UNIVERSITY OF KWAZULU-NATAL

TITLE: LAYTIME AND DEMURRAGE IMPLICATIONS IN VOYAGE CHARTERPARTIES FOR CHEMICAL TANKERS: A CASE STUDY OF SASOL, SOUTH AFRICA

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YEAR: 2017

UNIVERSITY OF KWAZULU-NATAL

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LAYTIME AND DEMURRAGE IMPLICATIONS IN VOYAGE CHARTERPARTIES FOR CHEMICAL TANKERS: A CASE STUDY OF SASOL, SOUTH AFRICA

A dissertation submitted in fulfilment of the requirements for the degree of

Master of Commerce in Supply Chain Management

College of Law & Management Studies

School of Management, Information Technology & Governance

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Year: 2017

DECLARATION

DECLARATION

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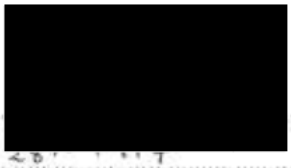
Signed : 

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ACKNOWLEDGEMENTS

In being able to complete such an extensive study such as this, I would like to thank God for the strength, grace and wisdom bestowed upon me. I would have not been able to complete this task on my own accord.

I do not think there is enough thanks to extend to my supervisor Professor MJ Naude, for her patience, consideration, advice and guidance to ensure that this study was completed. She has gone out of her way on many occasions to provide timeous feedback on the drafts submitted and is truly admirable in the manner she displays passion for the field of research and enabling her students to achieve success.

ABSTRACT

***Background*:** Presently there are a limited number of standard Charterparties for the shipment of chemicals in bulk in a voyage charter. Most of the existing Charterparties that are presently being utilised were created for the oil tanker industry. Considerable similarities exist in these Tanker Charterparty forms which can also be applied in the Chemical Tanker environment.

Purpose: Existing standard Charterparties were analysed together with additional clauses to determine whether there is an optimal Charterparty form that could cater for the requirements in the Chemical tanker environment. Clauses of existing voyage Charterparty forms were investigated and analysed as well as possible additional clauses. Particular attention was paid to laytime and demurrage implications in order to propose an optimal Charterparty arrangement which would be suitable for the bulk liquid chemical tanker environment with minimum risk to the Charterer and Shipments (ex South Africa) from Sasol South Africa.

Methodology: A comparative and exploratory approach and a case study approach is adopted and carried out on selected, standard existing voyage Charterparties to provide an in-depth understanding and interpretation of the laytime and demurrage implications in these voyage Charterparties. A comparison of the differences in interpretation and meaning between each standard voyage Charterparty was also computed. Thematic analysis was used as a data analysis technique. The main theme impacting laytime and demurrage were compared in each voyage Charterparty for similarities and differences. These common themes in each Charterparty have been discussed and substantiated with case law. Through exploratory and comparative studies an in-depth understanding, interpretation, differences and similarities of the laytime and demurrage implications and clauses in each of these existing voyage Charterparties was attained.

Findings: It was found that the Shellvoy6 and BPVOY5 Charterparties offer the least exposure to demurrage, since for these Charterparties the demurrage cost calculated was the lowest. This was constant for all routes.

The Asbatankvoy and Asbachemvoy Charterparties are the only Charterparties whereby the principle of “once on demurrage, always on demurrage” can be enforced since their exceptions are not extended to demurrage but only laytime and therefore if the vessel is already on demurrage time would still count as used laytime for such exceptions.

The areas that do not protect a charterer's interest include multiple berth discharge, awaiting daylight, awaiting pilots, weather delays and pro rata of awaiting time for berth amongst all charterers calling the same berth.

Including additional clauses to address these areas have resulted in additional savings for demurrage and therefore, if included would benefit all the Charterparties that were included in this study.

Contribution: The contribution of this study is to highlight the need for a Charterparty form specifically designed for the chemical bulk liquid environment with special focus on risk minimisation for the Charterer in terms of laytime and demurrage.

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CHAPTER 1: BACKGROUND AND INTRODUCTION TO THE STUDY

1.1 INTRODUCTION

In the shipping environment, a Charterparty in its basic meaning is any agreement in terms of which a charterer hires from a ship-owner part or the whole of a ship, with or without her non-cargo carrying space, and with or without crew, for a limited time or for a voyage, a succession of voyages or other stated purpose (Hare, 2009). Charterparty agreements govern the relationship between shipper and charterer and determine the obligations of both parties based on the intention and purpose for which such an agreement has been entered into. The voyage Charterparty is not subject to any statutory regimes, rather it is more commonly applicable by the use of standard form contracts used in particular trades (Singh, 2011).

Bulk liquid chemical shipping represents a small percentage of the world's total shipping, only 1.4% - with crude oil representing 30.1% of the world's fleet (UNCTAD, 2013). In the environment of bulk liquid chemical shipping, high value commodities are carried by super-segregated tankers with very specific, technical requirements for carriage. Some of which involve the construction of tanks of specialised materials compatible with the product to be carried, heating requirements, inert gas purging and blanketing requirements, and the maintenance thereof for the voyage. Technical requirements also include unique loading and unloading instructions.

The shipping requirements for oil commodities are not as extensive and specialised as for chemical products, because of their low value and are often subject to further downstream refinery processing.

The oil majors of the world have developed their own standard Charterparty types in order to cater for their specific needs and to protect their interests when Charterparty agreements are entered into (Voropaeva, Khamaza, and Khamaza, 2012). However these standard Charterparty types do not always cater for the unique requirements and challenges faced in the bulk liquid chemical shipping environment. For example, laytime and demurrage are handled differently and in most cases additional clauses need to be included in order to cover many of the associated risks prevalent in the chemical parcel trade (BIMCO, 2008).

Against this background, the aim of the study was to:

- Analyse whether an existing Voyage Charterparty form for the oil tanker industry could be used optimally in the chemical tanker industry.

- Determine whether the laytime and demurrage exposure to the Charterer could be minimised by using this optimal Charterparty.
- Explore whether the inclusion of additional clauses could limit further exposure to demurrage and thus the needs of bulk Chemical liquid shipping could be adequately catered for.

1.2 BACKGROUND AND OUTLINE OF THE RESEARCH PROBLEM

A voyage charter can be described as a contract for the carriage of goods from one point to another. The points the goods are transported from is a port whereby the goods are loaded and the other point is where the goods are discharged. The voyage charterer may require cargo to be lifted for a single voyage, or for a succession of voyages. In cases where the voyage charter is for successive voyages, this is termed *a contract of affreightment* (Hare, 2009).

Subject to the laws of supply and demand, a Charterparty is usually negotiated in a free market and is subject to the comparative bargaining powers of the parties which largely depend on the state of the market at that time. Therefore the shipowner and charterer are capable to negotiate the terms of the charter as they deem fit, with minimal statutory intervention (Wilson, 2010).

According to Tiberg (2013), demurrage can be described as a monetary compensation provided by contract or by law, when the Charterer uses more time than what could be considered as necessary for the loading or discharging operations as well as related activities. The delay for which demurrage is payable, is in excess of a certain loading or discharging period, called laytime. Laytime is the period of time that is allowed to the Charterer to perform its loading and discharging operations (Tiberg, 2013). Demurrage, according to Schofield (2005), means an agreed amount payable to the Owner as a result of the vessel being delayed for more than the period of laytime allowed. When this happens, the Charterer is in breach of charter and his liability for this breach will be liquidated damages in the form of demurrage (Cooke et al. 2014).

Laytime and demurrage consist of a particular area of English Maritime Law which is the law concerning voyage charters, and the development thereof. Closely allied to the historical and social changes that took place as sail gave way to steam; it is one of the few areas of English common law in which there has been very little statutory intervention (Schofield, 2005). The different aspects of laytime and the opposing opinions on its interpretation thereof have been found to be the source of various maritime legal disputes and can often become a battleground wherein the clauses in a Charterparty may be interpreted differently

in determining the period of time that is available for loading and discharging, when the laytime clock commences, cases where it is interrupted, as well as when it ceases (Tiberg, 2013).

Furthermore, the clauses in a Charterparty are left to the interpretation of judges and arbitrators even though these clauses are often drafted by commercial people and the interpretation given in practice only rarely reaches arbitration and the higher courts (Schofield, 2005).

The above illustrates that the tendering of the notice of readiness and commencement of laytime has a profound effect on the demurrage calculation and differs according to the type of Charterparty used. This can be seen as every Charterparty form comes with different stipulations in their clauses as to when the Notice of readiness (NOR) is tendered and commences. One can assume that as this affects laytime usage, this would also affect the demurrage calculation and consequently the amount charged to Charterers, should there be a breach of liquidated damages. As a result, there has to be a synergy in the operational and commercial aspects of the business at hand in determining the most appropriate Charterparty to be used with minimal risk exposure to the Charterer.

Presently there are a limited number of standard Charterparties for the shipment of chemicals in bulk in a voyage charter. Most of the existing Charterparties that are presently being utilised were created for the oil tanker industry. There are considerable similarities in these Tanker Charterparty forms which can also be applied in the Chemical Tanker environment.

Therefore, in this study, the existing forms will be analysed together with additional clauses to determine whether there is an optimal Charterparty form that could cater for the requirements in the Chemical tanker environment. Clauses will be investigated and analysed of existing voyage Charterparty forms as well as possible additional clauses. Particular attention will be paid to laytime and demurrage implications in order to propose an optimal Charterparty arrangement. It is proposed that this optimal Charterparty arrangement would be suitable for the bulk liquid chemical tanker environment with minimum risk to the Charterer, Shipments ex South Africa from Sasol South Africa.

1.3 PRELIMINARY LITERATURE REVIEW

1.3.1 Existing Voyage Charterparty Forms

Some of the commonly used existing standard Voyage Charterparties in practice include the;

- ***ASBATANKVOY*** (Association of Ship Brokers and Agents Tanker Voyage Charter Party)
- ***ASBACHEMVOY*** (Association of Ship Brokers and Agents Chemical Voyage Charter Party)
- ***BPVOY 5*** (British Petroleum Voyage Charter Party 5)
- ***SHELLVOY6*** (Shell Voyage Charter Party 6)
- ***EXXONMOBILVOY2012*** (Exxonmobil Voyage Charter Party 2012)
- ***BIMCHEMVOY 2008*** (Baltic and International Maritime Council Chemical Voyage Charter Party 2008).

Apart from the ***BIMCHEMVOY 2008*** and ***ASBACHEMVOY***, the majority are Charterparty forms developed by the oil major industries in most cases are the shipowners.

The operational loading and discharging of multiple grades of chemicals imparts a level of complexity when laytime starts especially when loading commences at different times, for a number of different grades each with different handling and shipping requirements. This is particularly true in situations where all tanks are not ready and the maintenance of product integrity is mandatory. Here tank compatibility is integral and much cognisance is placed to ensure the tanks are cleaned and tested in order to leave little room for product contamination. Additional clauses to address slow pumping, multiple berth discharge, commencement of laytime when all tanks are not ready, need also to be practically considered.

In a tanker that caters for crude oil, this complexity does not exist. Essentially there is only one product type. Tank readiness or compatibility is not an issue as these tankers are used specifically and exclusively for crude oil. Here the appropriate Notice of readiness (NOR), terms and commencement clauses play a role in ironing out any uncertainties.

Sasol annually exports approximately 1 million metric tonnes of bulk liquid chemicals (The Ports Regulator, 2013). In order to remain competitive internationally, there is a strong focus and drive by Sasol to contain total logistics and supply chain costs incurred. Currently, the costs of demurrage total millions of dollars per annum on the part of the Charterer for Sasol (Sasol Facts 12/13, 2013). With an optimal Charterparty arrangement, it is believed that these costs could be significantly reduced. This will positively affect the profit margin and reduce supply chain costs.

1.3.2 The Chemical Sector of South Africa

The South African chemical industry has been fashioned by a political and regulatory environment which created a viewpoint of seclusion and protectionism throughout the apartheid years (South Africa.info, 2012). When South Africa re-entered the global economy in the early 1990s, the global market was much more ahead in terms of technological capability and efficiency due to lack of investment from international players during the 1980s. (Global Business Reports, 2013). Today, there is a much greater need and focus from the South African companies to be internationally competitive and in order to do so; the industry is busy reshaping itself accordingly. The Chemical and Allied Industries' Association (CAIA) of South Africa has a role as part of the global network of chemical industry associations in that it aids in the promotion of the efficiency, productivity and competitiveness of the chemical and allied industries that are in South Africa (Mbendi, n.d).

South Africa's contribution to the global chemical production is only about 1% (Global Business Reports, 2013). However in terms of the economic significance of South Africa's chemical industry, the chemical sector contributes approximately 5% to the GDP and 25% of its manufacturing sales (South Africa.info, nd). The South African government is also eager to be recognised as a leader which is demonstrated in its dominant role played in the South African Development Community (SADC) and its entrance into the BRICS (Brazil, Russia, India, China, South Africa) association of emerging influential economies in December 2010 (Southafricahouseuk, n.d).

The chemical industry of South Africa is the largest in Africa and is divided into 3 main broad categories (Department Of Environmental Affairs And Tourism, 2005)

1. Primary Products (base chemicals)-feedstock and commodity chemicals.
2. Secondary Products-Intermediate chemicals.
3. Tertiary Products-chemical end-products and speciality end-products

Sasol is South Africa's largest integrated energy and chemical company and dominates the primary and secondary chemical sectors. Sasol uses technology developed internally with the aim of commercially producing synthetic fuels and chemicals. The feedstock for this process is low grade coal and over 200 fuel and chemical products are manufactured which are sold in over 90 countries (Lexis Nexis, 2006). Sasol is the world's leader in coal-based synthesis and gas-to-liquid (GTL) technologies producing gas-based liquid fuels and petrochemicals. (Sasol Facts 12/13, 2013)

Sasol's chemical clusters' foremost business divisions consist of: Sasol Polymers; Sasol Solvents and Sasol Olefins & Surfactants, Sasol Nitro, Sasol Wax, Sasol Infrachem and Sasol Phenolics.

This focus of this study is on the bulk shipment of chemicals ranging from Sasol Solvents, Sasol Waxes and Sasol Phenolics.

1.3.3 The Chemical Tanker Environment

Chemical tankers differ from other bulk carriers in that they transport a wide range of products and many are designed to carry a large number of segregated products simultaneously. These large numbers of different cargos have different properties, characteristics and inherent hazards (Chemical Tanker Guide, n.d).

The chemical industry during the 20th century was one of the industries that grew the fastest, even surpassing the manufacturing industry especially after the Second World War (Murphy, 2000). The Chemical Tanker industry can be considered as a fairly young industry which was born in 1959 with the first chemical tankers being modified product tankers. Product tankers are those used primarily for clean fuel products. The type of modification these product tankers underwent was to increase the number of tanks as well as to make smaller tanks as the chemical industry was characterised by the bulk shipment of smaller quantities. Economies of scale were improved as these chemical tankers provided an alternative to drums and deep-tanks in general cargo ships which were previously used (BLT Chembulk Group, 2011).

The first "purpose built "chemical tankers were delivered for use in the 1970s. Cargo segregation and product integrity were maintained in that these tankers comprised of;

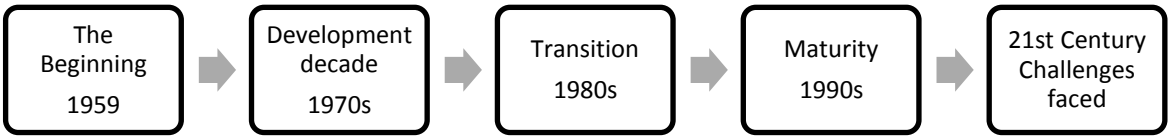
- Individual "per tank "cargo systems
- Cofferdams and double bottoms
- Tank coatings were improved and stainless steel and thus more compatible.

During the 1980s the markets were stronger however the introduction of legislative and regulatory requirements in the form of conventions such as the International Convention for the Prevention of Pollution from Ships (MARPOL) had a commercial impact in this industry. The International Maritime Consultative Organisation (IMCO) also addressed the control of bulk shipments of chemicals through the promulgation of a Bulk Chemical Code which was used for the construction and equipment of ships that carry hazardous chemicals in bulk (Murphy, 2000).

The 1990s were a mature stage in the chemical tanker industry with increased regulatory compliance and quality control (Chapman, 1991).The regulatory landscape became stricter as a result of maritime incidents. One such incident was the sinking of the vessel, *Erika* and the oil spill in international waters which resulted in an unprecedented environmental disaster. In the case of the *Erika,* the vessel was 25 years old and was chartered by Total who had not addressed maintenance issues on the vessel. During a storm in December 1999, the *Erika* foundered and broke its back and sank in the waters of North West France) (Digital Journal, 2012).

The 2000s marked a rise in vetting organisations. The global economic meltdown in 2008 resulted in an oversupply of vessels. The year 2010 marked the start of economic recovery which was largely driven by developing markets and tight supply/demand balances with the BRICS factor being the major source of primary growth economies (BLT Chembulk Group, 2011). Figure 1.1 presents the stages in the development of the chemical tanker industry.

Figure 1.1 Stages in the Chemical Tanker Industry Development



Source: Compiled by the researcher

1.3.4 The Voyage Charterparty and The demurrage calculation

Under every voyage Charterparty, the commencement of laytime is of extreme importance as it involves large sums of money in the aggregate and is the most important factor in laytime and demurrage disputes. Under English law, there is complete freedom of contract regarding laytime as no statutory provisions exist and therefore new clauses are often introduced into Charterparties to modify this position (Davies, 2006).

According to Davies (2006), in order for a laytime calculation to be undertaken, there are certain general requirements that have to be fulfilled for the laytime clock to commence running under English law.

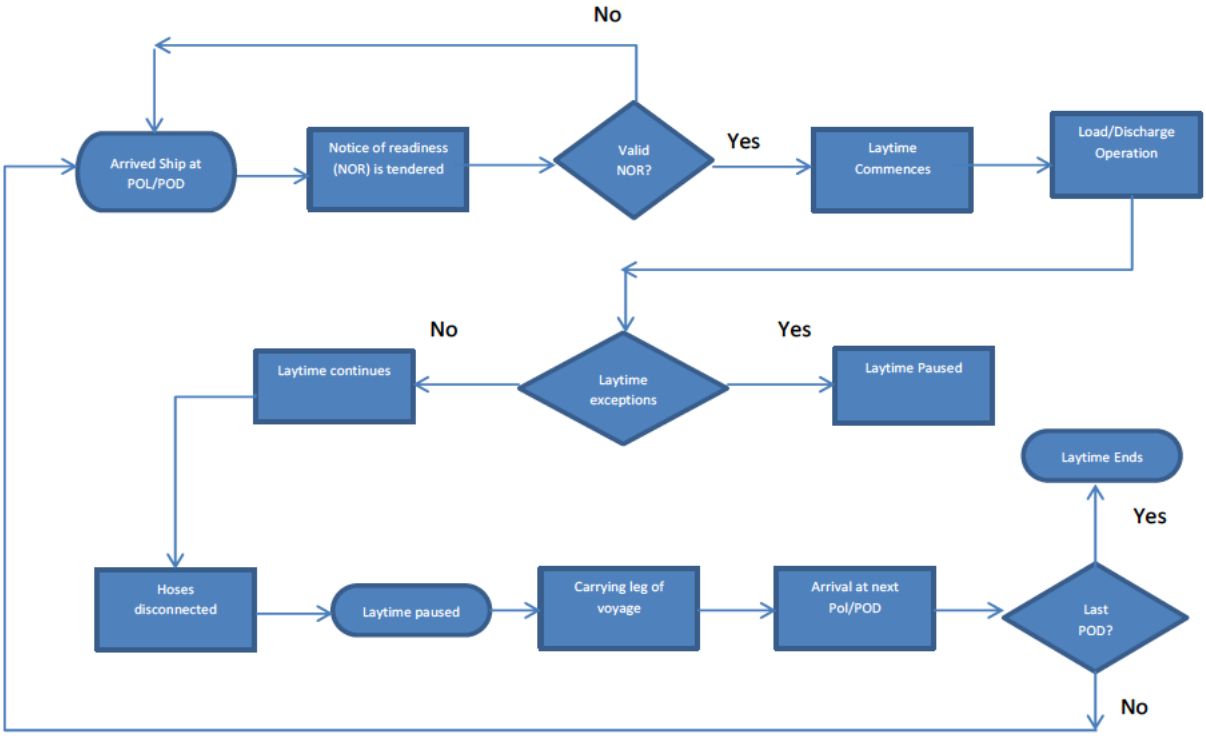
The three general requirements are;

1. The vessel must have arrived at the place agreed to load or discharge.
2. The vessel must be ready to load or discharge the cargo.
3. A valid Notice of readiness must be tendered to the Charterers or their agents.

The impact of the commencement of laytime in the voyage Charterparty is profound as this dictates the start of the demurrage clock against the Charterer, applies to every voyage Charterparty and involves large sums of money in the aggregate (Davies, 2006). Therefore it follows that cognisance has to be taken that the terms of the voyage Charterparty chosen caters sufficiently for the unique conditions inherent to the Chemical Tanker environment.

Figure 1.2 provides an example of a typical demurrage calculation, outlining the typical process of calculating demurrage for a voyage.

Figure 1.2 The Demurrage Calculation Process Flow



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1.4 RESEARCH QUESTIONS

The following research questions were addressed in the study:

1. What are the laytime and demurrage implications and meaning in existing voyage Charterparties?
2. What are the challenges associated when using existing voyage Charterparties in the chemical tanker industry?
3. What is the effect of laytime and demurrage provisions in existing voyage Charterparties?
4. What are the areas in the existing voyage Charterparties that do not sufficiently protect the Charterers interests in the chemical tanker environment and offer the greatest demurrage exposure?
5. Will the inclusion of additional clauses address these areas and offer to limit the demurrage exposure?
6. Which of the existing voyage Charterparties under investigation offer the least exposure to demurrage with and without the inclusion of additional clauses?

1.5 RESEARCH OBJECTIVES

In order to answer the research questions, the following objectives were set to guide the research:

1. To provide insight into the meaning of the provisions of the existing Voyage Charterparties in terms of laytime and demurrage.
2. To explore challenges associated when using existing voyage Charterparties in the chemical tanker environment.
3. To determine the effects of laytime and demurrage provisions in existing voyage Charterparties on the demurrage calculation for chemical tankers.
4. To identify areas that do not protect charterer's interests and expose them to demurrage.
5. To determine whether including additional clauses may address these areas where Charterers are exposed to demurrage.
6. To identify which of the existing Charterparties under investigation offer the least exposure to demurrage with and without the inclusion of additional clauses.

1.6 SIGNIFICANCE AND CONTRIBUTION

Presently, there is no study that has been undertaken to evaluate a standard Charterparty form that solely takes into account the unique considerations that exist in the chemical bulk shipment of goods.

The choice of a Charterparty in practice will be made easier for the Charterer as the aim of this study focuses on the protection of their rights and the minimisation of their demurrage exposure.

The laytime and demurrage provisions in the different Charterparty forms will be made more transparent as their implications will be illustrated in a practical realistic manner.

Therefore, the results of this study will contribute to the body of knowledge in the shipping field of study.

1.7 JUSTIFICATION/RATIONALE

Preliminary literature review revealed that there has not been much criticism and evaluation of the more recent and modern Charterparty forms. Existing research is outdated and is no longer practically applicable to the current environment. The study provides insight into the differences between these newer and more modern Charterparty forms and the risks they do cover.

The contribution of this study is that it highlights the need for a Charterparty form specifically designed for the chemical bulk liquid environment with special focus on risk minimisation for the Charterer in terms of laytime and demurrage.

1.8 THEORETICAL/CONCEPTUAL FRAMEWORK

1.8.1 Implied Obligations and Duties in a Contract of affreightment

The parties to a contract of affreightment are the shipowner or carrier and the Charterer. The primary undertaking of the carrier is to carry the goods from one place to another, whereas the primary undertaking of the charterer is to pay the freight (Tiberg, 2013).

1.8.1.1 Charterers Obligations and Duties

Under common law there are two obligations for the Charterer. The first is that Charterers have an obligation to nominate a safe port. In the case of the Eastern City, a safe port is one where a chartered vessel may enter, load or discharge and leave without legal limitations as well as be exposed to no danger greater than that which the sea can provide (Wilson, 2010). The second obligation imposed is not to ship dangerous goods. (Law and Sea, 2013)

1.8.1.2 Owners Obligations and Duties

To provide a seaworthy vessel is of fundamental importance and is an implied obligation and duty of the Owner. This implication relates to the vessels' physical state and ability to be able

to meet the usual risks and perils of the sea to which she may be exposed to during the course of the voyage. This obligation covers not only the physical state but also the competence and capability of the crew, having sufficient fuel and other essential supplies, as well as the appropriate facilities required for the carriage of the cargo (Wilson, 2010). In the case of Steel v State Line Steamship Co(1877) 3 App Cas 72 at p 86, Lord Blackburn stated that this undertaking is not merely that that they should do their very best to make the ship fit, but the ship should really be fit. In an event of breach, at common law Owners will be liable for breach of this undertaking, regardless of fault (Cooke et al, 2014). The other aspect to this obligation is that the vessel also has to be fit to receive the specific cargo for which it is contracted to. Another undertaking is for the shipowner to perform the contractual obligations with reasonable dispatch (Wilson, 2010). Essentially this would mean that the performance should be completed within a reasonable amount of time.

When performing the obligations of the contract, Wilson (2010) further adds that the Owner shall not deviate from the contract route or voyage. In as much as this is an obligation on the part of the Owner, there are justifiable deviations under common law which are acceptable. These are as follows;

- To save a human life or communication with a distressed vessel in the case where lives may be at risk.
- To avoid a threat of danger to the ship or cargo.
- Where deviation is necessary as requested by the Charterer.

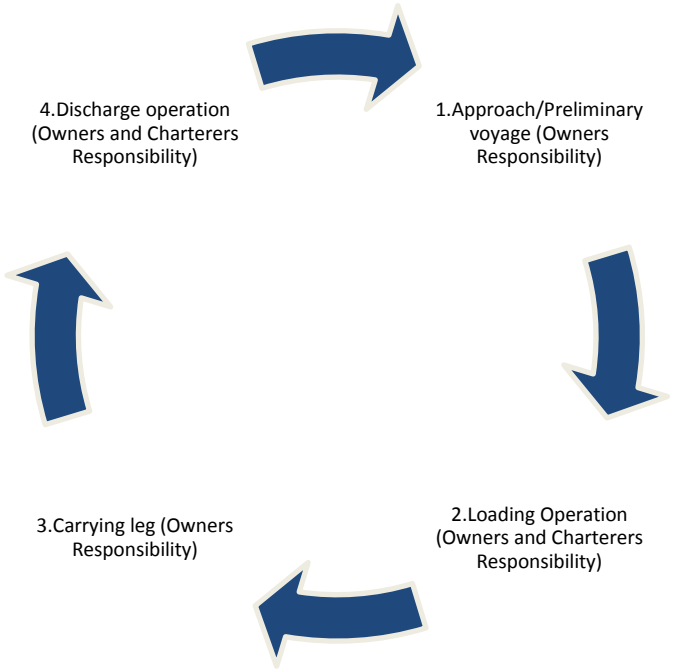
1.8.2 Legal and Physical Readiness

For a valid NOR to be tendered, a vessel must be in all respects ready to discharge/load. This involves both being legally and physically ready. Legal readiness involves all necessary documentation being ready and physical readiness involves the vessel being in a state where her loading/discharging equipment is in working order to enable loading/ discharging to take place.

1.8.2.1 The Four Successive Stages of a Voyage Charter

Essentially the stages in a voyage charter are the preliminary voyage or approach voyage, loading of cargo or loading operation, the carrying voyage and the discharge of cargo or discharging operation. These are depicted in Figure 1.3. Each stage is sequential and before the next stage can commence the previous stage must first be completed (Forwarder Law, 2012).

Figure 1.3 -The Four Stages of a Voyage Charter



Source: Compiled by the researcher

1.8.2.2 The Preliminary Voyage

This is the voyage to the load port and is the responsibility of the shipowner who has a contractual duty to proceed to the prescribed place (Anderson, 1975).

