

PointConnect – Trade Flows

TRADE FLOWS CONTENT

Data description

Refinitiv Trade Flows are daily, vessel-level assessments of global imports and exports covering the major fleets:

- Dirty tankers – carrying crude oil and fuel oil
- Clean tankers – carrying refined products
- LNG tankers
- LPG tankers
- Large dry bulk vessels – carrying iron ore, coal, bauxite
- Smaller dry bulk vessels – with a focus on those carrying agricultural products

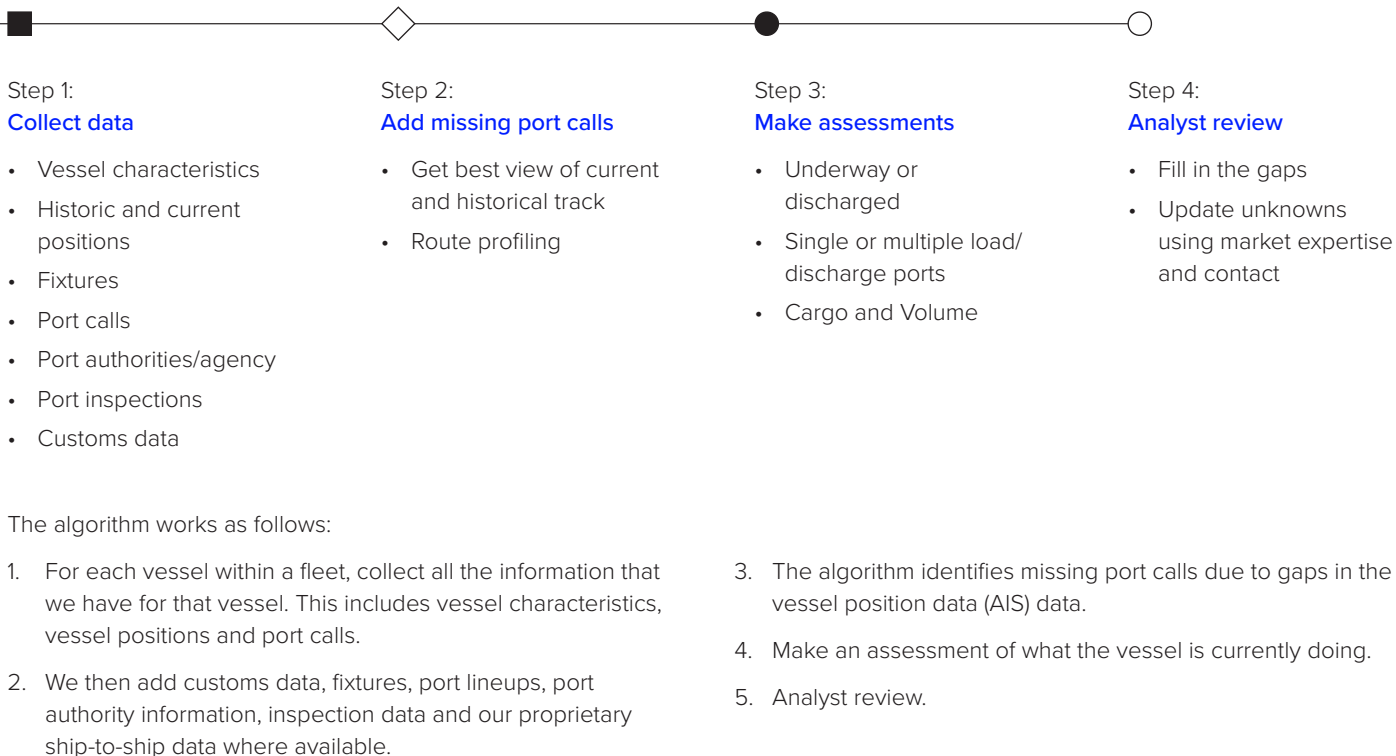
The product features model-based assimilation of data on vessel locations and cargoes combined with systematic analyst review of model outputs.

