Business Team is informed and after inspection can change the status to CLEAN
- 2) Once Allow Slip Approval is received, In Plant Trip of the tanker is created on Vendor's system and Control Centre starts monitoring In-Plant movement of the tanker
- 3) Control Centre will update CLEAN/UNCLEAN status of the tanker as per exceptions / violations generated inside the plant
 - a. Route Violation
 - b. Weight Event violation

- c. Speed Violation
- 4) ITMS 2.0 will push data of tanker crossing RFID readers placed at Material Entry, Weigh Bridge, Material Exit Gate and any other readers to Vendor's systems
- 5) Once tanker crosses Weigh Bridge entry, the weight event (Time, Weight etc) is generated in ITMS 2.0 and pushed to Vendor
 - a. In case Tanker crosses the WB Geofenced area without Vendor receiving Weight Event, CC will raise an alarm and immobilize the tanker
 - b. In case Tanker crosses the WB Geofenced area after receiving a "Successful Weight Not Done" Event, CC will raise an alarm and immobilize the tanker
- 6) Tanker continues on its in-plant route, loads and returns to the Weigh Bridge where Point 5 is repeated
- 7) ITMS 2.0 will push Invoice No / Allow Slip No / other unique no and "TOBETRACKED" flag for identifying Unloading Plant, and other invoice details
- 8) Tanker's Allow Slip is closed upon crossing the Material Exit Gate / entering PP
- 9) Trip to Unloading Plant is started upon exit from Plant Geofence
- 10) Control Centre (CC) monitors the movement of the tanker until it reaches Unloading Plant and evaluates exceptions / violations.

PLANT EMERGENCY STATUS

1. In Case "Emergency Status" is declared inside a plant by the Plant SPOC, Vendor will "Flag" off all In-Plant Tanker Validations
 - a. Hooter
 - b. Immobilization
2. Exceptions and Violations will still continue to get generated and monitored by Control Centre
3. When "Emergency Status" is called off by Plant SPOC, the "Flag" will be reversed and validations will resume

CLEAN / UNCLEAR STATUS CHANGING SOP

- 1) A tanker's Clean status can be modified by any of the following parties
 - a. Control Centre
 - b. HZL Business Staff
 - c. HZL Security / Gate Staff
- 2) All Status changes will happen on Vendor's Portals
- 3) Any new tanker's default status will be CLEAN
- 4) A tanker's status can be changed to Unclean by Control Centre on the basis of exceptions which are detailed in another section
- 5) A tanker's status can be changed to CLEAN by Control Centre after verifying the GPS system and rectifying it only
 - a. In case GPS system was tampered with, the status will not be changed by CC
- 6) HZL Business Team has the right to change CLEAN/UNCLEAR status as per their understanding.
- 7) All Clean/Unclean changes document to have logs and remarks

INTEGRATION GUIDELINES

- Vendor will push data through PI Bridge to HZL SAP on following triggers
 - Acid Tanker reporting at Plant Premises
 - Tanker and Trip Details and TAT

EXCEPTIONS AND VIOLATIONS

In Plant Exceptions

- 1) Route Deviation
- 2) Speed Violation
- 3) GPS Tampered
- 4) GPS Not Working

Out-of-Plant Exceptions

- 1) GPS Not Working
- 2) GPS Tampering
- 3) TAT Violation
- 4) Unauthorized Stoppage
- 5) Destination not Hit
- 6) Speed Violation
- 7) Transshipment not allowed

HZL Scope

1. Access to PI System
2. Access to SAP Development Environment
3. Access to ITMS 2.0
4. Access to Location Premises for Vendor's developer(s)
5. Seating for Vendor's developer(s) for duration of SAP Integration
6. Consultancy and Assistance from HZL's SAP Expert
7. VPN and Network Access
8. Location for establishing Control Centre within CLZS premises with Electricity and other basic amenities
9. Storage space for GPS Devices and Waiting space for installers at each Location and Port
10. Access for installers to enter the premises where device installation / repair needs to happen
11. Periodic meeting with IT and Business Team to review and streamline operations