1.8.2.3 The Loading Operation

Both the shipowner and Charterer share responsibility for this stage, however the primary responsibility rests with the Charterer, in order to bring the cargo alongside the vessel to enable loading (Anderson, 1975). This dual responsibility is justified in that during loading both parties have to agree and until the goods are in the custody of the ship-owner, his duty will not begin (Law and Sea, 2013).

1.8.2.4 The Carrying or Sea Voyage

This leg of the voyage is for the account of and at the risk of the Owners since this stage is essentially at the hands of the Owners (ForwarderLaw, 2012).

1.8.2.5 The Discharge Operation

The charterer and shipowner again here are responsible for this leg and primary responsibility here rests with the charterer. According to what is provided for in the Charterparty regarding laytime and demurrage, the risk will be spread between the two parties (ForwarderLaw, 2012). Charterers to have an obligation however to receive the

discharged cargo and the responsibility of ensuring the Receivers of the cargo take receipt of same (Steamship Mutual, 2012).

For the different stages of the voyage it is imperative to determine precisely when each starts and ends as this is the major determinant of when time will start and stop for both the shipowner and charterer (Wilson, 2010).

1.9 RESEARCH METHODOLOGY

Sekaran and Bougie (2013) describe research as being organised. It follows a system, based on data, critical, and is an objective enquiry into a particular problem that needs a solution. Applied research is that type of research whose findings are used in the application of solving specific problems an organisation may face. This study employed active research as the findings shed light on potential cost reduction prospects in demurrage.

1.9.1 RESEARCH DESIGN

There is a dearth of research that has been carried out on the subject of laytime and demurrage implications in voyage Charterparties for chemical tankers. There has been some research on voyage Charterparties and Laytime and demurrage, but there has not been substantial evidence of research dealing with the benefits of voyage Charterparties to protect the Charterers interests in the agreement.

There were two approaches chosen for this study. The first approach was that of a comparative and exploratory study and the second one was a case study.

In a comparative analysis the items are compared with respect to their similarities and differences. According to Hofstee, (2006), when doing a comparative study the researcher investigates items in a focused and systematic manner in-depth and compares them to each other to find the reasons for differences and similarities. Exploratory research is undertaken when there is limited knowledge on the topic (Sekaran and Bougie, 2013). In order to gain a better understanding to ascertain the magnitude and to be more familiar with the phenomenon, this type of research is undertaken requiring in depth preliminary work as certain facts are acknowledged but deeper level of evidence is required. A comparative analysis as well as exploratory research was done on the standard existing voyage Charterparties under investigation. This enabled the researcher to gain an in depth understanding and interpretation of the laytime and demurrage implications in these voyage Charterparties as well as to compare the differences in interpretation and meaning between each standard voyage Charterparty. Case law giving rise to clarity on some of these interpretations and meanings was used to support the interpretation and meanings derived.

A case study is defined by Yin (2009) as, a research strategy involving an empirical investigation of a particular existing occurrence in the context of actual real-life happenings that uses multiple methods of data collection. In this study a case study was done on shipping voyages of bulk chemicals from Sasol South Africa to different trade lanes or regions globally for a period of 12 months from January to December 2014, with every alternate shipment or voyage used in the study.

1.9.2 RESEARCH APPROACHES

Since two different approaches were employed, the secondary data was the standard voyage Charterparties on the comparative and exploratory side was qualitative in its nature.

For the second approach which was the case study research, the data generated was classified as both quantitative and qualitative in nature. It is for this reason that a mixed methods approach was employed as its nature is both qualitative and quantitative in its data. Qualitative research is conducted to discover a phenomenon and gain insight and understanding from data which requires that it is coded first before being able to be quantified or categorised in some way.

The qualitative secondary data was the documentation generated for the shipping voyages. These included: port time sheets; surveyor reports; statement of facts; port logs; and emails from vessel agents. Quantitative research according to (Sekaran and Bougie, 2013) serves to answer questions about the relationships among the variables been measured, deriving meaning from the data that are analysed through statistics, diagrams and tables. From the documentation generated, trends and anomalies were identified and quantified.

1.9.3 STUDY ROUTES

The geographical area where the study was undertaken were major trade lanes for the shipments of chemicals out of South Africa. These trade lanes were;

- RSA to India and Middle East
- RSA to Far East
- RSA to North America
- RSA to North West Europe

The study considers the major global trade lanes and it may expose possible trends that exist in particular regions. Also this wide geographical selection took into account any possible challenge faced in the chemical tanker trade.

1.9.4 THE TARGET POPULATION AND SAMPLING STRATEGIES

A population can be described as an entire collection of the subject of interest to be researched, which may be people, events or animals, whereby data can be collected from in an effort to be able to describe or draw conclusions from. A Sample which is considered to represent a population, is studied in order to make any generalisations about a population.

For the exploratory and comparative approach, the population in this study consisted of the entire standard voyage Charterparties in existence. There are many which are outdated and for this reason the sampling type chosen was purposive under the qualitative approach in that only the latest standard Voyage Charterparties were chosen. The outdated Charterparties presented no value due to the technological advancement of the industry which made these non-applicable.

For the case study, the current population consisted of 9-12 vessels exporting chemicals for Sasol a month with a total of about 1 million tonnes of chemicals carried annually. Each vessel loaded in the ports of Durban and Richards Bay and depending on the route each voyage took approximately 2-3 months to complete. Under the quantitative approach, stratified sampling was applied when selecting the population. The population in this study was that of the shipment of bulk liquid chemicals in parcel tankers using voyage Charterparties. The qualitative approach sampling type employed was that of purposive as the sample was deliberately chosen on the basis that the information provided by this sample provided the necessary information to undertake the study.

The sample chosen in this study was actual case studies of specific trade lanes employed in the trade of chemicals for Sasol. Each voyage was tracked from the arrival of each vessel at the port where product is loading and continued to each port where product is discharge until the voyage was complete at the port of discharge. The relevant port sheets and statement of facts issued at each port was collected and analysed together with surveyor reports and vessel agent's reports.

Based on the researcher's practical knowledge, experience and expertise in the field of demurrage, these together with the various Charterparties under investigation were evaluated, the clauses interpreted and a demurrage calculation was carried out on each case study for each Charterparty. Laytime and demurrage implications on each of the cases for the different trade lanes were calculated based on the application of each of the voyage Charterparties under study. Once the demurrage calculation was performed, the results determined which of the Charterparties provided the least exposure. Thus through

observation and interpretation of the elements affecting the demurrage calculation that were present in the case study; the research objectives was achieved.

1.9.5 DATA COLLECTION METHODS AND DATA QUALITY CONTROL

Documentary analysis in the form of case studies of actual ship voyages represented the secondary data. These included surveyor reports, statements of facts at each port of call which comprised the information that was generally given in a demurrage claim against a Charterer.

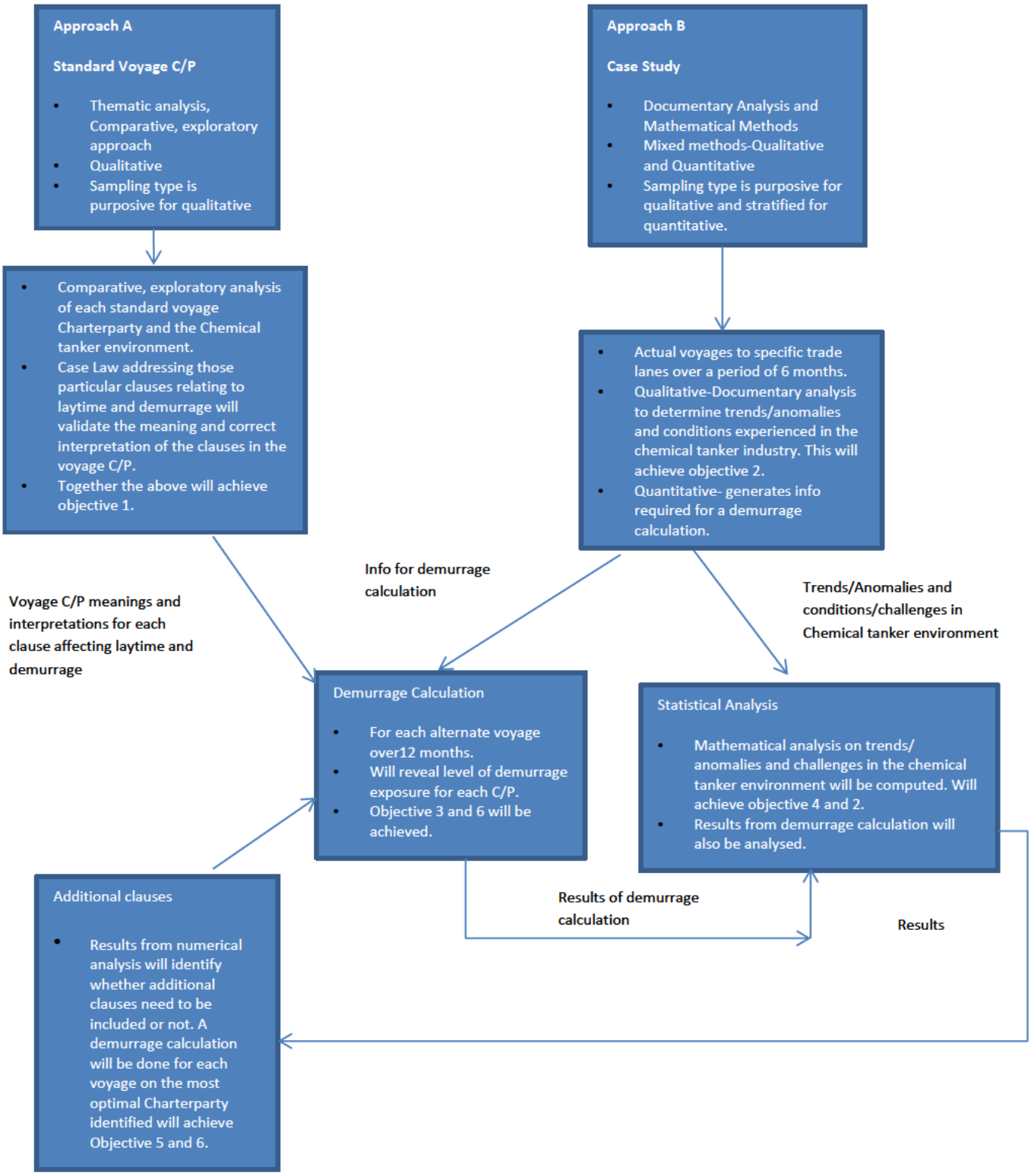
Case law on aspects in a demurrage claim that gave rise to the interpretation of clauses in the Charterparty based on legal cases was discussed in order to identify the legality of any claim which was quantified in the study.

The variables that contributed to a demurrage claim that were tested will be those that in a typical voyage influenced the laytime and demurrage considerations. These variables were similar and present in almost every shipment. A demurrage calculation was applied on each of these shipments. The calculation itself was standard and thus provided reliable and valid results on the measurement of risk to the Charterer in the cases studied.

1.9.6 DATA ANALYSIS

The relevant documentation required in order to determine a demurrage calculation was collected at each port until the voyage was complete for each of the routes. The content was chosen based on the variables influencing laytime and demurrage considerations in each of the voyage Charterparties. The demurrage for each case was calculated for each Charterparty form under investigation. The results were compared for each situation basis the effects on demurrage and quantified in terms of a demurrage calculation which determined the financial cost that will be charged to the Charterer. The lowest demurrage cost meant lowest risk to demurrage. Figure 1.4 represents the overall research design employed in this study and indicates the logical sequence followed.

Figure 1.4 -Overall Research Design



Source: Compiled by the researcher

1.10 ETHICAL CONSIDERATION

As set out as a requirement by the University of Kwazulu Natal, the ethical guiding principles have been adhered to. The potential ethical issues which may have risen from using confidential information from a company in this case was anything detailing the type and name of products shipped as well as names of the customers these products were shipped to. Another important aspect was the shipping lines used. To counter these ethical issues, no mention of the products, customers or shipping lines were mentioned as it bears no relevance to the study. Only total tonnages were used which posed no ethical issue. Sasol granted permission to use their data and ethical clearance was given prior to conducting the study. Full approval was provided by the University of KwaZulu-Natal. The ethical clearance letter is attached as Appendix A.

1.11 LIMITATIONS OF THE STUDY

The limitations of this study are as follows;

1. In determining available laytime, calculated time was only considered.
2. Laytime allowed was deemed to be reversible in that time saved in one port was used to offset time used in another port.

With regards to the Charterparties under investigation, these were limited to;

a) ASBATANKVOY
b) ASBACHEMVOY
c) BPVOY5
d) SHELLVOY6
e) EXXONMOBILVOY2008
f) BIMCHEMVOY 2008

The trade lanes which were used in the case study were limited to RSA to India and Middle East, RSA to Far East, RSA to North America (US Gulf), and RSA to North West Europe trade lanes.

The case studies were for the shipments of chemicals from Sasol South Africa. The shipments for each of these trade lanes were monitored for a period of 12 months from January to December 2014, however due to time constraints; the demurrage calculation was

only performed on every alternate voyage. There were approximately 9-12 voyages on each trade lane for the 12 month period.

Clauses that were evaluated and analysed in detail were those related to;

a) Notice of Readiness
b) Exceptions to laytime
c) Laytime Commencement

1.12 ASSUMPTIONS

When contracting for carriage of goods in shipping using Charterparties, there are certain variables that needed to be agreed between the parties contracting and specified in the Charterparty in order to determine whether demurrage is to be charged or not.

Therefore certain control assumptions were used when calculating the demurrage. These were;

1. The law applicable was English Law.
2. The vessel arrived within her laycan at the earliest time to commence laytime as stipulated in the Charterparty.
3. Demurrage rate was $30 000/day.
4. Laytime allowed was 150/150 meaning that for loading the laytime allowed calculated was the tonnage loaded divided by 150 and for discharging the laytime allowed was the tonnage discharged divided by 150.

1.13 OUTLINE OF THE STUDY

The study consisted of five chapters as explained as follows:

Chapter 1: Background and introduction to the study

This chapter presents the introduction and overview of the study. Insight into the South African chemical sector is provided into the chemical tanker environment; the voyage Charterparty as well as the demurrage calculation is briefly discussed. The implied obligations of owners and charterers are dealt with in the theoretical framework, research methodology approach and the significance of the study.

Chapter 2: Literature review

This chapter provides insight into laytime and demurrage principles. It includes obligations by the shipowner and charterer under voyage Charterparties in the context of the different stages of the shipping voyage. This was achieved through reviewing specific clauses

influencing and relating to laytime and demurrage together with the obligations of charterer and owner under English common law. Common exceptions and interruptions to laytime that were also found in the existing standard voyage Charterparties are evaluated for its interpretation and supported with appropriate case law. This literature review forms the foundation upon which any Charterparty can be interpreted and in turn how to apply this to a demurrage calculation.

Chapter 3: Research methodology

The purpose of this chapter is to outline the research methodology that was employed to conduct the two approaches used for the two facets of the study; the first for the chemical shipments for a year for which, every alternate vessel/voyage was used; a case study approach was adopted. For the selected standard Charterparties included in this study, an exploratory and comparative approach was employed. An appropriate research strategy and design was developed to aid in answering the research questions and to achieve the objectives. The rationale for the selected research strategy is also provided.

Chapter 4: Results and discussion

The purpose of this chapter is to display the results from the study. For each Charterparty, the laytime and demurrage clauses are evaluated and compared with relevance to the exceptions/interruptions to laytime and demurrage as well as the provisions of when laytime commences and ends.

Chapter 5: Conclusion and recommendations

The purpose of this concluding chapter is to discuss the overview of the chapters, how the objectives were achieved in the study and any recommendations, limitations of the study as well as propose opportunities for future research.

CHAPTER 2: LITERATURE REVIEW

2.1 INTRODUCTION

The preceding chapter, Chapter 1, presented the introduction and overview of the study. Insight into the South African chemical sector was provided into the chemical tanker environment; the voyage Charterparty as well the demurrage calculation was briefly dealt with. The implied obligations of owners and charterers were dealt with.

This chapter provides a more detailed insight into laytime and demurrage principles. It includes obligations by the shipowner and charterer under voyage Charterparties in the context of the different stages of the shipping voyage. This was achieved through reviewing specific clauses influencing and relating to laytime and demurrage together with the obligations of charterer and owner under English common law. Common exceptions and interruptions to laytime that are also found in the existing standard voyage Charterparties were evaluated for its interpretation and supported with appropriate case law. This literature review formed the foundation upon which any Charterparty can be interpreted and in turn how to apply this to a demurrage calculation. Whilst exceptions and interruptions clauses are common in every Charterparty-the actual content of the clauses vary and each Charterparty may have a different interpretation. In addition, an appropriate demurrage calculation is proposed together with other not so common recommended additional clauses which were used to achieve the objectives of this study.

Since there is a lack of literature available to address the objectives, the focus of this chapter is on the specific common clauses found in standard Charterparties and recommended additional clauses affecting laytime and demurrage. The recommended additional clauses are those clauses that are not necessarily generally found in the majority of the standard Charterparties reviewed in this study, and form the basis to show the effect it has, if it had to be incorporated on a demurrage claim in the context of a chemical shipment.

2.2 THE VOYAGE CHARTERPARTY

Under voyage Charterparties, laytime and demurrage is one of the most complex areas for charterers and ship-owners and is considered to be an especially complicated subject wherein the application of the principles thereof requires a skillset of having an understanding of the technical aspects found in the law of Charterparties and ship operations along with insight into the legal principles in commercial contracts (Budgen, 2012). Charterers pay freight to cover aspects such as the speed and fuel consumption of the vessel, the voyage distance, crew costs as well as the market rate of the freight market.

Time delays that occur as part of the nature of global shipping practice prevent the owner from fulfilling other intended commercial activities. Thus, the purpose of laytime and demurrage clauses is to introduce an element of a time meter to cater for possible delays during load or discharge at ports to mitigate against possible losses caused by these time delays for the shipowner (Tiberg, 2013).

In a voyage charter, cargo is transported from one point to another in exchange for a price per ton of that cargo. The price paid per ton is referred to as the freight rate and is calculated per unit of shipped cargo. The shipowner normally pays for all the costs and consequently takes the operational and commercial risk (Stopford, 2009).

2.2.1 General Principles

It is understood that in a voyage Charterparty the time runs against the shipowner as the loading and discharging of cargo to a large extent is beyond the control of the shipowner. Therefore, delays in loading and off-loading impact financially on shipowners (Hare, 2009). To limit the time that is allowed for loading and discharging the freight rate includes a maximum period in which these operations should be completed (Schofield, 2005). In fixing the appropriate freight rate, negotiations usually centre around the estimated time the voyage is completed, the laytime or number of days that is allowed for loading or discharging, and the sum of demurrage payable by the charterer in case that laydays are exceeded (Wilson, 2010).

2.2.2 The Elements of a Voyage Charterparty

In the case, *The Johanna Oldendorff*[1] the voyage charter was divided into four successive stages (Schofield, 2005);

1. The loading or approach voyage.
2. The loading operation.
3. The carrying or loaded voyage.
4. The discharge operation.

These voyage stages viz the approach voyage and carrying voyage are the responsibility of the owner. The charterer and owner share responsibility for the loading and discharge operation (Schofield, 2005). However the Charterparty will contain specific clauses as to which party shall bear the risk of loss or damage in each stage. In the absence of such express clauses the risk will lie on the party responsible for the stage where the loss or damage has occurred (Singh, 2011).

[1] Oldendorff (EL) and Co GmbH v Tradax Export SA (The Johanna Oldendorff) [1973] 2 Lloyds Rep 285

The applicable law underpinning the majority of the well-known Charterparties is English Law (Tanriverdi, nd). Under English Law, there is complete freedom of contract regarding laytime due to no statutory provisions being applicable, and additional clauses to modify the position with regards to the commencement of laytime are drawn up (Davies, 2006).

2.2.2.1 The Loading or Approach Voyage

This is the first stage in the voyage Charterparty and is the preliminary voyage to the port of loading. It is the duty of the owner to send the ship to the port of loading. The charterer sometimes has a duty to nominate a port of loading and if required to do so, must be done prior to when the owners' duty becomes obligatory in that he must proceed to this nominated port (Singh, 2011). An estimate of the arrival time of the vessel is given by the owner to allow the charterer sufficient time to have the cargo available when he arrives (Wilson, 2010). Further in the absence of any express provision, under English common law there is an implied responsibility for the owner to advance on the preliminary voyage with reasonable dispatch (Wilson, 2010).

2.2.2.2 The Loading Operation

Once the vessel has arrived at the port of loading, the owner has a duty to tender a notice of readiness that the vessel is ready to load (Singh, 2011). There is a division of responsibility under common law during the loading operation between the owner and charterer. This is referred to as the "alongside rule". The charterer has to bring the cargo alongside the vessel within reach to be able to load it and the owner has a duty to load it. This rule represents a division of labour between the parties; the owner being responsible for work done on board the vessel and the charterer for work done on land (Davies, 2006).

It is usually the case that the agreed laytime is specified in the contract and in such cases there is a stringent obligation imposed on the charterer to load the cargo within the time limit that has been described, bearing all the delays that may result unless such delays are covered by an exceptions clause in the Charterparty or such delays arise through any fault of the owner (Wilson, 2010).

In the case, *The Dynamic*[2] it was decided that congestion would be defined as the loading berth or port is occupied by another vessel and the owner has to wait its turn. Congestion is time lost that the Charterer is liable for.

2.2.2.3 The Carrying or Loaded Voyage

At common law, the obligation of owners is to perform his contractual obligation within reasonable dispatch. The performance of this obligation is judged in relation to what can be

[2] Ocean Marine Navigation Ltd v Kosch Carbon Inc (The Dynamic) [2003] 2 Lloyds Rep 693 74, 362

realistically expected from the shipowner under the circumstances that are present. The implied obligation under common law is to complete the performance within a reasonable time (Wilson, 2010). Once the vessel becomes an 'arrived' ship at the port of discharge the carrying voyage comes to an end. The shipowner is under no obligation to tender a notice of readiness to discharge; rather it is the responsibility of the consignee to be ready to unload the goods on arrival (Singh, 2011).

2.2.2.4 The Discharge Operation

The procedure for discharge is similar to that of loading in that it entails a division of responsibility between the shipowner and the consignee who is the party receiving the cargo. However this responsibility is now in reverse as here it is the responsibility of the owner to discharge the cargo and the consignee to take receipt thereof (Wilson, 2010). An important obligation of the shipowner is to deliver the cargo to the consignee or lawful holder of the bill of lading (Singh, 2011). A bill of lading is a document of title and the holder of which can claim receipt of the cargo.

2.3 DUTIES AND OBLIGATIONS OF OWNERS AND CHARTERERS

Before any liquidated damages can even accrue to the owner, there are a number of conditions that need to have been met by him and these conditions relate to certain duties and obligations he must perform.

The implied obligation for the owner is as follows;

1. **The Undertaking as to Seaworthiness**

The owner has to provide a vessel that is seaworthy. This obligation covers the physical state of the vessel, the competency of the crew, having sufficient fuel and supplies, the necessary equipment and facilities required in the carriage of that cargo. This is an absolute obligation and in the event of breach, the owner will be liable irrespective of fault (Wilson, 2010).

2. **Obligation of Reasonable Dispatch**

This obligation is relevant when no time is specified that the performance be completed within a reasonable time. In a voyage charter the vessel will proceed on the voyage, load and discharge at the time agreed or within a reasonable time. Performance is judged in relation to what can reasonably be expected under the actual circumstances existing at the time of performance.

The same applies for the Charterer; there are certain obligations that he too must fulfil. These are outlined hereafter.

- **To nominate a safe port**

Under English common law, the implied safe port promise is absolute. However this position may be modified by appropriate express terms in the Charterparty. The safe port promise is modified to a due diligence obligation in that the charterer should exercise due diligence or act with reasonable care in nominating a safe port. The underlying objective of the due diligence duty is to protect charterers from liability when the danger associated with a port is unknown to them and could not be ascertained by making reasonable enquiries. (Thomas, 2006)

- **To have cargo ready for loading**

The obligation to have cargo ready for loading is an absolute one. In the *Nikmary*[3] the courts were asked to consider whether delays experienced in reaching a berth after the Vessel had tendered a Notice of Readiness should fall for the owners' or charterers' account (Steamship Mutual, 2003). Even though there was an exception clause in favour of the charterer; the charterer was in breach of this obligation. The Owners had subsequently claimed demurrage for waiting for available cargo and succeeded. This demonstrated that a breach in the fundamental obligations supersedes any exceptions that the Charterparty may have (Irwin, 2013).

2.4 LAYTIME AND DEMURRAGE

Laytime is the period of time for which the vessel will be at the charterer's disposal for the loading and unloading of the cargo. Laytime will be expressly allocated for in the Charterparty (Singh, 2011). Failure of the Charterer to load within the allowed laytime will arise in a breach of the contract and the owner can lay a claim for demurrage to be paid at an agreed rate per day.

2.5 COMMENCEMENT OF LAYTIME

It is generally accepted that there are three pre-requisites for laytime to commence. These pre-requisites are: (1) the vessel has to tender a valid Notice of Readiness (NOR); (2) the vessel must have arrived at the destination specified in the charter; and (3) the vessel has to be actually ready and in a fit condition to receive or discharge her cargo (Wilson, 2010).

[3] Triton Navigation Ltd v Vitol SA (The Nikmary) [2003] 1 Lloyd's Rep. 151

2.5.1 Notice of Readiness (NOR)

This is the notice given by the shipowner to the charterers, shipper, receiver or other person as required by the Charterparty that the vessel has arrived at the port or berth, as the case may be and is ready to load or discharge (Zwarte, 2007). The notice of readiness is the trigger for the calculation of laytime since it indicates where the laytime clock starts counting. Under common law, this notice can take on any form as long as it is communicated, but if there is a specific form prescribed in the Charterparty, then that form has to be adopted (Wilson, 2010). Different Charterparties stipulate the provisions which constitute a valid NOR.

2.5.2 Valid Notice of Readiness

It was decided in the *Tres Flores*[4] that the vessel must be actually ready to load, whereby 'ready' entails being ready in all respects including physically. If an NOR tendered in fact invalid, this would mean that laytime would not commence as it is a pre-requisite for laytime to start and therefore the shipowner would not be in a position to earn demurrage. It was thereafter decided in *The Mexico*[5] that for an invalid NOR to be deemed valid another valid NOR has to be tendered and in absence of that effect, laytime would not commence at all and Charterers would not be liable for any liquidated damages despite using the vessel for however long it wished to. This decision did not make commercial sense and was later changed in *The Happy Day*[6] whereby in the absence of a valid NOR, the latest time that laytime can start is taken to be when the charterer is using the vessel which is at the time that discharging occurs (Wilson, 2010).

2.5.3 Arrived Ship

The principle of an 'arrived' ship is the second determinant of when laytime starts (Tanriverdi, nd). It is found in the stipulations of the Charterparty whether it is a berth or port Charterparty. If the Charterparty is a berth Charterparty, then the vessel is to be considered an arrived ship once at the berth. On the other hand, if the Charterparty is a port Charterparty then when the vessel is at the port limits, it shall be considered an arrived ship. Under a port voyage Charterparty, all delay risks are borne by the charterers from the moment the ship has arrived at the port. It is not necessary to arrive in the berth (Aspragkathou, 2005). It is at the place that the vessel is considered to be an arrived ship that a valid NOR can be tendered. For a berth Charterparty this will be when the vessel is physically at the berth. For a port Charterparty this would be at the port limits or customary anchorage. The financial consequence of congestion in the port that prevents the vessel

[4] Compania de Naviera Bedelka vs Tradax International(The Tres Flores) [1973] 2 Lloyd's Rep 247
[5] Transgrain Shipping vs Global Transporte Oceanico (The Mexico) [1990] 1 Lloyd's Rep. 507,513
[6] Glencore Grain Ltd vs Flacker Shipping Ltd (The Happy Day) [2002] 2 Lloyd's Rep 487

from becoming an arrived ship will be borne by the shipowner unless there is a clause in the Charterparty stating that the time waiting for an available berth will count as laytime (Wilson, 2010). When it is designated that for a ship to be arrived it has to be at a port-this becomes a source of numerous problems. The decision was taken on the *The Johanna Oldendorff* where it was made clear that the vital factor in determining when a vessel can be considered an arrived ship, certain criteria that must be met, the foremost one being that she must be within the port and at the immediate and effective disposition of the charterer. Her geographical position is of secondary importance. This is known as the "Reid Test" and is used in courts today. In this case the vessel arrived at the port and was instructed to anchor 17 miles away from the berth but still within the administrative area of the port. For practical purposes it is so much easier to establish that, if the ship is at a usual waiting place within the port, it can generally be presumed that she is there fully at the charterer's disposal (Singh, 2011). Following after this case, in *The Maratha Envoy*[7] where there was no available berth or place within the port limits to anchor, the vessel was directed to await an available berth outside the port limits even though this place was also considered to be a usual waiting place of the port and that the vessel is still at the disposal of the Charterer. Here the decision made was that the vessel was not an arrived ship because she was not within the port limits.