The assessments thus benefit from algorithms that maximize the value of available information and from the expert judgment of a specialist team.

Model assumptions and processes

The general principles of the flows and how they work are as follows:

1. A flow is defined as the movement of a cargo on vessel from a load port to a discharge port. Each flow is assigned a unique flow ID.
2. The flow is updated through its life cycle which starts when the vessel is on subs or ballasting to a load port, until the vessel has finally discharged the cargo. When the vessel is ballasting to a new port to load, a new flow is created.
3. An algorithm runs multiple times per day making updates to the flows which are reviewed by our expert analysts.



The assessment is based upon the economic fundamentals of shipping, the physical characteristics of the vessels and the configuration and capabilities of the ports and berths where they visit. For example, the model assumes that an LNG vessel will load LNG when she visits Ras Laffan port in Qatar. The model then uses available information from AIS, port schedules and historical route profiles in an attempt to determine destination ports and arrival dates. When possible, the model also uses available tenders, loading schedules and vessel fixtures to project future loadings and exports.

Some special notes

- We also track ship-to-ship transfers which we include in the dirty and LPG flows models.
- Cargo information for agricultural products is sourced from port agents.
- The model works at the berth level which allows us to make better assessments of the cargo.
- Further confirmation of the cargo comes from other sources.
- We generally do not track coastal journeys where the load and discharge country are the same. However, in the dirty flows model, we track coastal flows for Saudi Arabia, Angola, the North Sea and the United States.

Further information

Refinitiv analysts and product managers are especially interested in feedback on Trade Flows product usability and content. They are also willing to assist with the application of the data to specific operational and research problems.

Please note that Refinitiv makes every effort to ensure the accuracy and timeliness of the Trade Flows product. Consequently, product data is subject to revision. Refinitiv assumes no obligation to inform users of changes to the data set and bears no responsibility for the financial impact of decisions based upon the data.

Trade Flow PointConnect file types

There are three PointConnect Trade Flow file types:

- Live
- History Last
- History Full

All of the files will have a different object ID, and part of the file name will indicate the type of Trade Flow file. The core part of the file name, however, will be the same as the content served in each of those files and will belong to the same set of data. For example, a file which is defined as “**Flows Clean Oil WOR Kt FF**” will be served as:

TRADE FLOWS IN POINTCONNECT

Product description

Trade Flows content is now available through the PointConnect feed product. It leverages on the existing product, which is used by customers to retrieve commodities fundamentals data in the form of time series and forecast curves. However, it uses a separate distribution mechanism called Flat File, highlighting the different nature of those files compared to standard PointConnect feed files. As for all data sets in PointConnect, FTP is used as a delivery mechanism where CSV files are served for end users to pull, process and ingest into their respective databases of record. Flat File type differs from standard curves type because all the details describing the data are served in the same CSV file in the form of a tab delimited table. Separate Metadata API is neither available nor needed for Flat Files as all metadata details are served alongside dynamic data for flows records. Also, the width of Flat Files is significantly bigger, as there are many more columns provided that describe the data. In the case of Trade Flows, those are all columns describing details of specific flow instance. Further explanation of those columns is provided in Appendix 1.

PointConnect Flat File FTP

Due to the different nature of feed files served for Flat File type, there is a separate FTP host provided that gives access to Flat File instance of PointConnect. PointConnect users will use same usernames and passwords to access any PointConnect service and the address of the dedicated FTP where Flat Files are served is:

<ftp://pointconnect-ff.commodities.thomsonreuters.com>

“FF” code is used in a few more places, apart from the FTP address itself, to indicate Flat File instance of PointConnect. Flat File FTP structure is also different than the one for standard PointConnect files. A full list of folders in FTP tree is provided in Appendix 2, and following section of this document gives a full explanation of the difference between Live, History Last and History Full types of files.