2.5.4 Physical and Legal Readiness

In order to be considered ready, the vessel has to be in a position whereby its holds and tanks have to be clean and ready to be able to receive and carry the cargo as well as to be considered legally ready in a manner where no laws or regulations stand in the way of access of the charterer to the vessel (Aspragkathou, 2005). The charterer is entitled to immediate right to use to all the cargo space and if it happens to be that a small proportion of previous cargo has not been discharged as yet, the vessel is not ready to load (Schofield, 2005). In addition all port health and documentary requirements have to also be completed in accordance with that specific port regulation. In the case of a chemical tanker the tanks would have to be clean.

2.6 INTERRUPTIONS AND EXCEPTIONS TO LAYTIME

According Lenck (1999), most modern tanker Charterparties contain specific exception clauses for delays due to certain events or reducing the rate of demurrage by one half.

It is interesting to note that even if the Charterparty does not contain a specific exception clause, liability for demurrage will not arise where the cause of the delay was the fault of the

[7] Federal Commerce & Navigation Co Ltd v Tradax Export SA (The Maratha Envoy) [1978] AC 1

owner and will also interrupt the running of time when the vessel is already on demurrage. (Lenck, 1999)

In terms of laytime and demurrage exceptions are events or conditions whereby time does not run against the charterer and interruptions to laytime are those periods of time which are outside the scope of the laytime. The main difference is causation; with interruption it is not necessary to prove that the event caused the loss of time but just that it existed and with an exception have to prove that the event caused the loss of time (Irwin, 2013).

An important consideration with regard to laytime exceptions is that they do apply to demurrage, hence the adage, "once on demurrage, always on demurrage". This means that if a vessel is already on demurrage any exceptions to laytime would not apply. The provisions would only apply while laytime was still running and charterers cannot rely on it once laytime has been used up (Baughen, 2015). Therefore laytime exceptions would only cover demurrage if they are expressly worded to that effect. It would therefore be beneficial to have the exceptions clearly worded so as to make them applicable equally to laytime and demurrage (Hare, 2009).

2.6.1 Congestion

It follows from the *The Laura Prima*[8] that should the Charterparty contain a clause requiring the charterer to provide a berth that is reachable on her arrival, and the berth is otherwise congested upon the vessels arrival, that the time awaiting an available berth will be for the account of the charterer. This stems from the obligation that charterers have to procure a berth that is reachable on her arrival; berth congestion deems a berth unreachable and it follows that charterers are in breach of this obligation. Thus delays due to congestion are for Charterers account.

2.6.2 Strike

Strike shall mean a stoppage of work that prevents work to be carried out on the vessel as a result of industrial action. The key is that a complete stoppage must ensue and partial actions whereby work is not stopped absolutely such as the refusal to work overtime, go-slow or working to rule and comparable actions shall not be considered a strike. An important deliberation regarding strikes is that once the period of strike is over, its consequences such as congestion or delays in the transportation means that carries the cargo to and from the port shall be excluded (Schofield, 2005).

[8] Nereide SpA di Navigazione v Bulk Oil International Ltd (The Laura Prima) [1981] 3 All ER 737, [1982] 1 Lloyd's Rep 1

Strikes of master, officers and crew would fall within the category of fault of the owner or those for whom he is responsible and would therefore form part of the exception to laytime and demurrage under the general law should a clause in the Charterparty provide for delay causes by these persons be incorporated. The owner will not be treated as responsible for striking tugboat men or pilots under the general law and the charterer would need to have a clause exempting strike action from tugboats and pilots for protection in such a case (Cooke et al. 2014).

2.6.3 Storm

The Beaufort scale meaning of storm is a wind force of 10 which is a speed of 48 to 55 knots, affected visibility and a sea state of extremely tall waves with long overhanging peaks and great patches of foam blown in thick white lines along the surface. There is some difficulty found in adhering to the Beaufort scale test in particular since the worst weather, a "hurricane" would fall outside this exception (Cooke, Young, Taylor, Kimball, Martowski, Lambert, 2014). Schofield (2000) adds that a reason put forward against this definition is that it is intended to describe the weather in an open sea and that it is therefore inappropriate to use it to define 'storm' for the purpose of demurrage which is only likely to be incurred when the vessel is in comparatively sheltered waters. Schofield (2000) further adds that since 'storm' has a recognised nautical meaning and that a better phrase should be used such as 'severe weather'.

2.6.4 Shifting

There are two types of shifting, one from anchorage to the berth and the other from the berth to another berth. The traditional viewpoint is that the shifting cost of the vessel from anchorage to the berth is considered under the costs of carrying voyage and for the owner's account and therefore excluded from the laytime calculation. It is notable that during the shifting, the laytime calculation will be continued unless the charter stipulates other provisions in contrary, or the goal of the shifting is for owners own purpose which leads to draw back the vessel from the immediate and effective disposition of the charterers (Nasirian, 2013).

2.6.5 Bunkering

In the case of the *Stolt Spur*[9] the judges held that for instances whereby the vessel was unavailable for the charterers' operations because the vessel was used for owners' own operations and that the owners had derived a benefit whether or not the vessel was waiting for the berth. Demurrage therefore would not be applicable for charterers during this period.

[9] Stolt Tankers Inc v. Landmark Chemicals SA (The Stolt Spur) [2002] 1 Lloyd's Rep 786

Charterers have tended to rely on this case when it was found that Owners were taking bunkers when awaiting berth even though they did not cause any delay. Owners have in turn included clauses to protect their position in this regard to allow laytime to continue running while the vessel takes bunkers when the vessel is waiting in the berthing queue, provided the vessel does not lose its place in the queue. Asdem (2010) is of the opinion that as long as the vessel is still an arrived vessel that time spent by the vessel taking bunkers while awaiting the berth should still count as used laytime or demurrage. Boyd, Burrows and Foxton (1996) suggest that bunkering is an activity in which the owner uses the vessel for his own purposes and furthermore removes the vessel from the charterer's disposition.

2.6.5 Reachable of Arrival

These words were considered and this principle was established in the case of the *Laura Prima*. This means that if a berth cannot be reached on arrival, the warranty is broken unless there is a protecting exception on the contrary. In the case of the *Laura Prima*, the vessel had arrived at the loading port but was incapable of proceeding to the loading berth, since all possible berths were otherwise working other vessels. The Charterparty used had a clause which required the Charterer to procure a berth that was reachable on arrival of the vessel. Charterers were in breach of this requirement and consequently therefore liable for demurrage. The characteristics of the berth are that: (1) it has to be safe; and (2) it also has to be reachable on arrival. If a berth is not available for any particular reason and includes but is not limited to congestion, the Charterer will be in breach should this requirement be incorporated into the Charterparty. This was affirmed in the case of *The Fjordaas*[10] where the berth was unavailable due to bad weather and in *The Sea Queen*[11] where the berth was unavailable due to unavailable tugs (Steamship Mutual, 1999). It follows that reachable on arrival shall mean that the charterer undertakes that the loading or discharging berth provided to the vessel is available when the vessel arrives at the port which she can safely reach devoid of delay caused by an irregular incident (Schofield, 2005). Davies (2006) points out that, the "reachable on arrival" provision is not necessary in favour of the shipowners, when exceptions exist that clearly interrupt the running of laytime or demurrage in instances when the nominated berth cannot be reached on arrival.

2.6.6 Fire or Explosion

Explosion is described as, "an event that is violent, noisy and caused by a very rapid chemical or nuclear reaction, or the bursting out of gas or vapour under pressure." (Cooke et al. 2014)

[10] The Fjordaas[1988], Lloyd's Rep 336
[11] The Sea Queen [1988], Lloyd's Rep 500

2.6.7 Breakdown of Machinery or Equipment

In most Charterparties there is a clause depicting what to do when machinery and equipment break down for the charterer and the owner. Usually time counting for such a break would be divided 50/50 or the demurrage rate will be halved for that particular period if the breakdown is on the shore or terminal of the charterer and the full time to not count if this breakdown is on the vessel.

2.6.8 Fault of the Shipowner

In cases where loading or discharging is interrupted as a result of a fault by the shipowner, laytime does not count during this period. Laytime may even be suspended regardless of whether the shipowner is protected by an exceptions clause in the charter. In the case of *The Union Amsterdam*[12] which concerned a suspension of demurrage due to the fault of the shipowner would suggest that this is indeed the case (Baughen, 2015). Laytime and demurrage will also not run against charterers should the vessel not be in the disposal of charterers, in other words if the shipowner is using the vessel for its own purposes. This ruling was made in the case of *Stolt Spur* whereby the intended discharge berth was unavailable for 15 days. Owners left the anchorage to discharge cargo for other charterers and returned to the anchorage and later left to load cargo for another charterer. Any claim for demurrage during the period whereby the vessel was used for others purposes in the two periods did not count in that claim. If however the owners were idly sitting at the anchorage awaiting the available berth, they could claim the entire period as demurrage.

2.7 RECOMMENDED ADDITIONAL CLAUSES

Most voyage Charterparties contain clauses on common activities that occur on a typical voyage or shipment. These provide a basis on how laytime and demurrage will be evaluated when these activities occur. There are also activities that most Charterparties do not have any particular standing on how they should be treated or are not even mentioned in the majority of the Charterparties. In some cases, these are included as additional clauses to a Charterparty because of their non-existence in the standard Charterparty. Some additional clauses include loading when all tanks are not ready, despatch, early loading clause, Conoco weather clause, and shifting between berths. Each of these additional clauses are explained hereafter.

[12] Blue Anchor Line Ltd v Alfred C Toepfer International GmbH (The Union Amsterdam) [1982] 2 Lloyd's Rep 432

2.7.1 Loading When All Tanks are Not Ready

For chemical tankers, these vessels are usually super segregated with many tanks of varying sizes. It is sometimes the case that when a vessel arrives to load cargo at a port, not all of the tanks are ready for the loading operation since the vessel arrives with cargo from other charterers to discharge first, clean tanks and then present these tanks for loading.

Usually charterers will allow loading of cargo for the available tanks and wait for the remainder of the tanks to be presented for loading. It is difficult to establish when laytime starts counting for the charterer, since the practical nature of loading in this way is to save time for both charterer and owner by allowing loading to commence even though all tanks are not ready for loading. Essentially this would mean that the NOR is not valid until all tanks are ready (Cooke et al. 2014). This operational allowance is an example of a pre-agreed stipulation in the Charter and does not constitute a normal type of arrangement since the fundamental principle of not having all tanks ready would imply an invalid NOR. Since both parties benefit from such an arrangement, it would be unfair to owners for laytime to start counting against charterers when all tanks are ready or when NOR is tendered for the last tank to be presented, since loading of the cargo has already commenced. Similarly, it would be unfair to charterers for laytime to start counting against them when the first tank is presented, since charterers still have to wait until the remainder of the tanks are ready.

Since currently, the parties are free to decide on what clauses to include when entering into a contract of carriage, it is suggested that in order to be fair to the owner and charterer, each grade loaded into a tank should be treated separately and the effective time taken for loading should be determined. This should be the laytime counting against charterers.

2.7.2 Despatch

Based on common law provisions there is no reward for the charterer if he performs the loading and discharging operation in a period less than the time which is stipulated in the charter (Nasirian, 2013). If the charterer completes loading and or discharging in less time that is allowed by its laytime, a credit may be claimed from the shipowner, referred to as “despatch”. This is often pre-quantified in the Charterparty, like demurrage and is commonly fixed at 50% of the demurrage rate (Hare, 2009). This is usually used by the shipowner as an incentive clause in the Charterparty to enable the charterer to receive despatch monies should they complete the load and discharge operations faster than the agreed allowable time. This in turn benefits the shipowner who may be in a position to be positioned for their next shipment within the laycan of the next charterer and may even avoid cancellation of that business should there be excessive delays for the charterer.

2.7.3 Early Loading Clause

These are clauses that allow for further laytime to be granted to the charterers when they are capable of loading and agree to before the commencement of laydays. In such circumstances, the benefit of additional time to charterers from start of loading to when laytime would otherwise have started as under the Charterparty will be given to them. These early loading clauses state that time from commencement of loading to the time when laytime would otherwise start under the Charterparty will be added to the allowable laytime (ASDEM, 2003).

2.7.4 Conoco Weather Clause

The Conoco weather clause refers to delays in berthing and after berthing caused by bad weather (Irwin, 2013). This rider clause rider clause widens the scope of the "storm" provision to "weather conditions" which is found in the Asbatankvoy and Asbachemvoy charterparties. The clause simply states that delays in berthing for loading and discharging and any delays after berthing which are due to weather conditions all count as one half laytime or, if on demurrage, at one-half the demurrage rate (Society Of Maritime Arbitrators, 2017)

"Delays in berthing for loading or discharging or any delays after berthing which are due to weather conditions shall count as half laytime or, if on demurrage, at one half demurrage rate."

2.7.5 Shifting Between Multiple Berths

Generally the shifting clause that allows for no time counting in most Charterparties is applicable only to the first shift. Thereafter unless otherwise stipulated, further shifting to additional berths at the same port is subject to time used as laytime (Cooke et al. 2014).

2.8 THE DEMURRAGE CALCULATION

In order to determine whether the charterer has exceeded the time allowed to complete the voyage a demurrage calculation has to be undertaken. This includes the total time computation at each port less any time where there are exceptions provided for in the Charterparty. The information required to perform the calculation is obtained from the documentation generated at the completion of loading or discharging at the port. This documentation is a time log of events that occurred at each port. If it is found after computing the time allowed against the time used, that the charterers used more time than that was allowed, the owners can claim liquidated damages in the form of a demurrage claim (Tiberg, 2013).

2.8.1 Documentation Required

The documentation required includes the statement of facts, surveyor reports, time sheets and port logs for each product being loaded or discharged at each port of call. These are an accurate account of events logged and are signed by the master of the vessel as well as the charterers representative.

Zwarte (2007) describes the statement of facts (SOF) as a true summary of all events that occurred in the port/roads relating to the vessels stay at the port. The statement of facts details all activity with regards to the loading and discharging of cargo and contains pertinent facts such as the time the notice of readiness was tendered as well as the progress and any interruptions that may have occurred, when loading/discharging commenced as well as when it was completed. The resultant net laytime used and unused together with the total quantity loaded/discharged is also given for each port. The quantity loaded is of importance as it determines the amount of laytime allowed to the charterer (Hare, 2009).

In order to perform a demurrage calculation these recordings of events need to be computed to determine the total time used by the charterer at each port and in turn the whole voyage.

Should the laytime allowed be less than the laytime used, demurrage is payable to the owner by the charterer. The amount of demurrage payable is determined by a rate agreed to by both parties in the contract of affreightment. This is usually a rate per day. The demurrage payable is an indication of the demurrage exposure for the Charterer. The higher the demurrage payable it follows that this would mean a greater exposure to demurrage for the Charterer (Irwin, 2013).

Once the total time used is determined, the total laytime allowed is calculated.

2.8.2 Allowed Laytime

Laytime can be expressed as either a specific number of days or hours or alternatively as a fixed rate of loading which is also referred to as a calculated approach (Singh, 2011).

For the calculated time approach, allowed laytime is determined as an agreed number of metric tons per day (Zwarte, 2007).

When laytime is expressed using the term ‘days’ or ‘running days’ this denotes a continuous 24hr period. There are certain exceptions such as the ‘Sundays and holidays excluded’, however these need to be included in the wording of the Charterparty and if not it will be expected that loading will continue running throughout. Some different stipulations for laytime can be ‘working days’ whereby this will be a day where it is customary for that particular port to be open or even ‘weather working day’ meaning that if the weather hinders

the loading operation then this period will be excluded from the calculation of laytime (Singh, 2011). Reversible laytime shall mean an option presented to the charterer whereby the time allowed for loading and discharging are added together. The effect of selecting this option is that the total time allowed is specified as to cover loading as well as the discharging operations (Schofield, 2005). For example, if time allowed for load port is 48 hours and for discharge port is 24hrs, the resultant total time allowed for both load and discharge operations would be its summation. Time allowed would be as follows;

Load time allowed + Discharge time allowed =48+24=72 hours.

The significance of reversible time is that if you do not use the time allowed at load port the balance will be carried over to discharge port. In the above example if you only used 40 hrs, the balance of 8 hours will be added to discharge port time allowed of 24hrs to give an allowed time of 32hr. Conversely should you use 50 hrs at load port, the 2 hrs extra you have used will be deducted from the time allowed for the discharge port. Time allowed for the discharge port will then be the 24hrs subtract the 2 hrs extra used in load port to give you 22 hrs time allowed for discharge port.

At this point the allowed and used laytime is known then the difference is computed to give you the demurrage cost in the instance whereby the laytime used is more than what is allowed. Special attention has to be given to any clauses in the Charterparty that give rise to laytime exceptions or interruptions as these will have the effect to deduct from the laytime used.

2.9 CONCLUSION

Laytime and demurrage in voyage Charterparties are indeed a complex and complicated topic with the numerous clauses regarding how to treat it as stipulated in the Charterparty. This is made even more intricate since every Charterparty has varying provisions in the clauses therein. In line with the objectives of this study, this chapter provided the insight into the principles of a voyage Charterparty some of the exceptions to laytime and demurrage that are found in most Charterparties, and some not so famous which have been recommended.

The next chapter presents the research design and methodology employed in this study to achieve the research objectives set in this study.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 INTRODUCTION

The previous chapters dealt with the introduction and background to the study; an overview of voyage Charterparties as well as obligations and duties of the shipowner and charterer, the demurrage calculation as well as case law regarding some of the common clauses affecting laytime and demurrage that are found in standard Charterparties.

The purpose of this chapter is to outline the research methodology that has been employed to conduct the two approaches used for the two facets of the study; the first for the chemical shipments for a year for which a case study approach is adopted, and the second for the selected standard Charterparties for this study where an exploratory and comparative approach is employed. An appropriate research strategy and design has been developed to aid in the research question and to achieve the objectives. The rationale for the selected research strategy is also provided.

The topics dealt with in this chapter are research design, research purpose, research questions, research objectives, validity and reliability considerations, approach adopted for this research study, quantitative versus qualitative research, empirical research, data collection, target population, sampling methods, participants, sample size, analysing data, limitations of the study, writing up the findings, ethical considerations.

3.2 RESEARCH DESIGN

The research design facilitates the collection and measurement of data and its analysis, centred on the research questions of the study (Sekaran and Bougie, 2013). A research design can also be defined as, the arrangement of conditions that allow for data to be collected and analysed to provide relevance with an economical procedure (Kothari, 2004). Its purpose is to provide for the collection of evidence that is relevant but at the same time is not costly to carry out, time consuming or that is very difficult to attain.

This comparative and exploratory study adopts a case study approach. A comparative analysis as well as exploratory research was carried out on selected, standard existing voyage Charterparties. This will provide an in-depth understanding and interpretation of the laytime and demurrage implications in these voyage Charterparties. It will also compare the differences in interpretation and meaning between each standard voyage Charterparty.

A case study approach is deemed appropriate for shipping voyages of bulk chemicals from Sasol South Africa to different trade lanes or regions globally for a period of 12 months that

will be analysed. A demurrage calculation will be generated based on the information from the case study together with the Charterparty and the results of the calculation will provide the necessary information required to achieve the objectives of this study.

3.2.1 The Meaning of Research

Research can be defined as a scientific and systematic search for appropriate information on an exact topic (Kothari, 2004). Sekaran and Bougie (2013) describes research as a systematic, structured, data-based, critical, impartial study into a defined problem, with the objective of providing answers. Additionally, in order to gain understanding of the world around us for that which is unknown, research is conducted to contribute original knowledge to the knowledge that already exists.

3.2.2 The Meaning of Design

Design refers to the conceptual structure within which research would be conducted a design with a purpose to enable research to be as efficient as possible yielding maximal information (Kothari, 2004). Depending on the purpose of the study and the nature of the problem, an appropriate research design is chosen. A good design is featured by having the characteristics of having flexibility, appropriateness, efficiency and economical.

3.3 RESEARCH PURPOSE OF THE STUDY

Presently there has been no study undertaken to evaluate a standard Charterparty form that solely takes into account the unique considerations that exist in the bulk shipment of chemicals in tankers. This study may reveal such an optimal Charterparty form through practical case studies.

The choice of a Charterparty form in practice will be made easier for the charterer as the aim of the study focuses on the protection of their rights and the minimisation of their demurrage exposure or costs. In addition the study will provide insight into the differences between these newer and more modern Charterparty forms and the risks they cover and those they do not.

Additionally, the laytime and demurrage clauses in the different Charterparty forms will be made more transparent as their implications will be illustrated in a practical realistic manner.

3.4 RESEARCH QUESTIONS

The research questions to be answered in this study are as follows:

1. What are the laytime and demurrage implications and meaning in existing voyage Charterparties?
2. What are the challenges associated when using existing voyage Charterparties in the chemical tanker industry?
3. What is the effect of laytime and demurrage provisions in existing voyage Charterparties?
4. What are the areas in the existing voyage Charterparties that do not sufficiently protect the Charterers interests in the chemical tanker environment and offer the greatest demurrage exposure?
5. Will the inclusion of additional clauses address these areas and offer to limit the demurrage exposure?
6. Which of the existing voyage Charterparties under investigation offer the least exposure to demurrage with and without the inclusion of additional clauses?

3.5 RESEARCH OBJECTIVES

The following objectives are derived from the research questions and will guide the study:

1. To provide insight into the meaning of the provisions of the existing Voyage Charterparties in terms of laytime and demurrage.
2. To explore challenges associated when using existing voyage Charterparties in the chemical tanker environment.
3. To determine the effects of laytime and demurrage provisions in existing voyage Charterparties on the demurrage calculation for chemical tankers.
4. To identify areas that do not protect charterer's interests and expose them to demurrage.
5. To determine whether including additional clauses may address these areas where Charterers are exposed to demurrage.
6. To identify which of the existing Charterparties under investigation offer the least exposure to demurrage with and without the inclusion of additional clauses.

3.6 VALIDITY AND RELIABILITY CONSIDERATIONS

Central in all scientific measurement are issues of reliability and validity (Neuman, 2011). Validity and reliability are tests of sound measurement and are concerned with ensuring that the instrument developed for the measurement of a particular concept is correctly capable of measuring the variable and thereby measuring the concept that we intend to measure (Sekaran and Bougie, 2013). Validity is thus concerned with whether we measure the right concept and reliability with stability and consistency of measurement.

3.6.1 Validity

Validity refers to the issue surrounding whether the data we collect is truly representative of the concept being studied (McNeil and Chapman 2005). Validity is the degree to which variances found with a measuring instrument truthfully reflect differences between what is being tested (Kothari, 2004). The secondary data in this study will be actual documentation generated in the course of the actual chemical shipments from the time the vessel loads till it discharges. The voyage Charterparties sets out provisions on how the different activities in a voyage should be treated in terms of laytime and demurrage. Together the voyage Charterparty and the shipment voyages provide the necessary information that can be used to generate a demurrage calculation. In practice this is also the way a demurrage calculation is done. From the demurrage calculation relevant themes present in the shipment as well as with the themes also present in the voyage Charterparties will be revealed. Since the shipments are to different routes for a period of a year whereby every alternate shipment will be evaluated, typical trends can be established.

3.6.2 Reliability

A reliable method of collecting evidence means that should any other person deploy the same method or even if it is being used at a different stage by the same person, the same results would be generated. If repeated, the same results would be obtained from the research (McNeil and Chapman 2005).

In this study reliability and validity considerations are taken into account and provided for. For the secondary data generated from the case study, a demurrage calculation will be used. The researcher is a subject matter expert on demurrage and is therefore equipped with the practical know how of carrying out a demurrage calculation in a real life situation. Furthermore the researcher provided a template that has been adapted based on the provisions of the different Charterparties to be used in the study. The calculation is in Microsoft Excel format with formulas to limit human input errors that may arise. Any other person with the same ability would yield identical results using the demurrage calculation. The existing voyage Charterparties under investigation are readily available via the internet and anyone can access these documents.

3.7 APPROACH ADOPTED FOR THIS RESEARCH STUDY

Table 3.1 highlights the differences between the exploratory and comparative research used in this study.

Table 3.1- Differences Between Exploratory And Comparative Research

	Exploratory	Comparative
Objective	The main objective is to discover ideas and gain new insight and familiarity with a phenomenon (Kothari, 2004). This serves to identify key variables and key issues.	The main objective is to investigate in a focused and systematic manner, a topic/s in depth and compares them to each other to find the reasons for difference or similarity (Hofstee, 2006).
Characteristics	Exploratory research has the characteristic of providing a level of flexibility whereby opportunities for different facets of a problem can be deliberated (Kothari, 2004). Besides being flexible, it is also adaptable to change and generates qualitative data (Saunders et al, 2012).	Focused and systematic with its applicability found in finding patterns of differences and similarities in a number of cases being studied (Hofstee, 2006).
Method	Three methods for conducting exploratory research: (a) the survey of literature; (b) interviewing experts in the subject (c) in-depth interviews or focus group interviews (Saunders et al, 2012).	The methods for conducting comparative research are fieldwork visits, observation, interviews and document analysis (Goodrick, 2014).

Compiled from: Kothari (2004); Saunders et al (2012); Hofstee (2006), Goodrick (2014)

Exploratory studies often rely on secondary research such as the literature review and or data gathering incorporating qualitative approaches where both informal and formal approaches are used (Sekaran and Bougie 2013).

Comparative analysis seeks to compare the items with respect to their similarities and differences. Furthermore Hofstee (2006) alludes that when doing a comparative study items are investigated thoroughly in a systematic and focused manner and compares them to each other to find the differences and similarities. The researcher compares sections of the text and tries to identify the reasons why certain text differs from other (Welman et al. 2007). Comparisons have the tendency to not only uncover differences and similarities between cases, but to also reveals the unique aspects of a particular case that otherwise would be virtually impossible to detect (Mills et al. 2006).

The main themes impacting laytime and demurrage will be compared in each voyage Charterparty for similarities and differences. These themes are those that are common in each Charterparty and have been discussed in detail in the previous chapter substantiated with case law.

Thus through exploratory and comparative studies an in-depth understanding, interpretation, differences and similarities of the laytime and demurrage implications and clauses in each of these existing voyage Charterparties will be attained.

The case study research is deemed appropriate for shipping voyages of bulk chemicals from Sasol South Africa to different trade lanes or regions globally. According to Yin (2009), a case study of a phenomenon can be defined as a research strategy involving investigation that is empirical by nature within its true context whereby multiple means of data collection are employed. Common themes and features will be examined in-depth over a period of time and the data generated is detailed, varied and extensive (Neuman, 2011).

Once the similarities and differences with regard to the laytime and demurrage provisions are obtained from the existing voyage Charterparties, this will be used to calculate the demurrage costs for each of the shipping voyages included in this study. The shipping voyages will be from:

- RSA to India and Middle East
- RSA to Far East
- RSA to North America
- RSA to North West Europe

The demurrage costs will indicate which existing voyage Charterparty is most suited for the shipment of bulk chemicals. Also additional clauses will be recommended and tested using its interpretation in these voyage Charterparties to further evaluate potential for further demurrage cost reduction.

3.8 QUANTITATIVE VERSUS QUALITATIVE RESEARCH

Neuman (2011) describes the two categories of techniques that are used by researchers to collect data as being quantitative or qualitative where the former involves the collection of data in the form of numbers and the latter in the form of words or pictures.