- 5102051_Flows_Clean_Oil_WOR_Kt_FF_2018-10-04.CSV
- 5102053_HIST_LAST_Flows_Clean_Oil_WOR_Kt_FF_2018-Q4.CSV
- 5102052_HIST_FULL_Flows_Clean_Oil_WOR_Kt_FF_2018-Q4.CSV

The table below illustrates the differences and similarities between three types of flows files.

| Feature | Live | History Last | History Full |
|-------------------------------|--|--|---|
| Update time(s) | 06:00 AM UTC 12:00 PM UTC 06:00 PM UTC 12:00 AM UTC | 12:00 AM UTC | 12:00 AM UTC |
| Number of files served | 2 Daily (today + yesterday) | 20 Quarterly | 20 Quarterly |
| Rule to include flows in file | Update date of flow details same as file name date | “Effective from” date belongs to quarter in file name | “Effective from” date belongs to quarter in file name |
| Flow details included in file | One row per flow ID, only with most recent details | One row per flow ID, only with most recent details | Many rows per flow ID showing how details for given flow were collected and updated over time |
| Syntax of file name | FileID_'Flows'_Set_Geography_Unit_'FF'_YYYY-MM-DD'.CSV' | FileID_'HIST_LAST_Flows'_Set_Geography_Unit_'FF'_YYYY-QQ'.CSV' | FileID_'HIST_FULL_Flows'_Set_Geography_Unit_'FF'_YYYY-QQ'.CSV' |
| Example file name | 5102059_Flows_Crude_Oil_WOR_Kt_FF_2018-09-18.CSV | 5102061_HIST_LAST_Flows_Crude_Oil_WOR_Kt_FF_2016-Q1.CSV | 5102060_HIST_FULL_Flows_Crude_Oil_WOR_Kt_FF_2016-Q1.CSV |
| Location on FTP | ...\Flows\Live\... | ...\Flows\History_Last\... | ...\Flows\History_Full\... |

Subscriptions to flows feed files and feed consumption

Different than standard PointConnect files, there is no need to search for and subscribe to files using our Data Guide platform. Flows files are automatically added to subscription when a given user signs up for a specific Flows package. In most cases, there is a single file (in three variants) served for a given package covering respective type of flows.

Typical consumption workflow depends on a specific use case, but generally, Flows data users should start from pulling and processing history files for all quarters served and then to live daily files according to dates sequence. Going forward, downloading and processing updates for current day's live file as any updates produced on a given day would be served in such file regardless of the period in which the actual flow took place.