Greener (2008) describes a quantitative approach as research that is likely to be connected with an logical approach to testing theory often using number or fact and an objectivistic view of the subjects studied. For a qualitative approach to research. Greener, (2008) describes this approach as likely to be associated with an inductive approach in generating theory, permitting several subjective viewpoints and constructing knowledge as opposed to looking to find it in reality.

For the exploratory and comparative approach the data generated is qualitative and for the case study, the data generated is a combination of both quantitative and qualitative. Therefore a mixed methods approach was deemed appropriate for the case study.

3.9 EMPIRICAL RESEARCH

Empirical research is the research that is done to collect evidence from the real world around us (McNeil and Chapman, 2005). The need for sound evidence to support an argument is superior in gaining an understanding of the world. This type of research is data based with the purpose of coming up with conclusions which are capable of being verified by observation or experience whereby the researcher first provides a working hypothesis or guess at the probable results and thereafter gets enough facts to prove or disprove the hypothesis (Kothari, 2004).

The empirical research conducted in this study involved conducting documentary analysis on the documentation generated from the case study. The participants included four routes whereby shipment voyages where undertaken for a period of 12 months. The routes are RSA to India and Middle East, RSA to Far East, RSA to North America and RSA to North West Europe.

3.9.1 Data Collection

Data collection is the process of gathering and assessing information on specific topics systematically and in doing so, to equip the researcher to provide justified responses on questions relevant and related to that topic and to also assess results. There are two types of data viz. primary and secondary data. Primary data can be considered to be those which are collected afresh and for the first time, and in essence characterised by its originality. Alternatively, secondary data are those which is not original since it's not been collected for the first time, rather its collection was done by another person and which data has already been statistically processed (Dhawan, 2010). In this study only secondary data was used. The secondary data are standard Charterparty forms and documentation generated from the shipments in the case study. The documentation generated come from a number of sources and include surveyor reports, time sheets and port times from the shipowners, agents time records of loading and discharging. The standard Charterparty forms are available from the internet and the documentation generated from the actual shipments were provided by Sasol, who approved this study.

For the different research objectives of the study there are techniques that were employed to achieve them. These are tabulated below in Table 2.

Table 3.2- Research Objectives And Corresponding Data Collection Techniques Employed

Research Objective	Data collection technique
To provide insight into the meaning of the provisions of the existing Voyage Charterparties in terms of laytime and demurrage.	Qualitative analysis using exploratory and comparative research methods of existing voyage Charterparties, literature review of case law.
To explore challenges associated when using existing voyage Charterparties in the chemical tanker environment.	Qualitative methods using documentary analysis for the case study. Quantitative methods using a demurrage calculation for the case study, exploratory and comparative research methods of the existing voyage Charterparties.
To determine the effects of laytime and demurrage provisions in existing voyage Charterparties on the demurrage calculation for chemical tankers.	Qualitative methods using documentary analysis for the case study. Quantitative methods using a demurrage calculation for the case study, exploratory and comparative research methods of the

	existing voyage Charterparties.
To identify areas that do not protect charterer's interests and expose them to demurrage.	Qualitative methods using documentary analysis for the case study. Quantitative methods using a demurrage calculation for the case study, exploratory and comparative research methods of the existing voyage Charterparties
To determine whether including additional clauses may address these areas where Charterers are exposed to demurrage.	Qualitative methods using documentary analysis for the case study. Quantitative methods using a demurrage calculation for the case study, exploratory and comparative research methods of the existing voyage Charterparties and literature review of applicable case law.
To identify which of the existing Charterparties under investigation offer the least exposure to demurrage with and without the inclusion of additional clauses.	Qualitative methods using documentary analysis for the case study. Quantitative methods using a demurrage calculation for the case study, exploratory and comparative research methods of the existing voyage Charterparties

Source: Compiled by the researcher

3.9.2 Target Population

For the exploratory and comparative approach, the population in this study consists of the entire standard voyage Charterparties in existence.

For the case study, the current population consists of 9-12 vessels exporting chemicals for Sasol on a monthly basis. A total amount of approximately 1 million tonnes of chemicals is carried annually. Each vessel loads in the ports of Durban and Richards Bay. Depending on the route, each voyage takes between 2-3 months to complete.

3.9.3 Sampling Method

A deliberate sampling design such as purposive and non-probability sampling was used and entails a purposive or deliberate selection of particular units of the population for inclusion in the sample which is a representation on the population (Kothari, 2004).

There are many standard Voyage Charterparties which are outdated and for this reason non-probability purposive sampling was used. Only the latest or most relevant standard

Voyage Charterparties are included in this study. Purposive sampling is appropriate for this study as the sample was deliberately chosen on the basis that the information provided by this sample would provide the necessary information to undertake the study. The sample chosen in this study are actual case studies of specific trade lanes employed in the trade of chemicals for Sasol. Each voyage was tracked from the arrival of each vessel at the Port of loading and continues to each Port of discharge until the voyage is complete at the port of Discharge. The relevant port sheets and statement of facts issued at each port were collected and analysed together with surveyor reports and vessel agent's reports. Based on the researcher's practical experience and expertise in the field of demurrage, these together with the various Charterparties under investigation were evaluated, the clauses interpreted and a demurrage calculation performed on each case study for each Charterparty. Laytime and demurrage implications of each of the cases for the different trade lanes were calculated based on the application of each of the voyage Charterparties under study. Once the demurrage calculation was performed, the results revealed which of the Charterparties provide the least exposure. Through observation and interpretation of the elements affecting the demurrage calculation that are present in the case study, the research objectives were achieved.

3.9.4 Time Horizon

The voyages were tracked for a full calendar year from January 2014 to December 2014. Each voyage took about 2-3 months to complete depending on the route. Due to time constraints every alternate shipment was used for the case study. Due to the lag in obtaining the relevant documentation from the shipowner, their agents and surveyors, this time period was chosen in order to have all the relevant data required for this study.

3.9.5 Sample size

The geographical area the study will be undertaken would be major trade lanes for the shipments of chemicals out of South Africa.

These trade lanes are:

- RSA to India and Middle East
- RSA to Far East
- RSA to North America
- RSA to North West Europe

The geographical area has been chosen since it considers the major global trade lanes and it may expose possible trends that exist in particular regions. Also this wide geographical

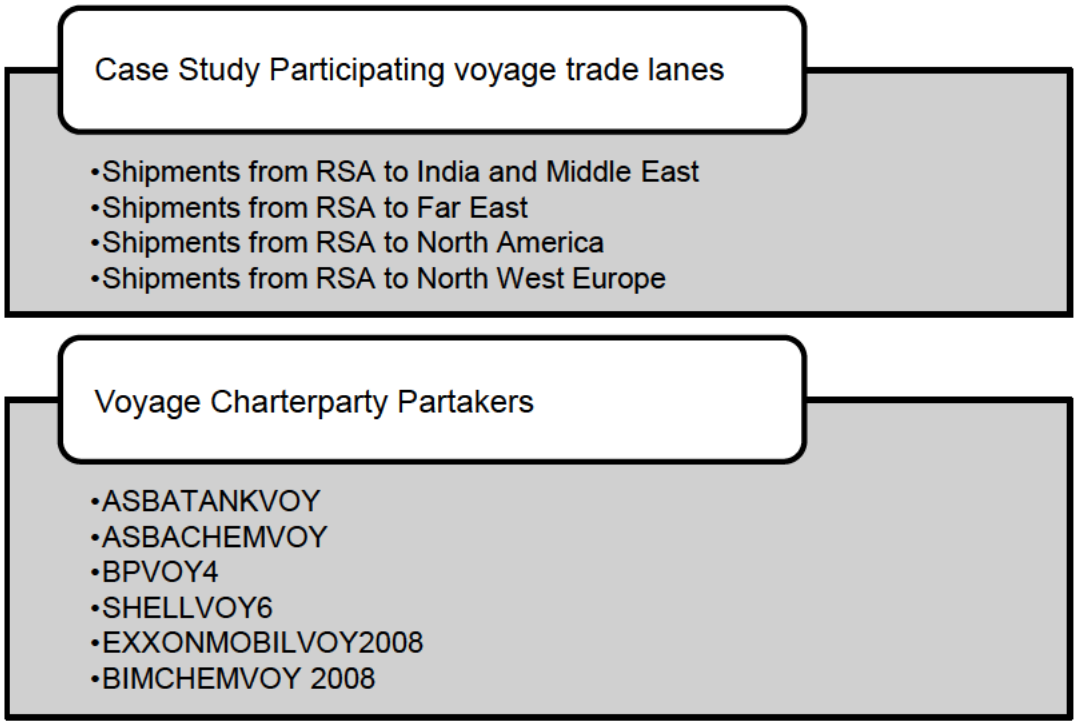
selection would most likely take into account any possible challenge faced in the chemical tanker trade and reveal common themes or trends that may exist.

3.9.5 Participants

A participant is any object or person, subject, trial or experiment who participates in research by being the target of study by the researcher.

For this study the participants *(voyage charterparty partakers)* of the case study as well as for the voyage Charterparties are outlies in Figure 3.1, as follows:

Figure 3.1: List Of Voyage Charterparty Partakers In This Study



Source: Compiled by the researcher

The six Charterparties are individually applied to the four different trade routes to be able to complete a demurrage calculation since each Charterparty has varying positions on the laytime and demurrage implications. In this way, the implications of the existing Charterparties with reference to laytime and demurrage can be quantified and systematically evaluated. There were approximately 9-11 voyages on each trade lane for the 12 month period.

The shipments for each of these trade routes were monitored for a period of 12 months. However, as indicated earlier, due to time constraints, the demurrage calculation was performed on every alternate voyage only.

3.9.6 Thematic Analysis

Thematic analysis can also be described as a method for analysing, identifying and reporting patterns or themes present within data explaining the various aspects of a research topic. It is characterised by the simple organisation yet detailed description of the data set and frequently interprets various areas of the research topic (Braun and Clarke 2006). The common themes intend to capture something significant about the data in relation to the research study representing some form of patterned response or meaning within the data set (Baxter and Jack 2008).

The main benefit of using thematic analysis is its simplicity of use and therefore even inexperienced researchers are able to apply this type of analysis. It allows for flexibility in the researcher's choice of theoretical framework since it can be applied to any theory and is not strictly connected to specific theories as for other method. Through this flexibility, thematic analysis, provides considerable detail and complexity in the description of the data achieved.

According to Braun and Clarke (2006) thematic analysis involves the following 6 phase process:

1. **Familiarising oneself with the data**. Transcribing data if it is necessary, reading and re-reading the data, noting down initial ideas. The object here is to be intimately familiar with its content.
2. **Generating initial codes**. Features of interest present in data are coded systematically and data is collated according to each.
3. **Searching for themes**. Codes are collated into possible themes and data is gathered for each potential theme.
4. **Reviewing themes.** Relative to the coded extracts, the themes are checked if they work as well as with the entire data set thereby creating a thematic 'map' of the analysis.
5. **Defining and naming themes**. The detail for each them is refined based on continuous analysis as well as the overall picture told by the analysis producing clarity on definitions and names for each of these themes.
6. **Producing the report**. The final chance for analysis. Extract examples are analysed which correspond to the research question and literature, which produce an academic report of the investigation.

The use of thematic data analysis techniques were employed during this study when analysing the existing voyage Charterparties as well as for the case study. This was carried out to identify the themes present in the Charterparties as well as for the actual shipments. Since the Charterparties stipulate how the actual shipping events in a shipment are applied in terms of laytime and demurrage, it follows that the themes present in both aspects give direction on how these events are to be applied. Meaning and interpretation of the clauses are derived from the means of doing a demurrage calculation. In doing so any gaps were identified as well as areas where the provisions in the Charterparty also correlate with the actual events can be ascertained. The organisation of the data involved creating a system to identify common themes and dividing the research information into specific relevant topics that could be easily and successfully analysed. The common themes intend to capture something important about the data in relation to the research study representing some form of patterned response or meaning within the data set. The use of thematic data analysis is useful to discover features in the content of large amounts of material that might otherwise go unnoticed (Neuman, 2011). The themes include and relate to the exceptions to laytime common in each voyage under study, the commencement of laytime and their differences. Certain variables or events include shifting, weather delays, when notice of readiness is tendered and when laytime ends. This assisted in quantifying the exceptions present in each of the Charterparties under investigation since these variables are common in each but have different conditions of application. The same was done on the documentation generated from the case study.

Thematic analysis when applied to the existing voyage Charterparties should be able to simplify and summarise these Charterparties to only those elements that affect laytime and demurrage. This summary is a useful tool in the demurrage calculation as this will become a reference of how the relevant clauses will be applied for the different Charterparties and its resultant demurrage calculation.

Once the relevant events and themes that influence laytime and demurrage are identified from the documentation generated from the case study, these were quantified according to its duration when applying the different Charterparty clauses to it. These Charterparty clauses dictate the periods or duration of these events which is expected to be different for each Charterparty. Once these were quantified the findings thereof were compared for their differences and similarities in terms of time usage. This is important as in establishing these times the researcher was then able to evaluate the impact on the demurrage calculated as

the time used for these events contribute directly to the total demurrage cost for each voyage.

For every demurrage calculation carried out on the data generated from the case study, the results are presented in the form of graphs and tables. The same applies to the case study documentation as well as the existing Charterparties.

3.9.7 Writing up the findings

From the analysis of data, the details of the differences and similarities in the different existing Charterparties were compared and critically discussed. This was done in the context of clauses relating only to laytime and demurrage.

For the case studies, for every voyage and applying each of the existing Charterparties to the shipments, a demurrage calculation was performed and this revealed the cost of demurrage for each vessel. The result is different for every voyage Charterparty. The exceptions to laytime were also evaluated in each calculation to show the contribution to the demurrage cost.

Gaps reveal areas where these Charterparties do not cater for unique characteristics found in chemical bulk shipping. These gaps were identified.

Additional clauses that have been identified to reduce demurrage costs are discussed in its applicability by reviewing its impact on the demurrage calculation.

The reasons for these differences are highlighted and the overall voyage is considered for areas of further improvement.

3.10 LIMITATIONS OF THE STUDY

The limitations of this study are as follows;

1. In determining available laytime, only calculated time was considered.
2. Laytime allowed was deemed to be reversible in that time saved in one port should be used to offset time used in another port.

With regards to the Charterparties under investigation, these were limited to:

1. ASBATANKVOY
2. ASBACHEMVOY
3. BPVOY5
4. SHELLVOY6
5. EXXONMOBILVOY2008

6. BIMCHEMVOY 2008

Furthermore the trade lanes which were used in the case study will be limited to RSA to India and Middle East, RSA to Far East, RSA to North America and RSA to North West Europe trade lanes. The case studies were for the shipments of chemicals from Sasol South Africa. The shipments for each of these trade lanes were monitored for a period of 12 months and the demurrage calculation was only be performed on every alternate voyage. There were approximately 9-12 voyages on each trade lane for the 12 month period.

Clauses that will be evaluated and analysed in detail will be those related to;

a) Notice of Readiness
b) Exceptions to laytime
c) Laytime Commencement

3.11 ASSUMPTIONS

When contracting for carriage of goods in shipping using Charterparties, there are certain variables that need to be agreed between the parties contracting and specified in the Charterparty in order to be able to determine whether demurrage is to be charged or not.

Therefore certain control assumptions were used when calculating the demurrage. These are;

1. The law applicable is English Law.
2. The vessel arrives within her laycan at the earliest time to commence laytime as stipulated in the Charterparty.
3. Demurrage rate is $30 000/day.
4. Laytime allowed is 150/150 meaning that for loading the laytime allowed calculated is the tonnage loaded divided by 150 and for discharging the laytime allowed is the tonnage discharged divided by 150.

3.12 ETHICAL CONSIDERATIONS

As set out by the University of KwaZulu-Natal, the ethical guidelines have been adhered to. The potential ethical issues which may arise from using confidential information from a company in this case is anything detailing the type and name of products shipped as well as names of the customers these products are shipped to. Another important aspect was the shipping lines used. To counter these ethical issues, no mention of the products, customers or shipping lines was made in this study. It was not necessary to disclose this since it bears no relevance to the study. Only total tonnages were used which poses no ethical issue. Sasol granted permission to use their data and ethical clearance was given prior to

conducting this study. Full ethical clearance was given by the University of KwaZulu-Natal – see letter attached under appendix A.

3.13 SUMMARY OF THE RESEARCH DESIGN AND METHODOLOGY

Table 3.3 presents the summary of the research design and methodology.

Table 3.3- Summary Of The Research Design And Methodology

Activity	Description of the process
Objectives of the study	To highlight the need for a Charterparty form specifically designed for the chemical bulk liquid environment with special focus on risk minimisation for the Charterer in terms of laytime and demurrage.
Research Design	Exploratory / comparative
Methodology	Qualitative – case study approach
Time horizon	Every alternate shipment from January to December 2014
Validity and Reliability	Secondary data in this study was the actual documentation collected for a shipment. The demurrage calculation was carried out by means of a template in Microsoft Excel format.
Data Collection	Qualitative analysis using exploratory and comparative research methods of existing voyage Charterparties. Qualitative methods using documentary analysis for case study. Quantitative methods using a demurrage calculation for case study.
Target Population	For the case study, the current population consists of 9-12 vessels exporting chemicals for Sasol on a monthly basis for all trade lanes For the exploratory and comparative approach, the population in this study consists of the entire standard voyage Charterparties in existence.
Sampling method	A deliberate sampling design such as purposive and non-probability sampling was used.
Sample size	The geographical area where the study was undertaken are selected major trade lanes for the shipments of chemicals out of South Africa and every alternate shipment for each trade lane. These trade lanes are; • RSA to India and Middle East

	• RSA to Far East • RSA to North America • RSA to North West Europe
Participants	Case Study participants: • Shipments from RSA to India and Middle East • Shipments from RSA to Far East • Shipments from RSA to North America • Shipments from RSA to North West Africa Voyage Charterparty participants: • ASBATANKVOY • ASBACHEMVOY • BPVOY4 • SHELLVOY6 • EXXONMOBILVOY2008 • BIMCHEMVOY 2008
Data Analysis	Thematic analysis and demurrage calculation.
Ethical considerations	These refer to confidential information from Sasol, the type and name of products shipped as well as names of the customers these products are shipped to, and the shipping lines used. To counter these ethical issues, no mention of the products, customers or shipping lines is made in this study. Ethical clearance approval and a certificate were also obtained from University of KwaZulu-Natal.

Source: Compiled by the researcher

3.14 CONCLUSION

The features of a good research design and methodology are that the questions that the study seeks to be answered are done so in a systematic, efficient and accurate manner saving time and money.

In this study, the research design was structured in a way that it would achieve its objectives and answer the research questions thereby contributing to the body of knowledge on the subject of laytime and demurrage, the existing voyage Charterparties and its usefulness in the chemical tanker environment.

The next section presents the analysis and discussion of the findings.

CHAPTER 4: RESULTS AND DISCUSSION

4.1 INTRODUCTION

The previous chapter, chapter 1, dealt with the introduction and background to the study. Chapter 2 included an overview of voyage Charterparties as well as obligations and duties of the shipowner and charterer, the demurrage calculation, case law regarding some of the common clauses affecting laytime and demurrage that are found in standard Charterparties. The methodology design employed in this study was dealt with in chapter 3.

The purpose of this chapter is to present the results of the study. For each Charterparty, the laytime and demurrage clauses are evaluated and compared relative to the exceptions/interruptions to laytime and demurrage, as well as the provisions of when laytime commences and ends.

The sections dealt with in this chapter include an overview and the features of the routes used in the case study, an overview of the Charterparties being studied, the demurrage calculation method, the summary of results of the demurrage calculation, the comparison of each Charterparty of the commencement and end of laytime. Certain exceptions/interruptions to laytime and demurrage are also dealt with.

4.2 FEATURES AND OVERVIEW OF THE ROUTES

The case study includes four routes viz.

1. RSA to India and Middle East
2. RSA to Far East
3. RSA to North America
4. RSA to North West Europe

From the documentary analysis of the case study, the relevant features of each route are summarised in Table 4.1.

Table 4.1: Features Of Each Route From RSA

	India and Middle East	Far East	North America	North West Europe
Load ports	Durban/Richards Bay	Durban/Richards Bay	Durban/Richards Bay	Durban/Richards Bay
Discharge ports	Hazira, Kandla, Jebel Ali	Singapore, Taichung, Ulsan, Kaohsiung, Xiaohudao, Map Ta Phut	New Orleans, Freeport, Houston	Antwerp, Rotterdam
Multiple berths called at each port	No	Yes-Singapore and Ulsan	Yes-Houston and New Orleans	No
No of berths called at ports	N/A	Singapore-up to 4, Ulsan- up to 2	Houston-up to 2 New Orleans-up to 3	N/A
Cargo loaded/discharged for other charterers at same berths called	No	No	No	Yes
All tanks ready at load port on arrival	Yes	Yes	Yes	No-vessel loads and discharges simultaneously.
Barging/Ship to Ship Transfer/ Transhipment	No	No	No	Yes-done in Antwerp and Rotterdam

Source: Compiled by the researcher from the statement of facts generated by the Ship Owners during the voyage.

For each route, the vessels load in Durban and Richards Bay. There are three discharge berths called at ports called for the RSA to India and Middle East, six for RSA to Far East, three for RSA to North America, and two for RSA to North West Europe. It is only the RSA to Far East and RSA to North America routes where multiple berths are called at the same port. For FE this is Singapore and Ulsan, and RSA to North America New Orleans and Houston. The number of multiple berths called at port in Singapore is up to 4 berths, in Ulsan up to 2 berths, in New Orleans up to 3 berths and in Houston up to 2 berths. It is only for the RSA to North West Europe route that grades for other charterers are loaded / discharged at

the same berths called as well as all tanks are not ready on arrival for loading. Also for the RSA to North West Europe route, barging or ship to ship transfers take place in Antwerp and Rotterdam.

4.3 OVERVIEW OF THE CHARTERPARTIES BEING STUDIED

The following six Charterparties were being studied:

1. Asbatankvoy
2. Asbachemvoy
3. Bimchemvoy 2008
4. Exxonmobilvoy 2012
5. Shellvoy6
6. BPVOY5

For the individual voyages or shipments for each of the routes, the laytime and demurrage provisions were applied and a demurrage calculation was computed. The study was conducted for the shipments that sailed from January to December 2014. There was a shipment every month for all the routes except the RSA to North West Europe route which had only 11 shipments, all the other routes had 12 shipments. Every alternated shipment, was used as part of this study.

A basic overview of the differences in each of the Charterparties included in this study is tabulated in Table 4.2. The differences focused on was when they were published and by which body or organisation, and the trade for which it was designed.

Table 4.2: Overview Of Charterparties

Asbatankvoy	Asbachemvoy	Bimchemvoy 2008	Exxonmobilvoy 2012	Shellvoy 6	BPVOY5
• Came into effect 1969, original name Exxonmobilvoy69 • Published by the Association of Ship Brokers and Agents (ASBA) • Port Charterparty • Designed for oil and petroleum trade	• Came into effect 2008 • Published by the Association of Ship Brokers and Agents (ASBA) • Port Charterparty • Designed to have broad references to statutory rules such as IMO and MARPOL which are common in the chemical trade, however still incorporating the oil trade clauses	• Came into effect 2008 • Published by Baltic and International Maritime Council (BIMCO) • Port Charterparty • Designed to incorporate hazards and pecularities of chemical tanker trade	• Came into effect 2012 • Published by Exxonmobil • Port Charterparty • Designed for oil and petroleum trade	• Came into effect 2005 • Published by Shell • Berth Charterparty • Designed for oil and petroleum trade	• Came into effect 2016 • Published by BP • Port Charterparty • Designed for oil and petroleum trade

Source: Compiled by the researcher

With the exception of the Shellvoy6 which is a berth Charterparty, all Charterparties are port Charterparties. The Asbatankvoy Charterparty is the oldest which came into effect in 1969. The BPVOY5 Charterparty is the latest which came into effect in March 2016.

The Asbatankvoy, Asbachemvoy and Bimchemvoy 2008 Charterparties are all published by shipping associations and mainly represent shipowners. The Exxonmobilvoy, Shellvoy6 and BPVOY5 are published by oil majors.

It is only the Bimchemvoy 2008 and Asbachemvoy Charterparties that are designed for the chemical tanker trade. The remaining Charterparties are relevant for the oil and petroleum trades. Even though the Asbachemvoy has provisions for statutory rules set out by International Maritime Organisation (IMO) and International Convention for the Prevention of Pollution from Ships, 1973 as modified by the Protocol of 1978 (MARPOL), it still incorporates the clauses that are applicable to the oil tanker trade.

4.4 THE DEMURRAGE CALCULATION METHOD

The following are the steps used in performing the Demurrage calculation as set out by the researcher, who has vast experience in demurrage at Sasol and has been involved in pioneering many of the internal processes for calculating demurrage at Sasol. This was set out basis the logical procedure that is usually followed in the industry.

1. Read Charterparty.
2. Identify when laytime commences and ends and any exceptions or conditions applicable.
3. Adjust the spreadsheet that is designed by the researcher that is used to perform the calculation. (The spreadsheet is in a Microsoft excel format and has formulas which have been modified depending on which Charterparty is being applied to be able to do the demurrage calculation. These formulas are the basis for each Charterparty provision on laytime and demurrage) Refer to Appendix C.
4. Summarise and tabulate exceptions to laytime and demurrage for easy reference.
5. Arrange data collected per port, load ports and discharge ports for each route.
6. For each shipment, calculate the total tonnage shipped (BOL quantity) (Bill of lading quantity) and enter onto spreadsheet.
7. Start with 1st load port
    a. Take note if vessel loaded or discharged at same berth/port.
    b. From data look at relevant times and enter onto spreadsheet eg. NOR tendered, All Fast, hoses disconnected.
    c. Note any delays and ascertain whether these fall under the exceptions to laytime and demurrage and if so, deduct the period of the delay.
8. Repeat steps 7 for the next port called and continue till last port.
9. Noteworthy events or activities relevant to laytime and demurrage are documented as you go along in step 7 and 8 – this will form part of the detailed discussion. It is easy to do this as one goes along in order to make sure one does not miss any important information.
10. The spreadsheet will calculate automatically the final demurrage cost/saving. A positive value will indicate demurrage and negative a time saving meaning that you had used less time than was allowed. The calculation spread sheet is attached as Appendix C.
11. Record details of result on the register.
12. Continue for each of the shipments in the route and once complete, re-read the Charterparty and go over the calculations again to ensure you have calculated it correctly.
13. Continue with the same process for the remainder of the shipments under study for the other routes.
14. Repeat from step 1 for the next Charterparty until you have completed the calculation for each Charterparty.

The calculation is followed in this particular way in order to ensure that the process is systematic and thus minimises any errors. These steps do not have to be followed in this exact way, as long as the key variables regarding when laytime commences, laytime ends and any exceptions in the Charterparty can be identified and extracted in order to carry out a demurrage calculation.

4.5 SUMMARY OF RESULTS

For the Charterparties under investigation relevant clauses regarding laytime and demurrage exceptions/interruptions were evaluated on the basis of whether time counts, time does not count, half time counts or not specified.

The provisions of the commencement of laytime as well as when laytime ends were tabulated and summarised.

For each shipment, a demurrage calculation was carried out based on each Charterparty. A total of 138 calculations were carried out in total. The demurrage calculation provides much detail on looking at areas that expose charterers to demurrage, the typical unique activities found in chemical shipments as well as the overall impact on demurrage of each Charterparty. For each calculation the following results were obtained;

1. Demurrage calculated and results were ranked according to smallest demurrage amount to largest. This was done in order to determine the effects of laytime and demurrage provisions in existing voyage Charterparties on the demurrage calculation for chemical tankers. The smallest demurrage amount is ranked from 1 onwards and indicates those Charterparties which have provided the least exposure to demurrage.
2. Laytime implication in terms of activities/delays whereby time to count, time not to count or half time to count for each Charterparty and corresponding voyage is quantified according to the days of delay.

4.5.1 Exceptions/ Interruptions to Laytime and Demurrage

The exceptions to laytime and demurrage determine when laytime is interrupted and when the demurrage calculation has to be performed. Therefore it is imperative that a good understanding is gained on these exceptions for each Charterparty.

The initial step was to evaluate and compare each Charterparty as to what the stipulations regarding laytime and demurrage exceptions and interruptions.