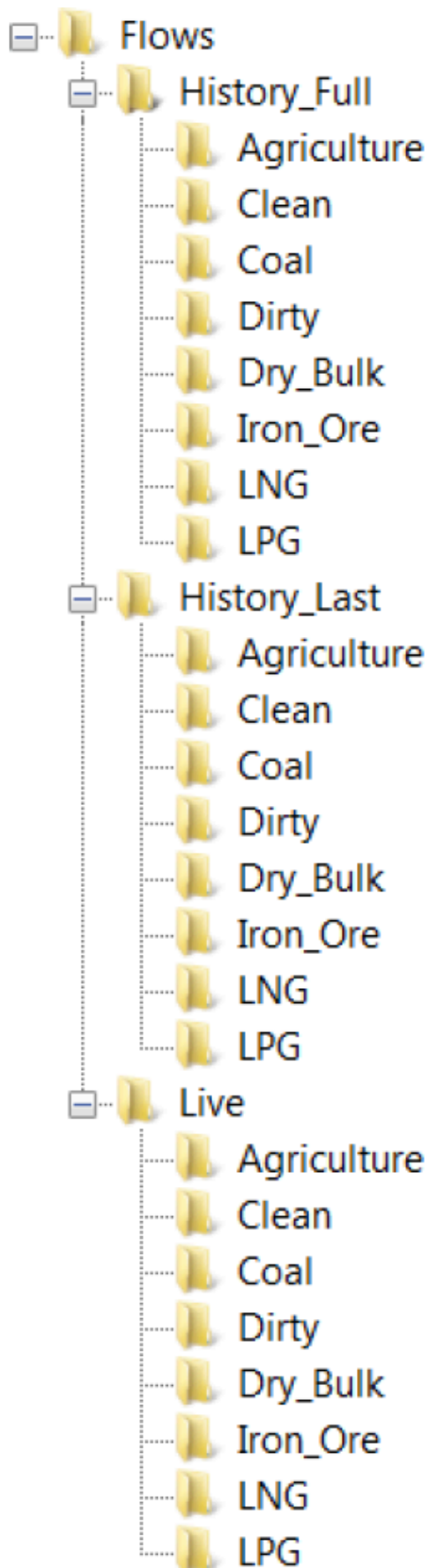
APPENDIX 1. POINTCONNECT FLOWS FILE COLUMNS EXPLANATION

| Column header | Sample value | Description |
|-------------------------------|---|---|
| Flow ID | 3398882 | Unique Flow Identifier |
| Flow Admin Status | Published | Values are Published or Obsolete. Flows are not deleted but are set to Obsolete |
| Vessel | NORDIC AURORA | The name of the vessel |
| Vessel IMO | 9159672 | Vessel IMO |
| Vessel RIC | CJKS7309477110 | Vessel RIC |
| Vessel PERM_ID | 77309477110 | PERM_ID unique to the vessel |
| Vessel Type | Suezmax | Type of vessel |
| Load Zone | Russia, FSU | The zone the vessel loaded in or is due to load in |
| Load Country | Russian Federation | The country the vessel loaded in or is due to load in |
| Load Country/Sub-Country | Murmansk | The sub-region that the vessel loaded in or is due to load in |
| Load Region | Europe, Middle East, Africa | Region that the vessel loaded in or is due to load in |
| Load State | Northwestern Federal District | State that the vessel loaded in or is due to load in |
| Load Port | Murmansk | Port that the vessel loaded in or is due to load in |
| Load Port RIC | CJTS7309533641 | RIC for the load port |
| Load Port PERM_ID | 77309533641 | PERM_ID unique to the load port |
| Load Berth | Zirku Island – Crude Oil Terminal SPM B | Berth that the vessel loaded in where available |
| Load Berth RIC | CJTS7309557151 | RIC for the load berth |
| Load Berth PERM_ID | 77309557151 | PERM_ID unique to the load berth |
| Departure Date | 29.08.2018 00:00:00 | Date that the vessel left the load port (UTC) |
| Discharge Zone | North Asia | Zone that the vessel discharged in or is due to discharge in |
| Discharge Country | China | Country that the vessel discharged in or is due to discharge in |
| Discharge Country/Sub-Country | Shandong | Sub-country that the vessel discharged in or is due to discharge in |
| Discharge Region | Asia | Region that the vessel discharged in or is due to discharge in |
| Discharge State | East China | State that the vessel discharged in or is due to discharge in |
| Discharge Port | Lanshan | Port that the vessel discharged in or is due to discharge in |
| Discharge Port RIC | CJTS7309533891 | RIC for the discharge port |