Table 4.3 highlights the results of this exercise and from the results some common stipulations are: (1) that time awaiting berth is always for charterers account; (2) shifting to first berth does not count as used laytime; (3) breakdown of machinery of vessel does not count as used laytime; and (4) breakdown of machinery at shore or terminal counts as half laytime.

Each Charterparty has varying positions on: (1) weather related phenomena;(2) awaiting daylight; (3) awaiting pilots; and (4) some provisions such as bunkering and ship to ship transfers/ barging/ transhipment. These are mentioned in some Charterparties but not in others.

The results from Table 4.3 were used as a base of reference when calculating the demurrage calculation and determining how these delays are to be treated, for example, as time counting, half time counting or not.

The most notable finding is that for the Asbatankvoy and Asbachemvoy Charterparty, the laytime and demurrage provisions are exactly the same and therefore the demurrage calculation yielded the same result. The only difference lies in that the Asbachemvoy clauses were changed and caters for chemical trades which are necessary for the performance of the voyage. The general tanker clauses that are found in the Asbatankvoy remain the same.

The results for the comparison of the important laytime and demurrage exceptions/interruptions for each Charterparty are summarised in Table 4.3.

Table 4.3: Comparison Of Laytime And Demurrage Exceptions/Interruptions For Each Charterparty

	Charterparty					
Exceptions /Interruptions to Laytime and demurrage	**SHELLVOY6**	**BPVOY 5**	**BIMCHEMVOY 2008**	**ASBATANKVOY**	**ASBACHEMVOY**	**EXXONMOBILVOY 2012**
Waiting for available berth	Time to count(clause 13(1)a).(since awaiting berth does not fall under exceptions of inaccessible, time would count)	Time to count (clause 10.4b)	Time waiting for berth to be prorated between all charterers loading and/or discharging at that berth in proportion to the size of each charterer's cargo (clause 11e).	Time to count as used laytime.	Time to count as used laytime.	Time awaiting berth before arrival at berth shall count as laytime or demurrage (clause 14a).
Shifting to berth	Time not to count (clause 14(b)).	Time not to count(clause 12.1a)	Time not to count (clause 13a)	Time not to count as laytime only(clause7)	Time not to count as laytime only (clause7)	Time not to count (clause 14ciii).
Shifting between berths/Multiple berth discharge	Time to count as used laytime (clause 9).	Shifting costs for Charterers account between berths (Clause 9.3a). No	Shifting costs between agreed berths and/or places shall be for	Time to count as used laytime only.(clause 9)	Time to count as used laytime only. (clause 9)	Time to count as used laytime (clause 16c)

		stipulation on whether time should count therefore time counts.	Owners account (clause 20a). No stipulation on whether time should count therefore time counts.			
Barging/ Transhipment	Time to count as used laytime from NOR plus 6hrs until transhipment has been completed and vessels have separated(clause 13(2))	Time to count as used laytime from NOR plus 6hrs until transhipment has been completed and fenders removed from the vessel (Clause 13.6)	Time to count for entire operation (clause 21b)	Not specified.	Not specified.	Not specified.
Bunkering	Not to count unless cargo operations carried out concurrently and no delayed thereby (clause 14(b)).	Not to count unless cargo operations carried out concurrently (clause 12f).	Unless preventing or delaying cargo operations, time to count (clause11c)	Not specified.	Not specified.	Time not to count unless carried out concurrent with loading and/or discharging (clause 14c(viii)).
Certification of Compliance (COC) Inspection	Not to count (clause13(1)(a) (iii)	Not to count(clause 12.1g)	Not to count (clause 13g)	Not specified.	Not specified.	Not to count (clause 14(c)vi)

Breakdown or inefficiency of vessel	Not to count (clause 14c(ii)).	Time not to count(clause 12.1e)	Not to count (clause13b).	Not to count as laytime only (clause 7).	Not to count as laytime only (clause 7).	Not to count (clause 14c(iv))
Prohibition of night loading or discharging due to regulations by Owners or port authorities	Not specified.	Not to count(clause 11.2)	Not to count (clause 13i)	Not to count as laytime only (clause 7).	Not to count as laytime only (clause 7).	Not to count (clause 14c(v))
Prohibition of night loading or discharging due to regulations by charterers, shipper or consignee	Not specified.	Not to count(clause 11.2)	Time to count (clause 11b).	Time to count (clause 7).	Time to count (clause 7).	Not specified.
Awaiting Daylight	Time not to count if prevents berthing and laytime is not running (clause 13(1)(a).	Time not to count (clause 12.1a)	Not specified. Counts as used laytime.	Not specified. Counts as used laytime.	Not specified. Counts as used laytime.	Not to count(clause 14c(iii))
Strike, lockout, stoppage or restraint of labour of master, officers	Not to count (clause 14c(iii))	Not to count(clause 12.1c)	Not to count (clause 13b).	Not to count (clause 8).	Not to count (clause 7).	Time not to count unless these conditions are in force at the port at

or crew of vessel or tug boats or pilot						the time Charterer nominated such port (clause 14cii).
Weather related	Time not to count for bad weather, tidal conditions, ice, if prevents berthing and laytime is not running (clause 13(1)(a).	Half time to count for adverse weather, adverse sea state conditions, adverse tidal conditions which could not be reasonably predicted (clause 11.4(a)).	Half laytime for delays in berthing or after berthing for loading or discharging due to fog, weather or sea conditions clause 14(a).	Demurrage at half rate for storm only (clause 8).	Demurrage at half rate for storm only (clause 8).	Half time to apply for weather and sea state conditions(lightning, restricted visibility-due to fog, mist, falling snow, ice, heavy rainstorms and other similar causes; storm, wind, high water, current, waves and/or swells). (clause 14b).
Part cargo for other Charterers-awaiting time for berth	Time awaiting berth to be pro-rated, unless time awaiting berth is solely attributable to other parties cargo operations, then time will not	Not Specified.	All time lost waiting berth shall be prorated between all charterers loading and/or discharging at that berth in proportion to the size of each	Not specified.	Not specified.	Not specified.

	count(clause 15 (4)).		charterers cargo (clause 11e)			
Cleaning tanks, pumps and pipelines to Charterers inspectors satisfaction	Time not to count (clause 2).	Time not to count (clause 1.3)	Not to count (clause 10b).	Not specified.	Not specified.	Time not to count unless carried out concurrent with loading and/or discharging (clause 14c (viii)).
Tank rejection and re-inerting/de-inerting	Time not to count (clause 2).	Time not to count (clause 15.2)	Time not to count until vessel ready.	Not specified.	Not specified.	Not specified.
Delay from Fire, explosion at shore	Half time to apply (or demurrage at half rate)	Half time to apply (clause 11.4e).	Half time to apply (clause14e).	Demurrage at half rate for period (Clause 8).	Demurrage at half rate for period (Clause 8).	Half time to apply (clause 14b).
Awaiting tugs or pilots	Time not to count if prevents berthing and laytime is not running (clause13 (1)(a).	Time not to count(clause 12.1a)	Not specified.	Not specified.	Not specified.	Time not to count (clause 14ciii).
Delay due to port traffic control requirements	Time not to count if prevents berthing and laytime is not running (clause 13 (1)(a).	Not specified.	Not specified.	Not specified.	Not specified.	Not specified.
Awaiting opening of	Not specified.	Time not to count	Not specified.	Not specified.	Not specified.	Not specified.

locks		(clause 12.1a)				
Time lost as a result of labour dispute or strike involving tugs or pilot	Time not to count(clause 15.2)	Time not to count(clause 12.1c)	Time not to count(clause 13d)	Time not to count (clause 8)	Time not to count (clause 8)	Time not to count (clause 14cii).

Source: Compiled by the researcher from ASBACHEMVOY, ASBATANKVOY, BIMCHEMVOY 2008, SHELLVOY6, BPVOY5 and EXXONMOBILVOY 2012 Charterparties.

4.5.2 Commencement of Laytime

In order to be able to carry out a demurrage calculation, it is important to identify when laytime commences for the charterer as stipulated in the Charterparty, as it is at this time that laytime starts to run against the charterer. Since for each Charterparty there may be different provisions contained therein as to when laytime commences, with some Charterparties having certain exceptions; the Charterparties were evaluated specifically in order to determine when laytime starts. The other important aspect is to determine when laytime ends. This will indicate when laytime stops running for the charterer. In each of the Charterparties, laytime ends when hoses are disconnected.

Before it can be determined when laytime commences under any Charterparty, it first has to be established whether a Charterparty is a berth or port Charterparty, as this will determine when the vessel can be considered to be an arrived ship according to the charter.

As indicated in Section 4.3, the Charterparties included in this study are port Charterparties with the exception of Shellvoy6 which is a berth Charterparty.

For both the Asbatankvoy and Asbachemvoy, time starts counting after 6 hrs after NOR is tendered, when the vessel arrives at its customary anchorage or at all fast at the berth, whichever occurs first.

Bimchemvoy 2008 and Exxonmobilvoy 2012 Charterparty have the same provisions regarding the commencement of laytime except that for Bimchemvoy 2008 Charterparty, there is a provision for when tanks are not ready due to cleanliness or other correctable technical hindrances. The time taken to rectify this will not count as used laytime and will resume once another NOR is tendered to indicate that tanks are now ready. For Exxonmobilvoy 2012, an additional requirement is included which provides for laytime to not commence before 06:00 hours local time on the commencing date of laycan unless charterer shall otherwise agree, in which case laytime shall commence upon commencement of loading.

The Shellvoy6 and BPVOY5 Charterparties have the most complicated stipulations as to when laytime commences.

The Shellvoy6 Charterparty has the following stipulations when laytime commences once a vessel arrives at a berth,

a. If the vessel berths straight away, NOR has been tendered, time starts 6hrs after all fast or if vessel commences loading/ discharging earlier, then when loading/ discharging commences.

b. If the vessel does not berth straight away but anchors, NOR is tendered and berth is accessible, 6 hours after that. Berth is inaccessible if she is prevented from proceeding to it by bad weather, tidal conditions, ice, awaiting daylight, pilots or tugs, or port control traffic requirements.

For the BPVOY5 Charterparty the stipulations are;

a. NOR is valid in case of when the vessel proceeds directly to berth, at all fast and gangway down, laytime starts 6 hrs later or when loading/ discharging commences whichever occurs first.
b. NOR is valid in case of when the vessel does not berth on arrival, when the vessel is anchored at customary anchorage, laytime starts 6hrs later.
c. NOR is valid in the case of calling US ports, when a US Coastguard Vessel examination Certificate (COC) has been issued.

Essentially this means that for all the Charterparties, the time for awaiting a berth due to congestion will count as used laytime. However, there are different provisions for when the berth is available and the vessel goes straight to the berth; for Asbatankvoy and Asbachemvoy time starts at all fast or after 6hrs after NOR is tendered, for Bimchemvoy 2008, the same provided that tanks are clean and ready, for the Exxonmobilvoy 2012 also the same provided the vessel does arrive at 06:00 on the commencement date of laycan.

BPVOY5 and Shellvoy6 differs in that for BPVOY5, if vessel goes directly to the berth upon arrival, an added provision of the vessel's gangway being down has to be met. Also a US Coastguard Vessel Examination Certificate (COC) has to have been issued as well as free pratique been granted.

For Shellvoy6, the inaccessible delays as mentioned above which prevent the vessel from proceeding to the berth have to end and time starts 6 hrs later.

For the Asbatankvoy and Asbachemvoy Charterparties, laytime ends when hoses are disconnected. Bimchemvoy (2008), Exxonmobilvoy (2012) and Shellvoy6 Charterparties have the same stipulation however Bimchemvoy (2008) Charterparty adds that nitrogen hoses also have to be disconnected. Bimchemvoy (2008), Exxonmobilvoy 2012 and Shellvoy6 Charterparties state that if after hoses are disconnected and the vessel is delayed by charterers by more than 2hrs, that laytime will resume. BPVOY5 Charterparty states that laytime will end when hoses are disconnected but delays after this for more than 3hrs in awaiting documentation will cause laytime to resume.

The commencement of laytime, any exceptions and when laytime ends for each Charterparty is summarised in Tables 4.4 to 4.9 as follows.

Table 4.4: Summary Of Commencement Of Laytime – Shellvoy 6

Charterparty	Laytime Starts	Exceptions	Laytime End
Shellvoy 6	1. If vessel proceeds to berth immediately, time starts a. 6 hrs after NOR is tendered and vessel has been securely moored at loading/discharging berth (clause 13(1)a). This means at all fast plus 6 hrs. 2. If vessel does not proceed to berth immediately, time starts; a. 6 hrs after NOR is tendered at waiting/usual waiting area and berth is accessible (clause 13(1)a). Inaccessible means vessel cannot proceed to berth because of bad weather, tidal conditions, ice, awaiting daylight, pilots of tugs, or port traffic control requirements except those requirements resulting from the unavailability of such berth or of the cargo. 3. If loading commences before commencement of laydays, time saved between start of	1. Berth is inaccessible due to bad weather, tidal conditions, ice, awaiting daylight, pilots or tugs or port traffic control requirements where such conditions prevent vessel from proceeding to it (clause 23 (1)a). 2. If owners fail to; a. Obtain customs clearance. b. Obtain free pratigue unless customary prior to berthing. c. Have all papers/certificates required to perform this charter.(clause 13(a)iii))	1. Hoses disconnected (clause 13(b)(i)). 2. Recommence after 2 hrs after hoses disconnected if delayed by charterers until delay ends (clause 13 (b)(ii))).

	loading to commencement of laydays will be used to offset any demurrage (clause 12 (2)). 4. When loading or discharging commences after NOR is tendered prior to 6 hrs expiring (clause 13(1)a, clause 13 (3)).		

Source: Compiled by the researcher from SHELLVOY6.

Table 4.5: Summary Of Commencement Of Laytime – BPVOY5

Charterparty	Laytime Starts	Exceptions	Laytime End
BPVOY 5	1. If vessel proceeds to berth immediately, time starts a. 6 hrs after a valid is tendered and vessel has to be securely moored and gangway if used is in place at loading/discharging berth or when vessel commences loading or discharging, whichever occurs first (clause 10.4a). 2. If vessel does not proceed to berth immediately, time starts; a. 6 hrs after a valid NOR is tendered and anchored at waiting/usual/customary waiting area (clause 10.4b). 3. NOR is tendered and	1. Sundays and holidays are included in respect of laytime for loading and discharging unless these activities are prohibited by law and regulation at load or discharge port(clause 11.2).	1. Hoses disconnected however if vessel is detained for awaiting cargo documentation at load port for more than 3hrs laytime shall recommence after 3hrs and terminate upon completion of awaiting cargo documentation (Clause 11.3c). 2. If after completion of loading or discharging, the vessel is required to proceed to an anchorage for charterers purposes, then time spent moving from the berth to

	in the case of US ports, a US Coastguard Vessel Examination Certificate (COC) has been issued plus 6 hrs(clause10.4c) (clause10.6). 4. NOR is tendered and free pratique must be granted plus 6 hrs; else if delay is due to Owners, laytime to not count once free pratique has been granted. If not due to Owners then time counts 6 hrs after NOR is tendered and Owners have to issue a protest in writing to port authority and terminal (clause 10.5).		anchorage shall not count as laytime or demurrage (Clause 11.3c).

Source: Compiled by the researcher from BPVOY5.

Table 4.6: Summary Of Commencement Of Laytime – Bimchemvoy 2008

Charterparty	Laytime Starts	Exceptions	Laytime End
Bimchemvoy 2008	1. Upon vessels arrival at customary anchorage or port, or if the vessel is already within the port area, at each port of loading or discharging, laytime shall commence 6 hours after receipt of the notice of readiness or immediately upon completion of mooring at the loading/discharging place, whichever occurs first (clause10a) 2. If after tendering notice of readiness, the vessel is found to be not ready to load or discharge due to cleanliness or other correctable technical hindrances, then upon the tendering of a notice of readiness by master when deemed ready to load or discharge, laytime shall resume at such time(clause10b).		1. Cargo hoses and if used, nitrogen hoses have been completely disconnected (clause 11d). 2. If vessel is delayed for more than 2 hours after such disconnection solely for charterers purposes laytime shall resume after completion of 2 hours until such delay has ended (clause 11d)

Source: Compiled by the researcher from BIMCHEMVOY 2008.

Table 45.7: Summary Of Commencement Of Laytime – Asbachemvoy

Charterparty	Laytime Starts	Exceptions	Laytime End
Asbachemvoy	1. Upon arrival at customary anchorage at each load or discharge port, notice of readiness must be tendered and laytime shall commence after 6 hours after receipt of such notice or upon vessels arrival in berth (i.e. finished mooring or at all fast) (clause 6)		Hoses disconnected (clause 11)

Source: Compiled by the researcher from Asbachemvoy.

Table 6.8: Summary Of Commencement Of Laytime – Asbatankvoy

Charterparty	Laytime Starts	Exceptions	Laytime End
Asbatankvoy	1. Upon arrival at customary anchorage at each load or discharge port, notice of readiness must be tendered and laytime shall commence after 6 hours after receipt of such notice or upon vessels arrival in berth (i.e. finished mooring or at all fast) (clause 6)		Hoses disconnected (clause 11)

Source: Compiled by the researcher from Asbatankvoy.

Table 7.9: Summary Of Commencement Of Laytime – Exxonmobilvoy 2012

Charterparty	Laytime Starts	Exceptions	Laytime End
Exxonmobilvoy 2012	1. Laytime or time on demurrage shall commence or resume upon the expiration of 6 hrs after receipt by Charterer or representative of a valid Notice of readiness or upon vessel's arrival in berth, whichever occurs first. Laytime shall not commence before 06:00 hrs local time on the commencing date unless charterer shall otherwise agree, in which case laytime shall commence upon commencement of loading (clause 13a). 2. Notice of readiness shall be given to Charterer or its representative upon arrival at customary anchorage or waiting place at each loading and discharging port or place (clause 11).	1. At each load port or place, the vessel shall be fully bunkered for the intended voyage and the valid Notice of readiness shall, without limitation, confirm such bunkering (clause 11).	1. Laytime or if the vessel is on demurrage, time on demurrage, shall continue until all cargo hoses have been completely disconnected upon the final termination of the loading or discharging operation (clause 13c). 2. If vessel is delayed in excess of 2hrs after such disconnection of cargo hoses soley for charterers purpose, laytime shall resume upon the expiration of said 2hrs and continue from that point until the termination of such delay (clause13c).

Source: Compiled by the researcher from Exxonmobilvoy 2012.

4.5.3 Demurrage Calculation Of Each Route

For every alternate voyage between January to December 2014 for each route included in this study, a demurrage calculation was performed applying the provisions of the different Charterparties in the study. The results of each were either a positive demurrage amount or a negative demurrage amount (de-saving). The positive amount indicates that demurrage amount that needs to be paid to the owner for exceeding the allowed time, and the negative amount provides an amount that may be claimed back as despatch.

As can be seen from Table 4.10, demurrage calculation results are ranked from lowest to highest amounts for each route, where lowest demurrage is ranked as 1 (the highest rank) and highest as 5 (the lowest rank) and tabulated separately. Vessel no 1 represents the first voyage of 2014 and vessel 2 to 6 represents every alternate voyage after that. Due to the differences in distances for each route and the period taken for that particular voyage, in some routes, there were five vessels and in others six.

Table 8.10: Ranking Of Demurrage For Each Route For Each Charterparty – RSA To Far East

Route	RSA to Far East	
Sum of Demurrage Vessel no	**Charterparty**	**Total**
1	BPVOY5	1
	Shellvoy 6	2
	Exxonmobilvoy 2012	3
	Asbatankvoy/Asbachemvoy	4
	Bimchemvoy 2008	5
2	BPVOY5	1
	Shellvoy 6	2
	Exxonmobilvoy 2012	3
	Asbatankvoy/Asbachemvoy	4
	Bimchemvoy 2008	4
3	Shellvoy 6	1
	BPVOY5	2
	Exxonmobilvoy 2012	3
	Asbatankvoy/Asbachemvoy	4
	Bimchemvoy 2008	4
4	Shellvoy 6	1
	BPVOY5	2
	Exxonmobilvoy 2012	3
	Bimchemvoy 2008	4
	Asbatankvoy/Asbachemvoy	5
5	BPVOY5	1
	Shellvoy 6	2
	Asbatankvoy/Asbachemvoy	3

	Exxonmobilvoy 2012	3
	Bimchemvoy 2008	3
6	Shellvoy 6	1
	BPVOY5	2
	Exxonmobilvoy 2012	3
	Asbatankvoy/Asbachemvoy	4
	Bimchemvoy 2008	4

Source: Compiled by the researcher from Appendix D.

For RSA to Far East, the BPVOY 5 and Shellvoy6 Charterparties each ranked as 1 for 3 voyages each. Bimchemvoy 2008 Charterparty ranked as 5, for 5 out of the 6 voyages and for 1 voyage the Asbachemvoy/Asbatankvoy Charterparties ranked as 5.

From Table 4.11, presents the ranking of demurrage for each Charterparty for the RSA to India and Middle East route.

Table 9.11: Ranking Of Demurrage For Each Route For Each Charterparty – RSA To India To Middle East

Route	**RSA to India and Middle East**	
Sum of Demurrage		
Vessel no	Charterparty	Total
1	Shellvoy 6	1
	BPVOY5	2
	Exxonmobilvoy 2012	3
	Asbatankvoy/Asbachemvoy	4
	Bimchemvoy 2008	4
2	Shellvoy 6	1
	BPVOY5	2
	Exxonmobilvoy 2012	3
	Asbatankvoy/Asbachemvoy	3
	Bimchemvoy 2008	3
3	Shellvoy 6	1
	BPVOY5	2
	Exxonmobilvoy 2012	3
	Asbatankvoy/Asbachemvoy	4
	Bimchemvoy 2008	5
4	BPVOY5	1
	Shellvoy 6	2
	Bimchemvoy 2008	3
	Exxonmobilvoy 2012	3
	Asbatankvoy/Asbachemvoy	4

5	Shellvoy 6	1
	BPVOY5	2
	Exxonmobilvoy 2012	3
	Bimchemvoy 2008	3
6	Asbatankvoy/Asbachemvoy	4
	BPVOY5	1
	Shellvoy 6	1
	Bimchemvoy 2008	2
	Exxonmobilvoy 2012	2

Source: Compiled by the researcher from Appendix D.

For the RSA to India and Middle East route, again the ranking of the lowest demurrage was split between BPVOY5 and Shellvoy6 Charterparties; four of the voyages ranked 1 for Shellvoy6 and two voyages ranked as 2 for BPVOY5. The highest demurrage amounts were for Bimchemvoy2008 and Asbatankvoy/Asbachemvoy which shared the highest ranking for vessels/voyages 1 and 2. For vessel/voyage 3 the Bimchemvoy was again the highest ranked with the Asbatankvoy/Asbachemvoy the second highest. For vessels/voyages 4, 5 and 6 the Asbachemvoy/Asbatankvoy was the highest demurrage with the lowest ranking.

The next route that ranking of demurrage was carried out for, was for the RSA to North America route. Table 4.12 illustrates the ranking of demurrage for each Charterparty for the RSA to North America route.

Table 10.12: Ranking Of Demurrage For Each Route For Each Charterparty – RSA To North America

Route	RSA to North America	
Sum of Demurrage Vessel no	**Charterparty**	**Total**
1	Shellvoy 6	1
	BPVOY5	2
	Exxonmobilvoy 2012	3
	Bimchemvoy 2008	3
	Asbatankvoy/Asbachemvoy	4
2	BPVOY5	1
	Shellvoy 6	2
	Asbatankvoy/Asbachemvoy	3
	Exxonmobilvoy 2012	3
	Bimchemvoy 2008	3
3	BPVOY5	1
	Bimchemvoy 2008	2

	Shellvoy 6	2
	Exxonmobilvoy 2012	2
	Asbatankvoy/Asbachemvoy	3
4	Shellvoy 6	1
	BPVOY5	2
	Exxonmobilvoy 2012	3
	Asbatankvoy/Asbachemvoy	3
	Bimchemvoy 2008	3
5	BPVOY5	1
	Shellvoy 6	2
	Bimchemvoy 2008	3
	Exxonmobilvoy 2012	3
	Asbatankvoy/Asbachemvoy	4
6	Shellvoy 6	1
	BPVOY5	2
	Exxonmobilvoy 2012	3
	Bimchemvoy 2008	3
	Asbatankvoy/Asbachemvoy	4

Source: Compiled by the researcher from Appendix D.

For the RSA to North America route, the Asbachemvoy/Asbatankvoy ranked the lowest (highest demurrage) for four voyages and the Bimchemvoy 2008 for two voyages.

Again the Shellvoy6 and BPVOY5 shared the spot for the lowest demurrage ranked as 1 for three voyages each.

Following the RSA to North America route, the next route that ranking of demurrage was carried out for was for the RSA to North West Europe route. Table 4.13 shows the ranking of demurrage for each Charterparty for the RSA to North West Europe route. As explained earlier for this route there were only 11 total voyages for this route for the year and every alternate voyage was used in the study. As a result, there are only five voyages that were evaluated in the study.

Table 11.13: Ranking Of Demurrage For Each Route For Each Charterparty – RSA To North West Europe

Route	RSA to North West Europe	
Sum of Demurrage Vessel no	**Charterparty**	**Total**
1	BPVOY5	1
	Shellvoy 6	2
	Asbatankvoy/Asbachemvoy	3
	Exxonmobilvoy 2012	3
	Bimchemvoy 2008	4
2	BPVOY5	1
	Shellvoy 6	2
	Asbatankvoy/Asbachemvoy	3
	Exxonmobilvoy 2012	3
	Bimchemvoy 2008	3
3	BPVOY5	1
	Shellvoy 6	2
	Asbatankvoy/Asbachemvoy	3
	Exxonmobilvoy 2012	3
	Bimchemvoy 2008	3
4	BPVOY5	1
	Shellvoy 6	1
	Asbatankvoy/Asbachemvoy	2
	Exxonmobilvoy 2012	2
	Bimchemvoy 2008	3
5	Shellvoy 6	1
	BPVOY5	2
	Bimchemvoy 2008	3
	Exxonmobilvoy 2012	4
	Asbatankvoy/Asbachemvoy	5

Source: Compiled by the researcher from Appendix D.

As can be seen from Table 4.13, the Bimchemvoy 2008 and Asbachemvoy/Asbatankvoy Charterparties again were ranked last with Bimchemvoy 2008 for four voyages and one voyage respectively. The BPVOY5 Charterparty was ranked 1, four times and Shellvoy6 Charterparty one time.

From the calculations performed (Table 4.13) on every shipment for each route and each Charterparty, the results indicate that the BPVOY5 and Shellvoy6 rank either 1 or 2 for all the shipments regardless of route and therefore these two Charterparties offer the least demurrage exposure to charterer's since for these the lowest demurrage costs where

obtained. Conversely, the Charterparties offering the highest demurrage costs was the Bimchemvoy 2008 and Asbatankvoy/Asbachemvoy Charterparties.

4.5.4 Evaluation Of Shipments According To Their Laytime Implication

For any voyage there are various shipping activities which have provisions in the Charterparty of how these activities impact on laytime. These activities fall into three main categories: (1) time to count; (2) time not to count: (3) or half time to count. When evaluating the different Charterparties these activities were categorised accordingly.

These were evaluated for each shipment to determine the effects of laytime and demurrage provisions in existing voyage Charterparties on the demurrage calculation for chemical tankers and to identify areas that do not protect charterer's interests and expose them to demurrage. Here the delays were quantified in days. The important aspect is not the actual amount of the delay but that especially in cases where time is counted for certain activities, these represent a risk that exposes the charterer to demurrage.

These delays – time to count - are summarised in Table 4.14 that presents the delays quantified in terms of days for the period of delays where time counts.

Table 4.14: Delays: Time To Count

Laytime Implications	Time to count		
Sum of Days of Delay Delay	**Route**	**Charterparty**	**Total days of delay**
2nd berth shifting	**RSA to Far East**	Asbatankvoy/Asbachemvoy	0.52014
		Bimchemvoy2008	0.52014
		BPVOY5	0.52014
		Exxonmobilvoy 2012	0.52014
		Shellvoy 6	0.52014
	RSA to Far East Total		**2.60069**
	RSA to North America	Asbatankvoy/Asbachemvoy	1.87986
		Bimchemvoy2008	1.87986
		BPVOY5	1.87986
		Exxonmobilvoy 2012	1.87986
		Shellvoy 6	1.87986
	RSA to North America Total		**9.39931**
2nd berth shifting Total			**12.00000**
3rd berth shifting	**RSA to Far East**	Asbatankvoy/Asbachemvoy	1.82222
		Bimchemvoy2008	1.82222
		BPVOY5	1.82222
		Exxonmobilvoy 2012	1.82222
		Shellvoy 6	1.82222
	RSA to Far East Total		**9.11111**
	RSA to North America	Asbatankvoy/Asbachemvoy	0.38750
		Bimchemvoy2008	0.38750
		BPVOY5	0.38750
		Exxonmobilvoy 2012	0.38750
		Shellvoy 6	0.38750
	RSA to North America Total		**1.93750**
3rd berth shifting Total			**11.04861**
4th berth shifting	**RSA to Far East**	Asbatankvoy/Asbachemvoy	0.09375
		Bimchemvoy2008	0.09375
		BPVOY5	0.09375
		Exxonmobilvoy 2012	0.09375
		Shellvoy 6	0.09375
	RSA to Far East Total		**0.46875**
4th berth shifting Total			**0.46875**
awaiting 2nd berth	**RSA to Far East**	Asbatankvoy/Asbachemvoy	4.26875
		Bimchemvoy2008	4.26875
		BPVOY5	4.26875

		Exxonmobilvoy 2012	4.26875
		Shellvoy 6	4.26875
	RSA to Far East Total		**21.34375**
	RSA to North America	Asbatankvoy/Asbachemvoy	11.70903
		Bimchemvoy2008	11.70903
		BPVOY5	11.70903
		Exxonmobilvoy 2012	11.70903
		Shellvoy 6	11.70903
	RSA to North America Total		**58.54514**
awaiting 2nd berth Total			**79.88889**
awaiting 3rd berth	**RSA to Far East**	Asbatankvoy/Asbachemvoy	0.58056
		Bimchemvoy2008	0.58056
		BPVOY5	0.58056
		Exxonmobilvoy 2012	0.58056
		Shellvoy 6	0.58056
	RSA to Far East Total		**2.90278**
awaiting 3rd berth Total			**2.90278**
awaiting 4th berth	**RSA to Far East**	Asbatankvoy/Asbachemvoy	1.48472
		Bimchemvoy2008	1.48472
		BPVOY5	1.48472
		Exxonmobilvoy 2012	1.48472
		Shellvoy 6	1.48472
	RSA to Far East Total		**7.42361**
awaiting 4th berth Total			**7.42361**
Awaiting available berth	**RSA to Far East**	Asbatankvoy/Asbachemvoy	6.81944
		Bimchemvoy2008	6.81944
		BPVOY5	6.81944
		Exxonmobilvoy 2012	6.81944
		Shellvoy 6	6.81944
	RSA to Far East Total		**34.09722**
	RSA to India and Middle East	Asbatankvoy/Asbachemvoy	36.38264
		Bimchemvoy2008	37.97986
		BPVOY5	37.97986
		Exxonmobilvoy 2012	37.97986
		Shellvoy 6	37.96597
	RSA to India and Middle East Total		**188.28819**
	RSA to North America	Asbatankvoy/Asbachemvoy	20.09722
		Bimchemvoy2008	20.09722
		BPVOY5	20.09722

		Exxonmobilvoy 2012	20.09722
		Shellvoy 6	18.04722
	RSA to North America Total		**98.43611**
	RSA to North West Europe	Asbatankvoy/Asbachemvoy	2.56667
		Bimchemvoy2008	0.38542
		BPVOY5	2.56667
		Exxonmobilvoy 2012	2.56667
		Shellvoy 6	0.38542
	RSA to North West Europe Total		**8.47083**
Awaiting available berth Total			**329.29236**
Awaiting barge	**RSA to North West Europe**	Asbatankvoy/Asbachemvoy	0.31597
		Bimchemvoy2008	0.56597
		BPVOY5	0.31597
		Exxonmobilvoy 2012	0.31597
		Shellvoy 6	0.31597
	RSA to North West Europe Total		**1.82986**
Awaiting barge Total			**1.82986**
Awaiting daylight	**RSA to Far East**	Asbatankvoy/Asbachemvoy	0.90764
		Bimchemvoy2008	0.90764
	RSA to Far East Total		**1.81528**
Awaiting daylight Total			**1.81528**
Awaiting documentation after hoses disconnected	**RSA to India and Middle East**	Bimchemvoy2008	0.19097
		BPVOY5	0.09028
		Exxonmobilvoy 2012	0.19097
		Shellvoy 6	0.19097
	RSA to India and Middle East Total		**0.66319**
	RSA to North America	Bimchemvoy2008	0.02917
		Exxonmobilvoy 2012	0.02917
		Shellvoy 6	0.02917
	RSA to North America Total		**0.08750**
Awaiting documentation after hoses disconnected Total			**0.75069**
Awaiting Pilot	**RSA to India and Middle East**	Asbatankvoy/Asbachemvoy	0.44236
		Bimchemvoy2008	0.44236

	RSA to India and Middle East Total		**0.88472**
	RSA to North West Europe	Asbatankvoy/Asbachemvoy	0.03542
		Bimchemvoy2008	0.03542
	RSA to North West Europe Total		**0.07083**
Awaiting Pilot Total			**0.95556**
Fog	**RSA to North America**	Asbatankvoy/Asbachemvoy	0.45069
	RSA to North America Total		**0.45069**
Fog Total			**0.45069**
shifting 2nd berth	**RSA to Far East**	Asbatankvoy/Asbachemvoy	0.26181
		Bimchemvoy2008	0.26181
		BPVOY5	0.26181
		Exxonmobilvoy 2012	0.26181
		Shellvoy 6	0.26181
	RSA to Far East Total		**1.30903**
	RSA to North America	Asbatankvoy/Asbachemvoy	0.49375
		Bimchemvoy2008	0.49375
		BPVOY5	0.49375
		Exxonmobilvoy 2012	0.49375
		Shellvoy 6	0.49375
	RSA to North America Total		**2.46875**
shifting 2nd berth Total			**3.77778**
Thunderstorm	**RSA to North America**	Asbatankvoy/Asbachemvoy	0.03472
	RSA to North America Total		**0.03472**
Thunderstorm Total			**0.03472**
Weather delays	**RSA to North America**	Asbatankvoy/Asbachemvoy	0.01042
	RSA to North America Total		**0.01042**
Weather delays Total			**0.01042**

Source: Compiled by the researcher from Appendix D.

From Table 4.14 it is clear that all multiple shifting to additional berths count as used laytime for all Charterparties. For the North America and Far East routes, multiple berth discharge is done in New Orleans and Houston, Ulsan and Singapore. In some cases up to four berths are called at the same port. This is an area that does not protect charterer's interest.

Awaiting daylight for shifting (see Table 4.14) is commonly experienced in the Far East at some ports that do not allow shifting at night. The Asbatankvoy/Asbachemvoy and Bimchemvoy 2008 Charterparties do not have any provisions for this and therefore time counts for the charterer. These Charterparties also have no provisions for awaiting pilots which can be seen from Table 4.14.

Table 4.14 also shows that for delays after hoses are disconnected, only the Asbatankvoy and Asbachemvoy Charterparties have no provisions for this.

The period of congestion or awaiting an available berth as per Table 4.14, under all Charterparties counts as used laytime since it is an obligation of the charterer to provide a berth reachable on arrival. This is an extremely important consideration in ports that are notoriously congested and for which the vessel has to call to load or discharge product as this could mean high demurrage costs for the charterer

Under delays where time is to count, there are also delays where because laytime is already running as well as when the vessel is already on demurrage, time would count. Table 4.15 illustrates the delays of when time would count when laytime is already running. This is relevant to demonstrate in this manner since this specific occurrence only occurs for the Shellvoy6 Charterparty.

Table 12.15: Delays: Time To Count- Laytime Already Running

Laytime Implications Time to count-laytime already running			
Sum of Days of Delay **Delay**	**Route**	**Charterparty**	**Total days of delay**
Awaiting Pilot	**RSA to North West Europe** **RSA to North West Europe Total**	Shellvoy 6	0.0354 **0.0354**
Awaiting Pilot Total			**0.0354**
Thunderstorm	**RSA to North America** **RSA to North America Total**	Shellvoy 6	0.0347 **0.0347**
Thunderstorm Total			**0.0347**
Weather delays	**RSA to North America** **RSA to North America Total**	Shellvoy 6	0.0104 **0.0104**
Weather delays Total			**0.0104**

Source: Compiled by the researcher from Appendix D.

For weather related delays, which can be seen from Table 4.3, the Asbatankvoy and Asbachemvoy Charterparties only have provisions when the weather delay is a storm which has a strict definition according to English Law of a wind force having wind speed of 10 knots in the Beaufort scale (Schofield, 2005). Therefore anything other than a storm counts as laytime. Table 4.3 also illustrates that for Shellvoy6 delays that are weather related are bad weather, tidal conditions, ice and will only be excluded from laytime if it prevents the vessel from berthing. When laytime is already running these exceptions count as used laytime. This can further be seen in Table 4.14 since time counts for weather related delays for the Asbatankvoy/Asbachemvoy Charterparties and in Table 4.15 where these weather delays count since laytime is already running for the Shellvoy6 Charterparty.

The other category of delays where time would count because the vessel is already on demurrage is illustrated in Table 4.16. The relevance to show this is because this occurs only for the Asbatankvoy/Asbachemvoy Charterparties.

Table 13.16: Delays: Time To Count- Vessel Already On Demurrage

Laytime Implications	time to count-vessel already on demurrage		
Sum of Days of Delay **Delay**	**Route**	**Charterparty**	**Total days of delay**
Channel Closure Dredging	**RSA to North America**	Asbatankvoy/Asbachemvoy	0.3382
	RSA to North America Total		**0.3382**
Channel Closure Dredging Total			**0.3382**
Fog	**RSA to North America**	Asbatankvoy/Asbachemvoy	1.2535
	RSA to North America Total		**1.2535**
Fog Total			**1.2535**
shifting	**RSA to Far East**	Asbatankvoy/Asbachemvoy	0.2292
	RSA to Far East Total		**0.2292**
	RSA to India and Middle East	Asbatankvoy/Asbachemvoy	0.6153
	RSA to India and Middle East Total		**0.6153**
	RSA to North America	Asbatankvoy/Asbachemvoy	0.7222
	RSA to North America Total		**0.7222**
shifting Total			**1.5667**
Vessel Engine Problems	**RSA to India and Middle**	Asbatankvoy/Asbachemvoy	0.2236

	East		
	RSA to India and Middle East Total		**0.2236**
Vessel Engine Problems Total			**0.2236**

Source: Compiled by the researcher from Appendix D.

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The principle of "once on demurrage, always on demurrage" applies only to the Asbatankvoy and Asbachemvoy Charterparties. This means that if a vessel is already on demurrage any exceptions to laytime would not apply. There are certain exceptions that prevent laytime counting but not demurrage. These include but not limited to shifting, vessel delays caused by breakdown or inefficiency of vessel, weather delays and is illustrated in table 4.16.

The next category of discussion is for exceptions where half time is to count as used laytime. Table 4.17 presents the exceptions of when half time is to count for the different routes under certain exceptions.

Table 414.17: Delays: Half Time To Count

Laytime Implications	Half time to count		
Sum of Days of Delay			
Delay	**Route**	**Charterparty**	**Total days of delay**
Bad Weather-Gale force wind	**RSA to India and Middle East**	Asbatankvoy/Asbachemvoy	0.3194
		Bimchemvoy2008	0.3194
		BPVOY5	0.3194
		Exxonmobilvoy 2012	0.3194
	RSA to India and Middle East Total		**1.2778**
Bad Weather-Gale force wind Total			**1.2778**
Berth closure due to urgent maintenance	**RSA to North America**	Asbatankvoy/Asbachemvoy	0.7083
		Bimchemvoy2008	0.7083
		BPVOY5	0.7083
		Exxonmobilvoy 2012	0.7083
		Shellvoy 6	0.7083
	RSA to North America Total		**3.5417**
Berth closure due to urgent maintenance Total			**3.5417**
Burst nitrogen pipe	**RSA to Far East**	Asbatankvoy/Asbachemvoy	0.0781

		Bimchemvoy2008	0.0781
		BPVOY5	0.0781
		Exxonmobilvoy 2012	0.0781
		Shellvoy 6	0.0781
	RSA to Far East Total		**0.3906**
Burst nitrogen pipe Total			**0.3906**
Channel Closure Dredging	**RSA to North America**	Bimchemvoy2008	0.1691
		BPVOY5	0.1691
		Exxonmobilvoy 2012	0.1691
	RSA to North America Total		**0.5073**
Channel Closure Dredging Total			**0.5073**
Electricity/Power failure	**RSA to North West Europe**	Asbatankvoy/Asbachemvoy	0.0469
		Bimchemvoy2008	0.0469
		BPVOY5	0.0469
		Exxonmobilvoy 2012	0.0469
		Shellvoy 6	0.0469
	RSA to North West Europe Total		**0.2344**
Electricity/Power failure Total			**0.2344**
Fog	**RSA to North America**	Bimchemvoy2008	0.8521
		BPVOY5	0.8521
		Exxonmobilvoy 2012	0.8521
	RSA to North America Total		**2.5562**
Fog Total			**2.5562**
Shore pump problem	**RSA to North America**	Asbatankvoy/Asbachemvoy	0.3229
		Bimchemvoy2008	0.3229
		BPVOY5	0.3229
		Exxonmobilvoy 2012	0.3229
		Shellvoy 6	0.3229
	RSA to North America Total		**1.6146**
Shore pump problem Total			**1.6146**
term power failure	**RSA to India and Middle East**	Asbatankvoy/Asbachemvoy	0.2764
		Bimchemvoy2008	0.2764
		BPVOY5	0.2764
		Exxonmobilvoy 2012	0.2764
	RSA to India and Middle East Total		**1.1056**
term power failure Total			**1.1056**
Thunderstorm	**RSA to North America**	Bimchemvoy2008	0.0174
		BPVOY5	0.0174

		Exxonmobilvoy 2012	0.0174
	RSA to North America Total		**0.0521**
Thunderstorm Total			**0.0521**
Weather delays	**RSA to North America**	Bimchemvoy2008	0.0052
		BPVOY5	0.0052
		Exxonmobilvoy 2012	0.0052
	RSA to North America Total		**0.0156**
Weather delays Total			**0.0156**
Grand Total			**11.2958**

Source: Compiled by the researcher from Appendix D.

From Table 4.17, it is interesting to note that for all the delays where there was a breakdown of equipment at the shore or terminal, half the time counts. This was for delays such as port closure due to maintenance, terminal power failure, shore pump failure, burst nitrogen pipe, electricity/power failure.

For weather related delays-delays; such as gale, fog, thunderstorm and general weather, delays count as half time for Bimchemvoy 2008, BPVOY5, Exxonmobilvoy 2012 Charterparties. From Table 4.17, it can be seen that for Shellvoy6 Charterparty these types of weather delays are excluded in full, only if it is prevented from berthing and laytime is not running. Asbachemvoy and Asbatankvoy only benefited from half time counting for gale force. A gale force is considered as greater than a storm on the Beufort scale (Irwin,2013), which is shown in Table 4.3, a storm is an exception to laytime running and therefore a worse weather phenomenon in the same class would also benefit from this exception.

The last category for the exceptions is for when time does not count as laytime and these delays which fall into this category is shown in Table 4.18.

Table 4.18- Delays: Not To Count

Laytime Implications	Not to count		
Sum of Days of Delay			**Total days of delay**
Delay	**Route**	**Charterparty**	
Awaiting daylight	**RSA to Far East**	BPVOY5	0.9076
		Exxonmobilvoy 2012	0.9076
		Shellvoy 6	0.1202
	RSA to Far East Total		**1.9354**
Awaiting daylight Total			**1.9354**
Awaiting Pilot	**RSA to India and Middle**	BPVOY5	0.4424

	East		
		Exxonmobilvoy 2012	0.4424
		Shellvoy 6	0.4423
	RSA to India and Middle East Total		**1.3271**
	RSA to North West Europe	BPVOY5	0.0354
		Exxonmobilvoy 2012	0.0354
	RSA to North West Europe Total		**0.0708**
Awaiting Pilot Total			**1.3979**
Bad Weather-Gale force wind	**RSA to India and Middle East**	Shellvoy 6	0.6389
	RSA to India and Middle East Total		**0.6389**
Bad Weather-Gale force wind Total			**0.6389**
Channel Closure Dredging	**RSA to North America**	Shellvoy 6	0.3382
	RSA to North America Total		**0.3382**
Channel Closure Dredging Total			**0.3382**
COC Inspection	**RSA to North America**	Asbatankvoy/Asbachemvoy	0.9646
		Bimchemvoy2008	0.9646
		BPVOY5	0.9646
		Exxonmobilvoy 2012	0.9646
		Shellvoy 6	0.9645
	RSA to North America Total		**4.8229**
COC Inspection Total			**4.8229**
Engine Problems	**RSA to India and Middle East**	Bimchemvoy2008	0.2236
		BPVOY5	0.2236
		Exxonmobilvoy 2012	0.2236
		Shellvoy 6	0.2236
	RSA to India and Middle East Total		**0.8944**
Engine Problems Total			**0.8944**
Fog	**RSA to North America**	Shellvoy 6	0.4507
	RSA to North America Total		**0.4507**
Fog Total			**0.4507**
Manifold sample failure	**RSA to North West Europe**	Asbatankvoy/Asbachemvoy	2.1910
		Bimchemvoy2008	2.1910
		BPVOY5	2.1910
		Exxonmobilvoy 2012	2.1910

		Shellvoy 6	2.1910
	RSA to North West Europe Total		**10.9550**
Manifold sample failure Total			**10.9550**
Pro rata time awaiting berth	**RSA to North West Europe**	Bimchemvoy2008	0.2731
		Shellvoy 6	0.2731
	RSA to North West Europe Total		**0.5462**
Pro rata time awaiting berth Total			**0.5462**
Shifting	**RSA to Far East**	Asbatankvoy/Asbachemvoy	0.8083
		Bimchemvoy2008	0.8083
		BPVOY5	0.8083
		Exxonmobilvoy 2012	0.8084
		Shellvoy 6	0.8084
	RSA to Far East Total		**4.0417**
	RSA to India and Middle East	Asbatankvoy/Asbachemvoy	0.1736
		Bimchemvoy2008	0.1736
		BPVOY5	0.1736
		Exxonmobilvoy 2012	0.1736
		Shellvoy 6	0.1737
	RSA to India and Middle East Total		**0.8681**
	RSA to North America	Asbatankvoy/Asbachemvoy	0.0958
		Bimchemvoy2008	0.0958
		BPVOY5	0.0958
		Exxonmobilvoy 2012	0.0959
		Shellvoy 6	0.0959
	RSA to North America Total		**0.4792**
Shifting Total			**5.3888**
shifting	**RSA to Far East**	Asbatankvoy/Asbachemvoy	1.1285
		Bimchemvoy2008	1.3576
		BPVOY5	1.5904
		Exxonmobilvoy 2012	1.3576
		Shellvoy 6	1.3576
	RSA to Far East Total		**6.7917**
	RSA to India and Middle East	Asbatankvoy/Asbachemvoy	0.9146
		Bimchemvoy2008	1.5299
		BPVOY5	1.5299
		Exxonmobilvoy 2012	1.5298
		Shellvoy 6	1.5298
	RSA to India and Middle		**7.0340**

	East Total		
	RSA to North America	Asbatankvoy/Asbachemvoy	2.0750
		Bimchemvoy2008	3.0389
		BPVOY5	2.9597
		Exxonmobilvoy 2012	3.0389
		Shellvoy 6	3.0465
	RSA to North America Total		**14.1590**
	RSA to North West Europe	Asbatankvoy/Asbachemvoy	0.3083
		Bimchemvoy2008	0.3083
		BPVOY5	0.3154
		Exxonmobilvoy 2012	0.3083
		Shellvoy 6	0.3083
	RSA to North West Europe Total		**1.5486**
shifting Total			**29.5333**
term power failure	**RSA to India and Middle East**	Shellvoy 6	0.2764
	RSA to India and Middle East Total		**0.2764**
term power failure Total			**0.2764**
Grand Total			**57.1781**

Source: Compiled by the researcher from Appendix D

From Table 4.18 it can be seen that BPVOY5, Exxonmobilvoy 2012, Shellvoy 6 have provisions for instances when there is delays in awaiting daylight and awaiting pilot. Delays for gale force wind is covered under the Shellvoy6 Charterparty and it is important to note that since this delay occurs before laytime began to run, the entire period can be excluded whereas for other Charterparties only half time can be deducted. It is notable then that it is for these reasons that there is a lower demurrage cost since less laytime is used because of these provisions and in turn higher rank.

From Table 4.18 it is clear that shifting and any delays due to a vessel's breakdown or inefficiency does not count as used laytime for all Charterparties unless the vessel is already on demurrage for the Asbatankvoy/Asbachemvoy Charterparties. It is only the Bimchemvoy 2008 and Shellvoy6 Charterparties that have a clause that includes pro rata of time awaiting a berth amongst all charterers loading/discharging at that particular berth. This is of importance as the time awaiting a berth should be shared by all charterers calling the same berth.

There are other consequences as a result of the provisions in the Shellvoy 6 Charterparty where certain exceptions would not count in full before laytime begins to run and the vessel

is at anchorage. This applies to delays caused by fog and awaiting daylight which is presented in Table 4.19. Here again the time in full does not count as used laytime.

North America does seem to have more delays since there are considerations such as COC inspections, channel dredging and fog which are common to those areas.

Table 15.19- Delays: Not To Count-At Anchorage

Laytime Implications	Not to count-at anchorage		
Sum of Days of Delay **Delay**	**Route**	**Charterparty**	**Total days of delay**
Awaiting daylight	**RSA to Far East**	Shellvoy 6	0.7875
	RSA to Far East Total		**0.7875**
Awaiting daylight Total			**0.7875**
Fog	**RSA to North America**	Shellvoy 6	1.2535
	RSA to North America Total		**1.2535**
Fog Total			**1.2535**
Grand Total			**2.0410**

Source: Compiled by the researcher from Appendix D.

4.6 EFFECTS OF RECOMMENDED ADDITIONAL CLAUSES

The following additional clauses are presented and discussed. These include: (1) loading when all tanks are not ready; (2) despatch; (3) Conoco weather clause; and (4) shifting between multiple berths. Early loading clause could not be evaluated because none of the vessels arrived before her laycan.

4.6.1 Loading When All Tanks Are Not Ready

For the RSA to North West Europe route, the vessel arrives in the load port without all tanks being available and ready for loading since the vessel has to discharge and clean tanks and then load.

To illustrate the benefit of looking at the effective overall time for loading this approach was applied to calculate laytime for the first vessel for this route, for the loading in Durban since it is only at the first loading port that this is applicable. This is illustrated in Table 4.20.

When applying the principle of using the effective time taken when loading in such cases, the total laytime is the longest time for parcels to complete loading, where time ends at hoses disconnected. Since Product D (Table 4.20) is the parcel which took the longest to load, the total time counting for charterers should be this time of 51:45 and adding time

awaiting berth of 7:35 this becomes a total of 59:20. The same value was obtained from first tank ready which would be of the benefit of Owners. If however, for product D (Table 4.20), the tanks were presented last (at the same time as Product G for example), then the values would be much lower. From last tank ready benefits charterers with a much lower laytime for charterers. The principle of loading when all tanks not ready is to have laytime allocated to the charterer for the actual time that their cargo was worked and in this way benefiting both parties from the practical benefit of loading in available tanks instead of waiting for all tanks to be ready.

Table 4.20 below illustrates an example of when all tanks are not ready and loading occurs on the tanks that are ready and available. Here the total time is calculated in the load port (Durban) for vessel 1 for the RSA to North West Europe route. This time includes the congestion period and the loading of each individual product (Product A to Product I). The total Durban Time (loading when all tanks not ready) is about 60 hrs (59 hours, 20min) and for Total Durban Time (from first tank ready) the same result is achieved. The Total Durban Time (from last tank ready) is about 45hrs (44hours, 20min).

Table 16.20- Loading When All Tanks Are Not Ready

Vessel 1	
NOR Tendered	2014/01/16 20:10
All fast	2014/01/17 11:00
Shifting	2014/01/17 09:45
Awaiting berth	7:35:00

	Product A	Product B	Product C	Product D	Product E	Product F	Product G	Product H	Product I
NOR Tendered	2014/01/19 21:00	2014/01/19 10:00	2014/01/19 06:00	2014/01/19 06:00	2014/01/19 06:00	2014/01/19 21:00	2014/01/19 21:00	2014/01/19 10:00	2014/01/19 06:00
Time Start	2014/01/19 21:00	2014/01/19 10:00	2014/01/19 06:00	2014/01/19 06:00	2014/01/19 06:00	2014/01/19 21:00	2014/01/19 21:00	2014/01/19 10:00	2014/01/19 06:00
Hoses disconnected	2014/01/20 13:00	2014/01/20 02:30	2014/01/20 09:05	2014/01/21 09:45	2014/01/20 01:25	2014/01/20 18:05	2014/01/20 19:30	2014/01/20 00:20	2014/01/20 04:15
	16:00:00	16:30:00	27:05:00	51:45:00	19:25:00	21:05:00	22:30:00	14:20:00	22:15:00
Vessel Delays from			2014/01/19 06:00						
Vessel Delays to			2014/01/19 08:50						
	0:00:00	0:00:00	2:50:00	0:00:00	0:00:00	0:00:00	0:00:00	0:00:00	0:00:00
Total	**16:00:00**	**16:30:00**	**24:15:00**	**51:45:00**	**19:25:00**	**21:05:00**	**22:30:00**	**14:20:00**	**22:15:00**
Total Durban	59:20:00								

Time (loading when all tanks not ready)	
Total Durban Time (from first tank ready)	59:20:00
Total Durban Time (from last tank ready)	44:20:00

Source: Compiled by the researcher from Appendix D.

4.6.2 Despatch

In applying 50% demurrage rate for voyages where time used was less than time allowed; it is found that about 16-29% of total demurrage incurred can be recovered in cases where time used is less that time allowed. The benefit of this is that the vessel completes her voyage earlier, due to efficient operations by the charterer and thus positioning her in good time for her next voyage, meaning more potential of revenue earnings for the owner. Charterers benefit with an overall reduction in their total demurrage.

Table 4.21 presents the total demurrage amount in negative and positive values for each route and each Charterparty. The negative amount is the time saving (despatch) and the positive is demurrage incurred.

Table 4.21- Sum of Demurrage or Despatch

Sum of Demurrage or Despatch Charterparty	Route	Total
Asbatankvoy/Asbachemvoy	RSA to Far East	-$106 668.82
	RSA to India and Middle East	$841 731.35
	RSA to North America	$1 017 209.98
	RSA to North West Europe	-$484 164.27
Asbatankvoy/Asbachemvoy Total		**$1 268 108.25**
Bimchemvoy 2008	RSA to Far East	-$113 231.32
	RSA to India and Middle East	$828 481.35
	RSA to North America	$958 012.07
	RSA to North West Europe	-$473 919.54
Bimchemvoy 2008 Total		**$1 199 342.56**
BPVOY5	RSA to Far East	-$303 772.98
	RSA to India and Middle East	$743 439.68
	RSA to North America	$877 303.73
	RSA to North West Europe	-$610 226.77
BPVOY5 Total		**$706 743.67**
Exxonmobilvoy 2012	RSA to Far East	-$140 460.48
	RSA to India and Middle East	$815 210.52
	RSA to North America	$958 012.07
	RSA to North West Europe	-$485 226.77
Exxonmobilvoy 2012 Total		**$1 147 535.33**
Shellvoy 6	RSA to Far East	-$307 981.32
	RSA to India and Middle East	$722 127.18
	RSA to North America	$839 626.65
	RSA to North West Europe	-$602 565.38
Shellvoy 6 Total		**$651 207.14**
Grand Total		**$4 972 936.95**

Source: Compiled by the researcher from Appendix D.