| Column header | Sample value | Description |
|-------------------------|--------------------------|--|
| Discharge Port PERM_ID | 77309533891 | PERM_ID for the discharge port |
| Discharge Berth | Thai Oil SBM (Sri Racha) | Berth that the vessel discharged in (for underway vessels, we do not usually know the discharge berth) |
| Discharge Berth RIC | C]TS7309771018 | RIC for the discharge berth |
| Discharge Berth PERM_ID | 77309771018 | PERM_ID for the discharge berth |
| Arrival Date | 16.09.2018 02:59:05 | The date the vessel arrived or is due to arrive for discharge (UTC) |
| Product | Crude Oil | The commodity loaded |
| Grade | Murban | The grade of the product loaded (if known) |
| Volume | 200 | Volume loaded |
| Unit | KILOTONNES (KT) | Volume unit |
| Barrels | 1528991 | Volume in barrels (only applies to crude, fuel oil and refined product flows) |
| Load Date From | 26.08.2018 00:00:00 | The date the vessel entered the load port or is due to arrive at the load port (UTC) |
| Arrival Date To | 18.09.2018 00:50:42 | The date the vessel left the discharge port. If underway, this is the same as the arrival time (UTC) |
| Buyer/Receiver | | Entity buying or receiving cargo |
| Issuer | | Entity inviting bids or offers for contract |
| Sender | | Entity selling or receiving cargo. The field is called Seller/Sender in the Eikon daily flows extract |
| Awardee | | Entity awarded contract |
| Consignee | | Entity financially responsible for receipt of shipment |
| Charterer | Hellenic Petroleum | Charterer (usually sourced from a fixture where known) |
| Buy/Sell | | Issuer is buy or sell |
| Price | | Price range of the tender |
| Price Basis | | Basis on which the cargo is priced (i.e., "BL Basis" or "Month Average") |
| Freight | 112.5 | The freight rate (usually sourced from a fixture where known) |
| Freight Unit | w | The freight unit (w – Worldscale or \$ lumpsum) |
| Benchmark | | Benchmark for Trade |
| Closing Date | | Issued tender closing date (UTC) |
| Validity Date | | The last day that the tender is valid (UTC) |

| Column header | Sample value | Description |
|-------------------|---------------------------|---|
| Contract Basis | | Basis of the contract: "OTC": Over The Counter; "Term Tender," "Spot Tender" |
| Terms | | T&Cs for transaction (i.e., "FOB": Free-on-board, "C&F": Coast-and-Freight, "DDP": Delivered-Duty-Paid |
| Import/Export | | Only used for U.S. Customs data |
| Status | Vessel Awaiting Discharge | <ul style="list-style-type: none"> • Subs – Flow that is in the future sourced from a fixture • Vessel Ballasting – Vessel is currently en route to a load port • Vessel Awaiting Load – Vessel is within the port limits* of a load port with a speed less than 5 knots, but has not loaded yet • Vessel Loading – Vessel is within the port or berth • Vessel Underway – Vessel has left the load port and is underway • Vessel Awaiting Discharge – Vessel is within the port limits* of the discharge port with a speed less than 5 knots, but has not discharged yet • Vessel Discharging – Vessel is within the discharge port or berth • Vessel Discharged – The vessel has discharged <p>*We have defined the "port limits" as within 100km of the ports (500km for iron ore coal ports, as some of the anchorage regions are larger)</p> |
| Source Grade | | The original source grade information. Only used for U.S. Customs data |
| Country of Origin | United Arab Emirates | Origin country of the cargo. Only used for U.S. Customs data |
| Last Updated | 18.09.2018 01:31:37 | The date the flow was last modified (UTC) |

APPENDIX 2. POINTCONNECT FLOWS FTP TREE STRUCTURE



APPENDIX 3. SCREENSHOT OF SAMPLE POINTCONNECT FLOWS FILE OPENED IN EXCEL®

Please note that only the first nine columns are displayed below.