For the RSA to Far East and RSA to North West Europe routes, under every Charterparty the total demurrage is a negative amount meaning a time saving or possible despatch amount.

By only including the total despatch amount and comparing it with the total actual demurrage for each route the results on Table 4.22 is achieved.

Table 4.22- Despatch as a Percentage of Actual Demurrage

Charterparty	Total Actual Demurrage	Despatch	% Despatch as a percentage of Actual Demurrage
Asbatankvoy/Asbachemvoy	$1 858 941.33	-$295 416.54	16%
Bimchemvoy 2008	$1 786 493.42	-$293 575.43	16%
BPVOY5	$1 620 743.42	-$456 999.88	28%
Exxonmobilvoy 2012	$1 773 222.58	-$312 843.63	18%
Shellvoy 6	$1 561 753.83	-$455 273.35	29%

Source: Compiled by the researcher from Appendix D.

Including such a clause allowing any unused laytime saved be calculated at half demurrage rate represents between 16-29% of total actual demurrage incurred.

4.6.3 Conoco Weather Clause

A typical Conoco weather clause would be such that delays in berthing for loading or discharging or any delays after berthing which are due to weather conditions shall count as half laytime or, if on demurrage, at one half demurrage rate.

Incorporating this clause for the case study the following results presented in Table 4.23, were obtained.

Table 4.23- Conoco Weather Clause

Days of delay	Charterparty				
	BPVOY5	Asbatankvoy Asbachemvoy	Bimchemvoy2008	Exxonmobilvoy2012	Shellvoy6
Bad Weather-Gale force wind	0.32	0.32	0.32	0.32	0.64
Fog	0.85	1.7	0.85	0.85	1.7
Thunderstorm	0.02	0.03	0.02	0.02	0.03
Weather delays	0.01	0.01	0.01	0.01	0.01
Grand Total	1.2	2.06	1.2	1.2	2.38
Demurrage rate ($/day)	30 000	30000	30000	30000	30000
Total Demurrage	$18 000	$30 900	$18 000	$18 000	$35 700

Source: Compiled by the researcher from Appendix D.

The Table 4.23 represents all the weather related delays in days for all the shipments. For the BPVOY5, Bimchemvoy 2008 and Exxonmobilvoy a further saving of USD 18,000 can be achieved, for the Asbatankvoy/Asbachemvoy USD 30,900 and Shellvoy6 USD 35,700 based

on their current provisions. Therefore, incorporating this clause would mean additional savings on the demurrage cost for all Charterparties.

4.6.4 Shifting Between Multiple Berths

Time counting for shifting for all the Charterparties under this study is for charterers account.

Should it be stipulated in a clause that time for shifting to agreed additional berths in the same port should not count as used laytime or demurrage, the following savings in demurrage will ensue. These savings are outlined in Table 4.24.

Table 417.24- Shifting Between Multiple Berths

Sum of Days of Delay **Route**	**Delay**	**Total days of delay**
RSA to Far East	2nd berth shifting	0.52
	3rd berth shifting	1.82
	4th berth shifting	0.09
RSA to Far East Total		**2.43**
RSA to North America	2nd berth shifting	1.88
	3rd berth shifting	0.39
RSA to North America Total		**2.27**
Grand Total		**4.70**
Demurrage Rate/day		**30000.00**
Shifting to additional berth saving FE		**$ 72 900.00**
Shifting to additional berth saving NA		**$ 68 100.00**
Total saving		**$ 141 000.00**

Source: Compiled by the researcher from Appendix D.

4.7 SUMMARY OF AREAS THAT DO NOT PROTECT CHARTERERS

During the study a number of operational events where identified whereby there are no provisions in the Charterparties that protect charterers for such events. These operational events were selected as they were found to be common operational activities present in the case study.

Table 4.25 illustrates the areas or operational events which do not protect charterers' interest and expose them to demurrage according to the corresponding Charterparty.

Table 4.25- Operational Events that do not Protect Charterers

Operation	Charterparty
Multiple berth discharge	All
Awaiting daylight	Asbatankvoy, Asbachemvoy, Bimchemvoy 2008
Awaiting pilots	Asbatankvoy, Asbachemvoy, Bimchemvoy 2008
Weather delays	Fog, thunderstorm, general weather delays not covered under Asbatankvoy, Asbachemvoy which only cover storm.
Exceptions not including both laytime and demurrage	Only Asbachemvoy and Asbatankvoy, principle of “once on demurrage, always on demurrage”
Pro rata awaiting time for berth amongst all charterers	Asbatankvoy, Asbachemvoy, Exxonmobilvoy 2012, BPVOY5

Source: Compiled by the researcher from Asbatankvoy, Asbachemvoy, Bimchemvoy 2008 Charterparties

It is clear from Table 4.25 that Asbatankvoy and Asbachemvoy Charterparties expose charterers to the majority of the identified areas that expose charterers to demurrage. All Charterparties do not have provisions for multiple berth discharge or shifting between berths. Usually the cost of shifting is either borne by the charterer or owner however the actual time for shifting is for the charterers account.

As can be seen from Table 4.25, the Bimchemvoy2008 and Shellvoy6 Charterparties are the only Charterparties that have provisions for pro-rating awaiting time for berth in cases where the vessel loads or discharges for more than one charterer. This is an important consideration since if there are more than one charterer they all should share in the congestion period when the berth is occupied by other vessels upon arrival at a berth.

The only weather related delay that is covered under the Asbatankvoy and Asbachemvoy Charterparties is storm which according to the Beufort scale has a wind speed of 10 knots. Therefore if ports are closed or operations are stopped for safety reasons when the weather condition is anything other than this, time will count for the charterer.

4.8 CONCLUSION

In this study insight was provided on the provisions of the existing voyage Charterparties in terms of laytime and demurrage. We had evaluated laytime exceptions/interruptions whereby time counts, does not count or half time counts for the different Charterparties as well as when laytime commences and ends for each of these Charterparties.

One of the findings is that for the Asbatankvoy and Asbachemvoy Charterparties the laytime and demurrage provisions are the same. Also the weather related exceptions are limited to just a storm. The Shellvoy6 and BPVOY5 provide a complicated and detailed stipulation of when laytime commences.

Another finding is that the time for shifting which occurs in multiple berth discharge is common for some of the routes used in the study and none of the Charterparties have any considerations in this regard.

In the next concluding chapter, an overview of each chapter is presented and for each objective of this study, the main findings, recommendation and conclusion is provided.

CHAPTER 5: CONCLUSION AND RECOMMENDATION

5.1 INTRODUCTION

The previous chapters dealt with the introduction and background to the study; the literature review, the methodology design employed in this study, and the results and discussion of the study.

The purpose of this concluding chapter is to discuss the overview of the chapters, how the objectives were achieved in the study and any recommendations, limitations of the study as well as propose opportunities for future research.

5.2 REVISITING THE OBJECTIVES OF THE STUDY

The purpose of the study was to achieve the following objectives:

1. To provide insight into the meaning of the provisions of the existing Voyage Charterparties in terms of laytime and demurrage.
2. To explore challenges associated when using existing voyage Charterparties in the chemical tanker environment.
3. To determine the effects of laytime and demurrage provisions in existing voyage Charterparties on the demurrage calculation for chemical tankers.
4. To identify areas that do not protect charterer's interests and expose them to demurrage.
5. To determine whether including additional clauses may address these areas where Charterers are exposed to demurrage.
6. To identify which of the existing Charterparties under investigation offer the least exposure to demurrage with and without the inclusion of additional clauses.

5.3. MAIN RESEARCH QUESTION

1. What are the laytime and demurrage implications and meaning in existing voyage Charterparties?
2. What are the challenges associated when using existing voyage Charterparties in the chemical tanker industry?
3. What is the effect of laytime and demurrage provisions in existing voyage Charterparties?
4. What are the areas in the existing voyage Charterparties that do not sufficiently protect the Charterers interests in the chemical tanker environment and offer the greatest demurrage exposure?

5. Will the inclusion of additional clauses address these areas and offer to limit the demurrage exposure?
6. Which of the existing voyage Charterparties under investigation offer the least exposure to demurrage with and without the inclusion of additional clauses?

Having answered the research questions and achieved the research objectives, it can be concluded that the optimal Charterparty for shipping of chemicals in bulk would be the Shellvoy6 or BPVOY5 in that these Charterparties offer the least demurrage exposure.

5.4 CONCLUSIONS AND RECOMMENDATIONS

This section presents an overview of the main findings presented in the previous chapter. The discussion is based on the research questions and objectives. The objectives were derived from the research questions. Each objective is dealt with separately.

5.4.1 Objective 1: To provide insight into the meaning of the provisions of the existing Voyage Charterparties in terms of laytime and demurrage.

The objective of providing insight into the meaning of the provisions of the existing Voyage Charterparties in terms of laytime and demurrage was achieved. Each Charterparty was evaluated in terms of when laytime commences and ends, together with any exceptions. The exceptions or interruptions to laytime and demurrage were also considered and compared for its similarities and differences in each of the Charterparties.

The results are tabulated with reference to the clauses in the Charterparties. This enables easy reference to each provision as well as provides structure since the manner that each Charterparty is written is different. This structure enables the focus and identification of only the relevant themes present in the individual Charterparties related to laytime and demurrage, and a better understanding of the provisions contained in the Charterparties. It is therefore recommended in order to gain insight into the provisions of a Charterparty that a structure with the inclusion of themes be applied as it would allow the simplification and extraction of the relevant information related to laytime and demurrage only.

5.4.2 Objective 2: To explore challenges associated when using existing voyage Charterparties in the chemical tanker environment.

The exploration of the challenges associated when using existing voyage Charterparties in the chemical tanker environment was achieved. The main challenge when using existing voyage Charterparties in the chemical tanker environment lies in the unique differences in

the loading operation whereby extensive tank cleaning, special testing of tanks pertaining to the type of product being loaded, inerting and blanketing of tanks is only required for the chemical tanker trade but not as extensive for the oil and petroleum trade. Risk of contamination of product is common for high grade chemicals and the same level of risk does not exist for the oil and petroleum trades. Also in the oil trade, a few grades in large volumes are loaded on a vessel. In the chemical trade, there are many different grades loaded on a single vessel and each product may have varying requirements to load without degradation of the product. Existing Charterparties usually do not have considerations for loading when all tanks are not ready to load, but some tanks are ready. Practically waiting for all tanks to be ready is not feasible due to additional time spent in the berth, which is of no benefit to both charterers and owners.

The recommendation is that a clause be included to allow tanks to be loaded as they become ready, and the net effect of the loading operation computed as time counting for the charterer.

In this way less time is spent in the berth, which will benefit both parties and charterers as they will not be prejudiced by delays in preparing tanks for loading, whilst some tanks are loading.

5.4.3 Objective 3: To determine the effects of laytime and demurrage provisions in existing voyage Charterparties on the demurrage calculation for chemical tankers

The effects of laytime and demurrage provisions in existing voyage Charterparties on the demurrage calculation for chemical tankers was determined. A demurrage calculation designed by the researcher for each of the shipments in the case study was carried out applying the different Charterparties. From the demurrage calculation the actual amount of demurrage was determined which gives an indication of the demurrage exposure for the same voyage. By comparing the different values for each Charterparty, the Charterparty that offered the least exposure was identified. This was found to be for the Charterparty where the demurrage amount was the lowest. For all routes it was found that the Shellvoy6 and BPVOY5 Charterparties offered the lowest demurrage exposure since they were ranked with the least two demurrage amounts. This was as a result of the clauses incorporated in these particular Charterpartes that provided for a laytime deduction or exclusion from the calculation whereas the other Charterparties did not have such provisions and therefore could not benefit from a laytime deduction.

The recommendation is that the Shellvoy6 and BPVOY5 Charterparties be used for the chemical tanker as the optimal Charterparties that offer least demurrage exposure.

5.4.4 Objective 4: To explore challenges associated when using existing voyage Charterparties in the chemical tanker environment.

The areas that do not protect charterer's interests and expose them to demurrage were identified. The main areas or operational events found in the study were tabulated in Table 4.25. These were multiple berth discharge, awaiting daylight, awaiting pilots, and certain weather delays, exceptions not including laytime and demurrage, pro rata awaiting time for berth amongst all charterers.

The Asbatankvoy and Asbachemvoy Charterparties do not have any of the above provisions whilst the other Charterparties have most of these provisions. The other very important consideration for the Asbatankvoy and Asbachemvoy Charterparties is the "once on demurrage, always on demurrage" principle applies here since certain exceptions are not extended to demurrage. Therefore, if the vessel is already on demurrage the benefit of these exceptions cannot be claimed by the charterer. If the Charterparty chosen does not include a clause that provides for the above occurrences, then additional clauses need to be included to cover same.

It is recommended that Asbatankvoy and Asbachemvoy Charterparties not be used as suitable Charterparties as is since for these areas of delay, they are silent and therefore many additional clauses have to be incorporated to cover these risks. The Shellvoy6 and BPVOY5 should rather be considered as suitable Charterparties since they cover most of the areas with the exception of the BPVOY5 not covering cases whereby more than one charterer is loading or discharging at a particular berth and the time awaiting berth or congestion period should be pro-rated amongst all charterers.

5.4.5 Objective 5: To determine whether including additional clauses may address these areas where Charterers are exposed to demurrage.

By including additional clauses, the areas where Charterers are exposed to demurrage were addressed. The additional clauses that were recommended were;

- Loading when all tanks are not ready
- Despatch
- Conoco Weather Clause
- Shifting between multiple berths

The impact of using a clause for instances when loading occurs before all tanks are presented is beneficial to both charterer and owner because of the practical benefit in the amount of time that can be saved. The net effect of loading is considered only as laytime counting against the charterer. In this way the charterer is not prejudiced by having time counting against him when the delay is due to owners.

By including a despatch clause where 50% of time saved is refunded to the charterer is an incentive to enable a quick turnaround at ports which is mainly for the Owners benefit. This will enable the Owner to have ample time to be positioned for his next charterer. In addition, where operations are efficient in certain ports, the charterer can share in this benefit with the monetary compensation.

The Conoco weather clause will cover weather related delays whereby the time for that period will count as half laytime and demurrage. This clause can be added if the Charterparty of choice does not have any provisions or limited provisions for weather related delays.

For certain routes, it was found that the vessel calls at multiple berths at the same port and none of the Charterparties have any provisions for laytime and demurrage for the period of shifting between these berths. If it is relevant to the type of shipment involved in, it will be useful to include such a clause.

5.4.6 Objective 6: To identify which of the existing Charterparties under investigation offer the least exposure to demurrage with and without the inclusion of additional clauses

The Charterparties that offer the most exposure to demurrage is Asbatankvoy and Asbachemvoy. Including additional clauses to enhance these Charterparties will aid in increasing the demurrage exposure for charterers. Even though by adding additional clauses to address areas that do not protect charterers' interests can be done, it is recommended to rather use existing Charterparties where these areas are already addressed. It is advisable to get advice from a maritime legal expert when drafting these additional clauses. The reason for this is that the intended interpretation may not be same as interpreted by the court of law.

5.5 LIMITATIONS OF THE STUDY

The limitations of this study are: (1) that available laytime was determined by considering the calculated time only; and (2) allowed laytime is deemed to be reversible in that time saved in one port will be used to offset time used in another port.

With regards to the Charterparties under investigation, these are limited to;

- ASBATANKVOY
- ASBACHEMVOY
- BPVOY5
- SHELLVOY6
- EXXONMOBILVOY2008
- BIMCHEMVOY 2008

Furthermore the trade lanes which are used in the case study are limited to:

- RSA to India and Middle East
- RSA to Far East
- RSA to North America
- RSA to North West Europe

The case studies were for the shipments of chemicals from Sasol South Africa. The shipments for each of these trade lanes were monitored over a 12month period from January to December 2014. However, because of time constraints, the demurrage calculation was only performed on every alternate voyage. There are approximately 9-12 voyages on each trade lane for the 12 month period and six voyages/vessels were used in the study for all routes except for RSA to North West Europe which had 11 voyages, therefore five voyages/vessels were used.

Clauses that were evaluated and analysed in detail were those related to:

1. Notice of Readiness
2. Exceptions to laytime
3. Laytime Commencement

5.6 ASSUMPTIONS

When contracting for carriage of goods in shipping using Charterparties, there are certain variables that need to be agreed on between the parties contracting and specified in the Charterparty in order to be able to determine whether demurrage is to be charged or not.

Therefore certain control assumptions were used when calculating the demurrage. These are;

- The law applicable is English Law.
- The vessel arrives within her laycan at the earliest time to commence laytime as stipulated in the Charterparty.

- Demurrage rate is $30 000/day.
- Laytime allowed is 150/150 meaning that for loading the laytime allowed calculated is the tonnage loaded divided by 150 and for discharging the laytime allowed is the tonnage discharged divided by 150.

5.7 FUTURE RESEARCH

This study focussed on the clauses affecting laytime and demurrage for each of the different Charterparties. There is no study undertaken that takes into consideration the applicability of the entire Charterparty on the effectiveness of protecting charterers interest in the chemical tanker trade. In the recent years, legislation has been introduced to govern the safe transportation of hazardous bulk liquid cargo by sea. The requirements that the vessel has to adhere to are not always specified in the Charterparties. For instance, IMO and vetting requirements as well as SOLAS are examples of such regulation.

The laytime and demurrage exposure in a Charterparty is an important consideration when choosing a specific Charterparty for the shipping venture. However, this is not the only consideration. Should a Charterparty be evaluated in its entirety for its feasibility of application in the chemical tanker environment, it may provide better insight into the protection of charterer's rights and risk exposure in this trade.

5.8 CONCLUSION

In this study insight was provided on the provisions of the existing voyage Charterparties in terms of laytime and demurrage. Laytime exceptions/interruptions were evaluated with regard to *time counts*, *time does not count or half time counts* for the different Charterparties as well as when laytime commences and ends for each of these Charterparties.

The main challenge for chemical tankers are the in cases where all tanks are not ready upon arrival and tanks still have to be cleaned prior to be presented for loading whilst some tanks are ready. Practically it makes no sense for both the owner and charterers to only commence loading and in essence the start of laytime when NOR has been tendered when all tanks are ready, because of time lost in already congested ports.

The effects of the laytime and demurrage provisions in existing voyage Charterparties were computed in a demurrage calculation. It was found that the Shellvoy6 and BPVOY5 Charterparties offer the least exposure to demurrage, since for these Charterparties the demurrage cost calculated was the lowest. This was constant for all routes.

The Asbatankvoy and Asbachemvoy Charterparties are the only Charterparties whereby the principle of “once on demurrage, always on demurrage” can be enforced since their exceptions are not extended to demurrage but only laytime and therefore if the vessel is already on demurrage time would still count as used laytime for such exceptions.

The areas that do not protect charterer’s interest include multiple berth discharge, awaiting daylight, awaiting pilots, weather delays and pro rata of awaiting time for berth amongst all charterers calling the same berth. Including additional clauses to address these areas have resulted in additional savings for demurrage and therefore, if included would benefit all the Charterparties that were included in this study.

LIST OF REFERENCES

ASDEM (2003). *Asdem News Update - No. 21: January 2003* [WWW] Available from; http://asdemasia.com/index.php?cmd=005011 [Accessed 22/09/2016]

ASDEM (2010). *Asdem News Update - No. 43: May 2010* [WWW] Available from; http://www.asdem.co.uk/index.cfm/newsletters/view/id/26 [Accessed 22/09/2016]ASPRAGKATHOU,D (2005) *A critical analysis of the requirements for the commencement of laytime in voyage Charterparties*, Unpublished thesis (Phd), School of Law, University of Birmingham

BAUGHEN, S. (2015). *Shipping Law.* 6th Edition. London and New York: Routledge.

BAXTER P AND JACK S. (2008). Qualitative Case Study Methodology: Study Design and Implementation for Novice Researchers . *The Qualitative Report*, *13*(4), 544-559

BIMCO (2008). *BIMCHEMVOY 2008: Voyage Charter Party for the Transportation of Chemicals in Tank Vessels Revised* [WWW] https://www.bimco.org/`/media/Chartering/Document_Samples/Voyage_Charter_Parties/Explanatory_Notes_BIMCHEMVOY_2008.ashx [Accessed 30/01/2015]

BOYD, SC et al. (1996). *Scrutton on Charterparties.* 20th edition. London:Thomson Professional Pub Cn.

BLT CHEMBULK GROUP (January 2011). *The Role of the Chemical Tanker in Everyday Life*[WWW]. Available from: http://www.cmaconnect.com/Jan%202011%20CMA%20Chem%20Tank%20Presentation.pdf [Accessed 30/01/2015].

BRAUN V. AND CLARKE V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3: 77– 101.

BUDGEN (2012). *Demurrage Claims under Voyage Charterparties* [WWW] Available from: http://www.forwarderlaw.com/library/view.php?article_id=841 [Accessed 16/04/2014].

CHEMICAL TANKER GUIDE (n.d) *Chemical Tankers* [WWW] Available from: http://www.chemicaltankerguide.com/types.html [Accessed 13/03/2014].

COOKE, J. YOUNG, T. TAYLOR, A. KIMBALL, J. MARTOWSKI, D. LAMBERT, L (2014). *Voyage Charters.* 4th Edition. London: Informa Professional.

CHAPMAN, K. (1991). *The international petrochemical industry. Evolution and location*. Oxford: Blackwell.

ANDERSON,C (1975). *Time and voyage charters: proceeding to*

Loading port, loading, and related problems. Tulane Law Review 1974-1975.

DAVIES, D. (2006). *Commencement of Laytime*. 4th edition. London: Informa.

DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND TOURISM (2005). *South African National Profile-2002-2005* (2005) *A comprehensive assessment of the national infrastructure relating to the legal, administrative and technical aspects of chemicals management in South Africa* .Hatfield :Siyaya Publishing

DHAWAN, S. (2010). *Research Methodology for Business and Management Studies*. 1st Edition. Delhi: Swastik Publishers and Distributors.

DIGITAL JOURNAL (September 2012). *Erika Oil Disaster — France's top court upholds Total conviction* [WWW] Available from: http://digitaljournal.com/article/333666 [Accessed 3/04/2014]

FORWARDERLAW.COM (August 2012) *Demurrage Claims under Voyage Charterparties by Paul Bugden* [WWW]. Available from: http://www.forwarderlaw.com/library/view.php?article_id=841 [Accessed: 2/04/2014]

GLOBAL BUSINESS REPORTS 2013). *Special Report on South Africa.* [WWW] Global Business Reports. Available from: http://www.gbreports.com/admin/reports/south_african_chemicals2013.pdf [Accessed 14/03/2014]

GOODRICK, D. (2014). Comparative Case Studies Methodological Briefs: Impact Evaluation 9, UNICEF Office of Research, Florence.

GREENER, S. (2008). *Business Research Methods*. 1st Edition. Ventus :Publishing ApS.

HARE, J. (2009). *Shipping Law and Admiralty Jursidiction in South Africa*. 6th Edition: Juta and Co.

HOFSTEE, E. (2006). *Constructing a Good Dissertation: A Practical Guide to finishing a Master's, MBA or PhD on Schedule.* Johannesburg South Africa :EPE

IRWIN, D (2013). ASDEMS Advanced demurrage workshop. In: *Advanced demurrage workshop, Cape Town, September 2013*. Cape Town: pp.5-10

KOTHARI, CR. (2004). *Research Methodology: Methods and Techniques*. 2nd Revised Edition. New Delhi:New Age International (P) Ltd.

LAW AND SEA (June 2013). *Charterers Duties: Obligation to load and later to dishcarge the goods* [WWW]. Available from: http://www.lawandsea.net/CP_Voy/Charterparty_Voyage-Charterers_Duties_Toloadcargo.html [Accessed 2/04/2014)]

LENCK, ERIC (1999). *When things go wrong:Shore/ship breakdown, explosion, collision, strike and boycott* [WWW] BIMCO Tanker Seminar, New York, Available from : http://www.freehill.com/articles/MLP233/DEMURRAGE_Article.pdf [Accessed 14/08/2014]

LEXIS NEXIS (2006). *Sasol Ltd and Others/Engen Ltd and Others (2006)1CPLR 189 (CT)* [WWW] Available from: http://www.mylexisnexis.co.za/nxt/gateway.dll?f=templates$fn=default.htm$vid=mylnb:10.1048/enu [Accessed 28/03/2014]

MBENDI (n.d) *Chemicals in South Africa* [WWW] Available from: http://www.mbendi.com/indy/chem/af/sa/p0005.htm [Accessed 16/04/2014]

MCNEIL P, CHAPMAN S. (2005). *Research Methods*. 3rd Edition. London and New York: Routledge.

MILLS M, VAN DER BUNT G, DE BRUIJN J (2006). International Sociology Vol. 21 No. 5, Comparative Research: Persistent Problems and Promising Solutions

MURPHY, H and TENOLD, S (2000). *Strategies, market concentration and hegemony in chemical parcel tanker shipping, 1960–1985* :National Maritime Museum, Greenwich, London, UK; Economic History, Norwegian School of Economics and Business Administration, Bergen, Norway.

NASIRIAN, Y (2013). *Revisions in the concept of commencement of laytime and demurrage-Laytime and demurrage clauses in international sale contract*', Unpublished thesis (Masters), Faculty of Law, Lund University.

NEUMAN, W.L .(2011). *Social Research Methods: Qualitative and Quantitative Approaches*. 7th Edition. London:Pearson.

SASOL FACTS 12/13 (2013). *Sasol Facts 12/13,* South Africa*:* Sasol Limited.

SAUNDERS M, et al. (2012). *Research Methods for Business Students.* 6th Edition. London: Pearson Education Limited.

SCHOFIELD, J. (2005). *Laytime and Demurrage.* 5th edition. London: Informa.

SINGH, L. (2011). *The Law of Carriage of Goods by Sea.* 1st Edition. West Sussex: Bloomsbury Professional Limited.

SOCIETY OF MARITIME ARBITRATORS (2017). *The Arbitrator-Volume 47 | Number 1 | February 2017* [WWW] Available from: http://www.smany.org/pdf/Vol47_No1_Feb2017.pdf [Accessed 18/07/2017]

STOPFORD, M .(2009). *Maritime Economics*. 3rd Edition. London and New York: Routledge

SEKARAN, U and BOUGIE, R. (2013). *Research Methods for Business: A skill-building approach*. 6th Edition. New York:John Wiley and Sons Ltd.

SOUTH AFRICA.INFO (n.d) *Manufacturing in South Africa* [WWW]. Available from: http://www.southafrica.info/business/economy/sectors/manufacturing.htm [Accessed 14/03/2014]

SOUTH AFRICA.INFO (November 2012). *South Africa's Chemical Industry* [WWW]. Available from: http://www.southafrica.info/business/economy/sectors/chemical-sector.htm [Accessed 14/03/2014]

SOUTHAFRICAHOUSEUK (n.d) *Entry into BRIC will propel SA to new heights* [WWW] Available from: http://southafricahouseuk.com/documents/bric.pdf [Accessed 17/04/2014]

THE PORTS REGULATOR (2013). *Sasol submission to Port Regulator-Dec 2012* [WWW] Available from: http://www.portsregulator.org/images/documents/Sasol-Submission_Port_Regulator_Dec_2012_-_Final_LH.pdf [Accessed 1/04/2014]

STEAMSHIP MUTUAL (1999). *Notice of readiness* [WWW] Available from: https://www.steamshipmutual.com/publications/Articles/Articles/Notice_Readiness_1.asp

[Accessed 2/06/2015]

STEAMSHIP MUTUAL (2003). *Voyage Charter - Notice of Readiness and Laytime Exceptions* [WWW] Available from: https://www.steamshipmutual.com/publications/Articles/Articles/04_VoyChart_NOR_Laytime.asp [Accessed 20/09/2016]

STEAMSHIP MUTUAL (2012). *Charterers' Obligation to Discharge Cargo - Frustration, Causation and Demurrage* [WWW] Available from:

https://www.steamshipmutual.com/publications/Articles/DGM1212.htm [Accessed 20/09/2016]

TANRIVERDI (n.d) *The Commerical and Legal Signficance of Laytime and Demurrage in English Law and the New Turkish Commercial Code* [WWW] Available from: http://www.hg.org/article.asp?id=24183 [Accessed 16/04/2014]

TIBERG, H. (2013). *The law of demurrage.* 5th Edition. Sweet & Maxwell. London:Thomson Reuters

THOMAS,D.R. (2006). The safe port promise of charterers from the perspective of the English common law. *Singapore Academy of Law Journal,* 18 (97) pp 602

UNCTAD (2013). *Review of Maritime Transport*. New York and Geneva: United Nations Publication

VOROPAEVA, E. KHAMAZA, E. AND KHAMAZA, I. (2012). *Economic assessment of commercial conditions for tanker voyage charter party*. Asia-Pacific Journal of Marine Science & Education, Vol. no 2. (No 1./2012), Pages 85-92

WILSON, JF. (2010). *Carriage of goods by Sea*. 7th edition. New York: Pearson Education Limited.