| | A | B | C | D | E | F | G | H | I |
|----|---------|-------------------|-----------------|------------|-----------------|----------------|-----------------|-----------------------------|----------------------|
| 1 | Flow ID | Flow Admin Status | Vessel | Vessel IMO | Vessel Ric | Vessel PERM_ID | Vessel Type | Load Zone | Load Country |
| 2 | 3447523 | Published | JO PINARI | 9592680 | CJ KP7309486536 | 77309486536 | Panamax | Middle East | United Arab Emirates |
| 3 | 3447523 | Published | JO PINARI | 9592680 | CJ KP7309486536 | 77309486536 | Panamax | Middle East | United Arab Emirates |
| 4 | 3447459 | Published | MT PORT MOODY | 9246449 | CJ KM7309483507 | 77309483507 | Medium | South Asia | India |
| 5 | 3447459 | Published | MT PORT MOODY | 9246449 | CJ KM7309483507 | 77309483507 | Medium | South Asia | India |
| 6 | 3451430 | Published | GLENDA MELISSA | 9494682 | CJ KM7309504175 | 77309504175 | Medium | Middle East | Oman |
| 7 | 3451430 | Published | GLENDA MELISSA | 9494682 | CJ KM7309504175 | 77309504175 | Medium | Middle East | Oman |
| 8 | 3438254 | Published | TORM AGNES | 9465992 | CJ KM7309501840 | 77309501840 | Medium | South Asia | Oman |
| 9 | 3438255 | Published | TORM AGNES | 9465992 | CJ KM7309501840 | 77309501840 | Medium | South Asia | India |
| 10 | 3433189 | Published | MARILEE | 9326861 | CJ KP7309490022 | 77309490022 | Panamax | Mediterranean, North Africa | Turkey |
| 11 | 3444865 | Published | GULF COBALT | 9389849 | CJ KP7309495338 | 77309495338 | Panamax | Middle East | Saudi Arabia |
| 12 | 3445509 | Published | SAN FERNANDO | 9322384 | CJ KI7309489623 | 77309489623 | Medium | Middle East | Saudi Arabia |
| 13 | 3448612 | Obsolete | RHONESTERN | 9183831 | CJ KH7309478895 | 77309478895 | Handy | Mediterranean, North Africa | Spain |
| 14 | 3450604 | Obsolete | BALTIC SOUL | 9228813 | CJ KM7309482166 | 77309482166 | Medium | Mediterranean, North Africa | Turkey |
| 15 | 3451405 | Obsolete | BALTIC WIND | 9261401 | CJ KM7309484719 | 77309484719 | Medium | North West Europe | Sweden |
| 16 | 3445495 | Obsolete | TORM HORIZON | 9283710 | CJ KM7309486324 | 77309486324 | Medium | Middle East | United Arab Emirates |
| 17 | 3448622 | Published | DONG TING HU | 9284386 | CJ KP7309486379 | 77309486379 | Panamax | South Asia | India |
| 18 | 3451412 | Obsolete | GULF COAST | 9298674 | CJ KP7309487569 | 77309487569 | Panamax | Middle East | United Arab Emirates |
| 19 | 3451414 | Obsolete | MAERSK PRINCESS | 9308948 | CJ KA7309488457 | 77309488457 | Aframax / LR II | | |
| 20 | 3448630 | Published | ROSE M | 9311000 | CJ KM7309488627 | 77309488627 | Medium | Middle East | United Arab Emirates |
| 21 | 3437331 | Obsolete | LORELEI | 9314179 | CJ KP7309488883 | 77309488883 | Panamax | South Asia | India |
| 22 | 3451416 | Obsolete | JAG PUSHPA | 9315733 | CJ KM7309489025 | 77309489025 | Medium | Middle East | Saudi Arabia |
| 23 | 3451417 | Obsolete | GOLDEN SHINER | 9321562 | CJ KP7309489544 | 77309489544 | Panamax | North West Europe | Netherlands |
| 24 | 3446265 | Obsolete | BUTTERFLY | 9324459 | CJ KM7309489815 | 77309489815 | Medium | North America | United States |
| 25 | 3439554 | Obsolete | BALTIC FREEDOM | 9327396 | CJ KM7309490073 | 77309490073 | Medium | Mediterranean, North Africa | Greece |
| 26 | 3433190 | Obsolete | AMALIA | 9330355 | CJ KP7309490310 | 77309490310 | Panamax | Russia, FSU | Russian Federation |
| 27 | 3448402 | Obsolete | ATLANTIC GRACE | 9337511 | CJ KM7309490924 | 77309490924 | Medium | | |
| 28 | 3442799 | Published | TVERSKOY BRIDGE | 9344033 | CJ KM7309491461 | 77309491461 | Medium | Middle East | United Arab Emirates |
| 29 | 3419803 | Published | GRAND ACE2 | 9346079 | CJ KM7309491632 | 77309491632 | Medium | North Asia | China |

APPENDIX 4. POINTCONNECT FLOWS FILE COLUMN TYPES

| Column header | Sample value | Description |
|-------------------------------|--------------|-------------|
| Flow ID | NUMBER | 22 |
| Flow Admin Status | VARCHAR2 | 120 |
| Vessel | VARCHAR2 | 300 |
| Vessel IMO | VARCHAR2 | 8 |
| Vessel RIC | VARCHAR2 | 30 |
| Vessel PERM_ID | NUMBER | 22 |
| Vessel Type | VARCHAR2 | 240 |
| Load Zone | VARCHAR2 | 4000 |
| Load Country | VARCHAR2 | 240 |
| Load Country/Sub-Country | VARCHAR2 | 240 |
| Load Region | VARCHAR2 | 4000 |
| Load State | VARCHAR2 | 4000 |
| Load Port | VARCHAR2 | 4000 |
| Load Port RIC | VARCHAR2 | 30 |
| Load Port PERM_ID | NUMBER | 22 |
| Load Berth | VARCHAR2 | 4000 |
| Load Berth RIC | VARCHAR2 | 4000 |
| Load Berth PERM_ID | NUMBER | 22 |
| Departure Date | DATE | 21 |
| Discharge Zone | VARCHAR2 | 4000 |
| Discharge Country | VARCHAR2 | 240 |
| Discharge Country/Sub-Country | VARCHAR2 | 240 |
| Discharge Region | VARCHAR2 | 4000 |
| Discharge State | VARCHAR2 | 4000 |
| Discharge Port | VARCHAR2 | 4000 |
| Discharge Port RIC | VARCHAR2 | 30 |
| Discharge Port PERM_ID | NUMBER | 22 |
| Discharge Berth | VARCHAR2 | 4000 |
| Discharge Berth RIC | VARCHAR2 | 4000 |
| Discharge Berth PERM_ID | VARCHAR2 | 4000 |
| Arrival Date | DATE | 21 |

| Column header | Sample value | Description |
|-------------------|--------------|-------------|
| Product | VARCHAR2 | 60 |
| Grade | VARCHAR2 | 100 |
| Volume | NUMBER | 22 |
| Unit | VARCHAR2 | 300 |
| Barrels | NUMBER | 22 |
| Load Date From | DATE | 21 |
| Arrival Date To | DATE | 21 |
| Buyer/Receiver | VARCHAR2 | 1000 |
| Issuer | VARCHAR2 | 1000 |
| Sender | VARCHAR2 | 4000 |
| Awardee | VARCHAR2 | 1000 |
| Consignee | VARCHAR2 | 4000 |
| Charterer | VARCHAR2 | 1000 |
| Buy/Sell | VARCHAR2 | 1 |
| Price | VARCHAR2 | 128 |
| Price Basis | VARCHAR2 | 10 |
| Freight | NUMBER | 22 |
| Freight Unit | VARCHAR2 | 300 |
| Benchmark | VARCHAR2 | 30 |
| Closing Date | DATE | 21 |
| Validity Date | DATE | 21 |
| Contract Basis | VARCHAR2 | 4000 |
| Terms | VARCHAR2 | 4000 |
| Import/Export | VARCHAR2 | 4000 |
| Status | VARCHAR2 | 4000 |
| Source Grade | VARCHAR2 | 4000 |
| Country of Origin | VARCHAR2 | 240 |
| Last Updated | DATE | 21 |

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