WELMAN, C, KRUGER, F & MITCHELL, B. (2007). *Research Methodology*. 3rd Edition. Cape Town: Oxford University Press.

YIN, R. (2009). *Case Study Research: Design and Methods.* 4th Edition. Thousand Oaks. CA: Sage Publications.

ZWARTE, Z. (2007). *There is so much more in Laytime: A layman's guide to laytime.* Ireland: Arklow Co. Wicklow.

APPENDIX A: ETHICAL CLEARANCE LETTER

UNIVERSITY OF KWAZULU-NATAL
INYUVESI YAKWAZULU-NATALI

15 October 2015

Mrs Christine Padayachee (201296032)
School of Management, IT & Governance
Westville Campus

Dear Mrs Padayachee,

Protocol reference number: HSS/1010/015M
Project title: Laytime and Demurrage implications in Voyage Charterparties for Chemical Tankers: A case study at Sasol

Full Approval – Expedited Application

In response to your application received on 03 August 2015, the Humanities & Social Sciences Research Ethics Committee has considered the abovementioned application and the protocol have been granted **FULL APPROVAL.**

Any alteration/s to the approved research protocol i.e. Questionnaire/Interview Schedule, Informed Consent Form, Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through the amendment/modification prior to its implementation. In case you have further queries, please quote the above reference number.

PLEASE NOTE: Research data should be securely stored in the discipline/department for a period of 5 years.

The ethical clearance certificate is only valid for a period of 3 years from the date of issue. Thereafter Recertification must be applied for on an annual basis.

I take this opportunity of wishing you everything of the best with your study.

Y[redacted]
.....
D[redacted] **(Chair)**

/ms

Cc Supervisor: Dr Micheline Naude
Cc Academic Leader Research: Professor Brian McArthur
Cc School Administrator: Ms Angela Pearce

Humanities & Social Sciences Research Ethics Committee
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APPENDIX B: CONSENT LETTER

UNIVERSITY OF
KWAZULU-NATAL

17 October 2014

TO WHOM IT MAY CONCERN,

PERMISSION TO CONDUCT RESEARCH

Mrs Christine Padayachee is a registered Masters student at the University of KwaZulu-Natal. Her topic is:

"*Laytime and Demurrage Implications in Voyage Charterparties for Chemical Tankers: A Case Study of Sasol, South Africa.*"

The study seeks to achieve the following objectives:

- To understand what the meaning is of the provisions of existing Voyage Charterparties in terms of laytime and demurrage.
- To explore challenges associated when using existing voyage Charterparties in the chemical tanker environment.
- To determine the effects of laytime and demurrage provisions in existing voyage Charterparties on the demurrage calculation for chemical tankers.
- To identify areas that does not protect charterer's interests and expose them to demurrage.
- To determine whether including additional clauses may address these areas where Charterers are exposed to demurrage.
- To identify which of the existing Charterparties under investigation offer the least exposure to demurrage with and without the inclusion of additional clauses.

I would appreciate it if you could allow Mrs Padayachee to conduct her study using information generated from the shipment of chemicals from South Africa. She will be imploring documentary analysis of this documentation and using this information to perform a demurrage calculation. The period under study in for 12 months from January

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Telephone: +27 (0)33 260 6181 **Facsimile:** +27 (0)33 260 5219 **E-mail:** saudem@ukzn.ac.za

2014-December 2014. She is presently employed as a demurrage specialist at Sasol and details of all calculations and information used in this study will be provided should you request. Sensitive information like product names and customer details will not be used and replaced with arbitrary names. This information is also not significant for the research.

If you agree to allow Mrs Padayachee to conduct her study at your plant, please could you sign the next page of this letter.

On behalf of the School of Management, Information Technology and Governance and Mrs Padayachee, I would greatly appreciate it if you would be willing to provide Mrs Padayachee authorisation to use your shipping information, in order for her to complete her studies

Yours faithfully

[redacted]

MICHELINE NAUDE (PROF)
School of Management, Information Technology and Governance
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This is to confirm that Mrs Padayachee may/~~may not~~ conduct her study at

[redacted]

I. R. MABHEKA
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12/05/2015
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APPENDIX C: DEMURRAGE CALCULATION TEMPLATE

DEMURRAGE CALCULATION			
Charterparty			**Asbatankvoy**
Vessel Name			**Fairchem Friendship 19**
Route			**RSA to India and Middle East**
Demurrage rate/day			$30 000 00
Load/Discharge Rate			150/150
Total Tonnage			11 517 95
CP Laytime (Hrs)			153:34 22
Laycan			
LOADPORT 1	DURBAN		
NOR Tendered			01-02-14 12:00
Vessel Anchored			01-02-14 12:00
All Fast / NOR Valid			06-02-14 00:42
NOR Valid			01-02-14 12:00
Laytime commences			01-02-14 18:00
Hoses disconnected			07-02-14 12:35
Documentation on board			07-02-14 15:00
Hoses disconnected to Documentation on board[hh:mm]			2:25:00
Additional laytime due to late documentation			07-02-14 14:35
Laytime ends			07-02-14 15:00
Gross Laytime	Hrs		***139:00:00***
Deductions	From	To	
Shifting	05-02-14 21:30	06-02-14 00:42	3:12:00
Deductions Total			***3:12:00***
Net Laytime @ Load Port			135:48:00
LOADPORT 2	RICHARDS BAY		
NOR Tendered			08-02-14 03:30
Vessel Anchored			08-02-14 03:42
All Fast / NOR Valid			08-02-14 16:12
NOR Valid			08-02-14 03:42
Laytime commences			08-02-14 09:42
Hoses disconnected			09-02-14 16:25
Documentation on board			09-02-14 16:25
Hoses disconnected to Documentation on board[hh:mm]			0:00:00
Additional laytime due to late documentation			09-02-14 16:25
Laytime ends			09-02-14 16:25
Gross Laytime	Hrs		***30:43:00***
Deductions	From	To	
Shifting	08-02-14 14:24	08-02-14 16:12	1:48:00
Terminal power failure(half time)	08-02-14 03:42	08-02-14 10:20	3:19:00
Deductions Total			***5:07:00***
Net Laytime @ Load Port			25:36:00
DISPORT 1	KANDLA		
NOR Tendered			24-02-14 05:06
Vessel Anchored			24-02-14 05:06
All Fast / NOR Valid			24-02-14 08:48
NOR Valid			24-02-14 05:06
Laytime commences			24-02-14 08:48
Hoses disconnected			25-02-14 16:30
Documentation on board			25-02-14 16:30
Hoses disconnected to Documentation on board[hh:mm]			0:00:00
Additional laytime due to late documentation			25-02-14 16:30
Laytime ends			25-02-14 16:30
Gross Laytime	Hrs		***31:42:00***
Deductions	From	To	
			0:00:00
Deductions Total			***0:00:00***
Net Laytime @ Load Port			31:42:00
DISPORT 2	JEBEL ALI		
NOR Tendered			28-02-14 22:00
Vessel Anchored			28-02-14 22:00
All Fast / NOR Valid			01-03-14 00:54
NOR Valid			28-02-14 22:00
Laytime commences			01-03-14 00:54
Hoses disconnected			01-03-14 23:20
Documentation on board			01-03-14 23:30
Hoses disconnected to Documentation on board[hh:mm]			0:10:00
Additional laytime due to late documentation			01-03-14 23:20
Laytime ends			01-03-14 23:20
Gross Laytime	Hrs		***22:26:00***
Deductions	From	To	
			0:00:00
Deductions Total			***0:00:00***
Net Laytime @ Load Port			22:26:00
TOTAL ACTIVITY SUMMARY			
Loadport 1 (Total Laytime)	DURBAN		135:48:00
Loadport 2 (Total Laytime)	RICHARDS BAY		25:36:00
Disport 1 (Total Laytime)	KANDLA		31:42:00
Disport 2 (Total Laytime)	JEBEL ALI		22:26:00
Total Net Laytime			215:32:00
Allowed Laytime			153:34:22
Demurrage			2 581693892
			$77 450.82

APPENDIX D: ANALYSIS OF DEMURRAGE SPREADSHEET

Vessel	Port	Delay	Laytime Implications	Days of Del	Comment
Fairchem Friendship 19	Durban	shifting	Not to count	0.133333333	
Fairchem Friendship 19	Durban	Awaiting available berth	Time to count	4.145833333	
Fairchem Friendship 19	Durban	Awaiting documentation after hoses disconnected	Time to count	0.017361114	>2hrs after hoses disconnected time counts-awaiting documentation
Fairchem Friendship 19	Richards Bay	shifting	Not to count	0.075	
Fairchem Friendship 19	Richards Bay	term power failure	Not to count	0.276388889	usually half time to count but vessel was inaccessibile due to awaiting pilot
Fairchem Friendship 19	Richards Bay	Awaiting Pilot	Not to count	0.169444444	Awaiting pilot-Not to count under Shellvoy6
Chemstar Seven 97	Kandla	Awaiting available berth	Time to count	1.284722222	
Chemstar Seven 97	Kandla	Shifting	Not to count	0.118055556	
Chemstar Seven 97	Jebel Ali	Shifting	Not to count	0.055555556	
Fairchem Eagle 22	Durban	Awaiting Pilot	Not to count	0.127083333	Awaiting pilot-Not to count under Shellvoy6
Fairchem Eagle 22	Durban	shifting	Not to count	0.120833333	
Fairchem Eagle 22	Richards Bay	shifting	Not to count	0.125	
Fairchem Eagle 22	Richards Bay	Bad Weather-Gale force wind	Not to count	0.638888889	Bad weather provisions
Fairchem Eagle 22	Richards Bay	Awaiting Pilot	Not to count	0.145833333	Awaiting pilot-Not to count under Shellvoy6
Fairchem Eagle 22	Kandla	shifting	Not to count	0.145833333	
Fairchem Eagle 22	Kandla	Awaiting documentation after hoses disconnected	Time to count	0.125000003	>2hrs after hoses disconnected time counts-awaiting documentation
Fairchem Eagle 22	Kandla	Awaiting available berth	Time to count	1.841666667	
Ivory Ray 2	Durban	Awaiting available berth	Time to count	9.590277778	
Ivory Ray 2	Durban	shifting	Not to count	0.114583333	
Ivory Ray 2	Kandla	shifting	Not to count	0.125	
Ivory Ray 2	Kandla	Awaiting available berth	Time to count	4.597222222	
Ivory Ray 2	Durban	Awaiting documentation after hoses disconnected	Time to count	0.048611114	>2hrs after hoses disconnected time counts-awaiting documentation
Fairchem Silver 19	Durban	Awaiting available berth	Time to count	5.475	
Fairchem Silver 19	Durban	shifting	Not to count	0.2	
Fairchem Silver 19	Kandla	shifting	Not to count	0.045833333	
Fairchem Silver 19	Kandla	Engine Problems	Not to count	0.223611111	
Fairchem Silver 19	Kandla	Awaiting available berth	Time to count	1.441666667	
Chemstar Jewel 25	Durban	Awaiting available berth	Time to count	6.464583333	
Chemstar Jewel 25	Durban	shifting	Not to count	0.177083333	
Chemstar Jewel 25	Richards Bay	shifting	Not to count	0.128472222	
Chemstar Jewel 25	Richards Bay	Awaiting available berth	Time to count	1.725694444	
Chemstar Jewel 25	Kandla	shifting	Not to count	0.138888889	
Chemstar Jewel 25	Kandla	Awaiting available berth	Time to count	1.399305556	
Fairchem Sword 4	Richards Bay	Thunderstorm	Time to count-laytime alread	0.034722222	Bad weather provisions only prevents laytime running if laytime running time counts
Fairchem Sword 4	New Orleans	Fog	Not to count	0.450694444	Bad weather provisions at anchorage
Fairchem Sword 4	New Orleans	shifting	Not to count	0.478472222	
Fairchem Sword 4	New Orleans	COC Inspection	Not to count	0.306944444	
Fairchem Sword 4	New Orleans	2nd berth shifting	Time to count	0.246527778	
Fairchem Sword 4	Freeport	shifting	Not to count	0.081944444	
Fairchem Sword 4	Freeport	Awaiting available berth	Time to count	0.251388889	
Fairchem Sword 4	Houston	Awaiting available berth	Time to count	1.354166667	
Fairchem Sword 4	Houston	shifting	Not to count	0.316666667	
Fairchem Sword 4	Houston	2nd berth shifting	Time to count	0.241666667	
Chemstar Jewel 17	Durban	shifting	Not to count	0.183333333	
Chemstar Jewel 17	Durban	Awaiting available berth	Time to count	1.504166667	
Chemstar Jewel 17	Freeport	shifting	Not to count	0.034722222	
Chemstar Jewel 17	Houston	Awaiting available berth	Time to count	0.152777778	
Chemstar Jewel 17	Houston	shifting	Not to count	0.229166667	
Chemstar Jewel 17	Houston	2nd berth shifting	Time to count	0.204166667	
Chemstar Jewel 17	Houston	awaiting 2nd berth	Time to count	1.750694444	
Fairchem Yuka 30	Durban	shifting	Not to count	0.084722222	
Fairchem Yuka 30	Durban	Awaiting available berth	Time to count	1.477777778	
Fairchem Yuka 30	Richards Bay	shifting	Not to count	0.088888889	
Fairchem Yuka 30	Richards Bay	Awaiting available berth	Time to count	0.081944444	
Fairchem Yuka 30	New Orleans	shifting	Not to count	0.234722222	
Fairchem Yuka 30	New Orleans	Awaiting available berth	Time to count	1.723611111	
Fairchem Yuka 30	New Orleans	2nd berth shifting	Time to count	0.048611111	
Fairchem Yuka 30	New Orleans	Awaiting available berth	Time to count	0.959722222	
Fairchem Yuka 30	New Orleans	COC inspection	Not to count	0.520138889	
Fairchem Yuka 30	New Orleans	Weather delays	Time to count-laytime alread	0.010416667	Bad weather provisions only prevents laytime running if laytime running time counts
Fairchem Yuka 30	Freeport	shifting	Not to count	0.091666667	
Fairchem Yuka 30	Houston	shifting	Not to count	0.208333333	
Fairchem Yuka 30	Houston	Awaiting available berth	Time to count	1.729166667	
Fairchem Yuka 30	Houston	2nd berth shifting	Time to count	0.25	
Fairchem Yuka 30	Houston	awaiting 2nd berth	Time to count	2.073611111	
Fairchem Maverick 21	Durban	shifting	Not to count	0.045833333	
Fairchem Maverick 21	Durban	Shore pump problem	Half time to count	0.322916667	Breakdown of machinery shore-half time Shellvoy 6
Fairchem Maverick 21	New Orleans	shifting	Not to count	0.058333333	
Fairchem Maverick 21	New Orleans	2nd berth shifting	Time to count	0.225	
Fairchem Maverick 21	New Orleans	3rd berth shifting	Time to count	0.3875	
Fairchem Maverick 21	Houston	shifting	Not to count	0.020833333	
Fairchem Maverick 21	Houston	awaiting 2nd berth	Time to count	2.479166667	
Fairchem Maverick 21	Houston	2nd berth shifting	Time to count	0.23125	
Fairchem Sabre 15	Durban	shifting	Not to count	0.104166667	
Fairchem Sabre 15	Durban	Berth closure due to urgent maintenance	Half time to count	0.708333333	Berth Closure due to maintenance-half time
Fairchem Sabre 15	Durban	Awaiting available berth	Time to count	4.368055556	
Fairchem Sabre 15	Durban	Awaiting documentation after hoses disconnected	Time to count	0.02916667	>2hrs after hoses disconnected time counts-awaiting documentation
Fairchem Sabre 15	New Orleans	shifting	Not to count	0.113888889	
Fairchem Sabre 15	New Orleans	Awaiting available berth	Time to count	0.611111111	
Fairchem Sabre 15	New Orleans	2nd berth shifting	Time to count	0.203472222	
Fairchem Sabre 15	Freeport	Awaiting available berth	Time to count	0.254166667	
Fairchem Sabre 15	Freeport	shifting	Not to count	0.091666667	
Fairchem Sabre 15	Houston	shifting	Not to count	0.216666667	
Fairchem Sabre 15	Houston	Awaiting available berth	Time to count	1.554166667	
Fairchem Sabre 15	Houston	awaiting 2nd berth	Time to count	1.518055556	
Fairchem Sabre 15	Houston	2nd berth shifting	Time to count	0.229166667	
Fairchem Friesian 55	Durban	Awaiting available berth	Time to count	1.641666667	
Fairchem Friesian 55	Durban	Shifting	Not to count	0.095833333	
Fairchem Friesian 55	New Orleans	shifting	Not to count	0.120833333	
Fairchem Friesian 55	New Orleans	COC inspection	Not to count	0.1375	
Fairchem Friesian 55	New Orleans	shifting 2nd berth	Time to count	0.272916667	
Fairchem Friesian 55	Houston	shifting	Not to count	0.241666667	
Fairchem Friesian 55	Houston	Channel Closure Dredging	Not to count	0.338194444	
Fairchem Friesian 55	Houston	Fog	Not to count-at anchorage	1.128472222	Bad weather provisions only prevents laytime running if laytime running time counts
Fairchem Friesian 55	Houston	Fog	Not to count-at anchorage	0.125	Bad weather provisions only prevents laytime running if laytime running time counts
Fairchem Friesian 55	Houston	Awaiting available berth	Time to count	0.383333333	
Fairchem Friesian 55	Houston	awaiting 2nd berth	Time to count	3.8875	
Fairchem Friesian 55	Houston	shifting 2nd berth	Time to count	0.220833333	
Stolt Virtue 50	Singapore	awaiting 2nd berth	Time to count	2.232638889	
Stolt Virtue 50	Singapore	shifting 2nd berth	Time to count	0.163194444	
Stolt Virtue 50	Map Ta Phut	shifting	Not to count	0.060416667	
Stolt Virtue 50	Ulsan	Shifting	Not to count	0.066666667	
Stolt Virtue 50	Ulsan	awaiting 2nd berth	Time to count	0.618055556	
Stolt Virtue 50	Ulsan	shifting 2nd berth	Time to count	0.051388889	
Stolt Virtue 50	Xiaohudao	Awaiting daylight	Not to count-at anchorage	0.108333333	Awaiting Daylight only prevents laytime running if laytime running time counts
Stolt Virtue 51	Durban	Awaiting available berth	Time to count	1.521527778	
Stolt Virtue 51	Durban	shifting	Not to count	0.136805556	
Stolt Virtue 51	Richards Bay	Awaiting available berth	Time to count	0.654166667	
Stolt Virtue 51	Richards Bay	shifting	Not to count	0.116666667	

Stolt Virtue 51	Richards Bay	Burst nitrogen pipe	Half time to count	0.078125	Breakdown of machinery shore-half time Shellvoy 6
Stolt Virtue 51	Map Ta Phut	shifting	Not to count	0.097222222	
Stolt Virtue 51	Singapore	shifting	Not to count	0.0375	
Stolt Virtue 51	Singapore	2nd berth shifting	Time to count	0.132638889	
Stolt Virtue 51	Xiaohudao	Awaiting daylight	Not to count-at anchorage	0.0875	Awaiting Daylight only prevents laytime running if laytime running time counts
Stolt Virtue 51	Xiaohudao	shifting	Not to count	0.25	
Stolt Virtue 51	Taichung	shifting	Not to count	0.045833333	
Stolt Virtue 51	Taichung	Awaiting available berth	Time to count	0.204166667	
Stolt Virtue 51	Ulsan	awaiting 2nd berth	Time to count	0.416666667	
Stolt Zulu 61	Singapore	Awaiting available berth	Time to count	0.25	
Stolt Zulu 61	Singapore	shifting	Not to count	0.075	
Stolt Zulu 61	Singapore	awaiting 2nd berth	Time to count	0.173611111	
Stolt Zulu 61	Singapore	2nd berth shifting	Time to count	0.0625	
Stolt Zulu 61	Map ta Phut	Awaiting available berth	Time to count	0.040277778	
Stolt Zulu 61	Map ta Phut	shifting	Not to count	0.059027778	
Stolt Zulu 61	Xiaohudao	Awaiting daylight	Not to count-at anchorage	0.466666667	Awaiting Daylight only prevents laytime running if laytime running time counts
Stolt Zulu 61	Xiaohudao	shifting	Not to count	0.247916667	
Stolt Zulu 61	Ulsan	shifting 2nd berth	time to count	0.047222222	
Stolt Zulu 61	Ulsan	awaiting 2nd berth	Time to count	0.291666667	
Stolt Zulu 61	Singapore-2n	shifting	Not to count	0.09375	
Stolt Zulu 61	Singapore-2n	Awaiting available berth	Time to count	0.256944444	
Stolt Zulu 62	Durban	shifting	Not to count	0.229166667	
Stolt Zulu 62	Durban	Awaiting available berth	Time to count	3.311111111	
Stolt Zulu 62	Singapore	shifting	Not to count	0.061111111	
Stolt Zulu 62	Singapore	awaiting 2nd berth	Time to count	0.246527778	
Stolt Zulu 62	Singapore	2nd berth shifting	Time to count	0.076388889	
Stolt Zulu 62	Singapore	awaiting 3rd berth	Time to count	0.045833333	
Stolt Zulu 62	Singapore	3rd berth shifting	Time to count	0.061805556	
Stolt Zulu 62	Singapore	awaiting 4th berth	Time to count	1.484722222	
Stolt Zulu 62	Singapore	4th berth shifting	Time to count	0.09375	
Stolt Zulu 62	Xiaohudao	Awaiting daylight	Not to count-at anchorage	0.125	Awaiting Daylight only prevents laytime running if laytime running time counts
Stolt Zulu 62	Xiaohudao	shifting	Not to count	0.229166667	
Stolt Zulu 63	Singapore	awaiting 2nd berth	Time to count	0.076388889	
Stolt Zulu 63	Singapore	2nd berth shifting	Time to count	0.097222222	
Stolt Zulu 63	Singapore	awaiting 3rd berth	Time to count	0.256944444	
Stolt Zulu 63	Singapore	3rd berth shifting	Time to count	0.121527778	
Stolt Zulu 63	Ulsan	awaiting 2nd berth	Time to count	0.070833333	
Stolt Zulu 63	Ulsan	2nd berth shifting	Time to count	0.050694444	
Stolt Zulu 64	Singapore	awaiting 2nd berth	Time to count	0.128472222	
Stolt Zulu 64	Singapore	2nd berth shifting	Time to count	0.048611111	
Stolt Zulu 64	Singapore	awaiting 3rd berth	Time to count	0.1875	
Stolt Zulu 64	Singapore	3rd berth shifting	Time to count	1.569444444	
Stolt Zulu 64	Map Ta Phut	Awaiting available berth	Time to count	0.58125	
Stolt Zulu 64	Map Ta Phut	shifting	Not to count	0.081944444	
Stolt Zulu 64	Xiaohudao	Awaiting daylight	Not to count	0.120138889	Awaiting Daylight only prevents laytime running if laytime running time counts
Stolt Zulu 64	Xiaohudao	shifting	Not to count	0.277777778	
Stolt Zulu 64	Ulsan	awaiting 2nd berth	Time to count	0.013888889	
Stolt Zulu 64	Ulsan	2nd berth shifting	Time to count	0.052083333	
Stolt Zulu 64	Ulsan	awaiting 3rd berth	Time to count	0.090277778	
Stolt Zulu 64	Ulsan	3rd berth shifting	Time to count	0.069444444	
Jo Sequoia 73	Durban	Awaiting available berth	Time to count	0.315972222	
Jo Sequoia 73	Durban	shifting	Not to count	0.052083333	
Jo Sequoia 75	Le Havre	Awaiting available berth	Time to count	0.069444444	
Jo Sequoia 75	Le Havre	shifting	Not to count	0.111111111	
Jo Sequoia 77	Richards Bay	Manifold sample failure	Not to count	1	Due to Owners-tanks and pipes not cleaned properly
Jo Sequoia 77	Richards Bay	shifting	Not to count	0.090277778	
Jo Lotus 5	Durban	Manifold sample failure	Not to count	1.190972222	Due to Owners-tanks and pipes not cleaned properly
Jo Lotus 5	Antwerp VTL	Awaiting barge	time to count	0.315972222	
Jo Lotus 7	Durban	Pro rata time awaiting berth	Not to count	0.2730925	If loading/discharging for others at same berth awaiting berth time prorated
Jo Lotus 7	Durban	shifting	Not to count	0.054861111	
Jo Lotus 7	Durban	Electricity/Power failure	Half time to count	0.046875	Breakdown of machinery shore-half time Shellvoy 6
Jo Lotus 7	Durban	Awaiting Pilot	Time to count-laytime alread	0.035416667	Awaiting pilot-Time to count since laytime already running
Stolt Virtue 50	Singapore	awaiting 2nd berth	Time to count	2.232638889	
Stolt Virtue 50	Singapore	shifting 2nd berth	Time to count	0.163194444	
Stolt Virtue 50	Map Ta Phut	shifting	Not to count	0.060416667	
Stolt Virtue 50	Ulsan	Shifting	Not to count	0.066666667	
Stolt Virtue 50	Ulsan	awaiting 2nd berth	Time to count	0.618055556	
Stolt Virtue 50	Ulsan	shifting 2nd berth	Time to count	0.051388889	
Stolt Virtue 50	Xiaohudao	Awaiting daylight	Time to count	0.108333333	Awaiting Daylight-time to count in Asbatankvoy
Stolt Virtue 51	Durban	Awaiting available berth	Time to count	1.521527778	
Stolt Virtue 51	Durban	shifting	Not to count	0.136805556	
Stolt Virtue 51	Richards Bay	Awaiting available berth	Time to count	0.654166667	
Stolt Virtue 51	Richards Bay	shifting	Not to count	0.116666667	
Stolt Virtue 51	Richards Bay	Burst nitrogen pipe	Half time to count	0.078125	half demurrage rate also equates half time
Stolt Virtue 51	Map Ta Phut	shifting	Not to count	0.097222222	
Stolt Virtue 51	Singapore	shifting	Not to count	0.0375	
Stolt Virtue 51	Singapore	2nd berth shifting	Time to count	0.132638889	
Stolt Virtue 51	Xiaohudao	shifting	Not to count	0.25	
Stolt Virtue 51	Taichung	shifting	Not to count	0.045833333	
Stolt Virtue 51	Taichung	Awaiting available berth	Time to count	0.204166667	
Stolt Virtue 51	Ulsan	awaiting 2nd berth	Time to count	0.416666667	
Stolt Virtue 51	Xiaohudao	Awaiting daylight	Time to count	0.0875	Awaiting Daylight-time to count in Asbatankvoy
Stolt Zulu 61	Singapore	Awaiting available berth	Time to count	0.25	
Stolt Zulu 61	Singapore	shifting	Not to count	0.075	
Stolt Zulu 61	Singapore	awaiting 2nd berth	Time to count	0.173611111	
Stolt Zulu 61	Singapore	2nd berth shifting	Time to count	0.0625	
Stolt Zulu 61	Map ta Phut	Awaiting available berth	Time to count	0.040277778	
Stolt Zulu 61	Map ta Phut	shifting	Not to count	0.059027778	
Stolt Zulu 61	Xiaohudao	Awaiting daylight	Time to count	0.466666667	Awaiting Daylight-time to count in Asbatankvoy
Stolt Zulu 61	Xiaohudao	shifting	Not to count	0.247916667	
Stolt Zulu 61	Ulsan	shifting 2nd berth	time to count	0.047222222	
Stolt Zulu 61	Ulsan	awaiting 2nd berth	Time to count	0.291666667	
Stolt Zulu 61	Singapore-2n	shifting	Not to count	0.09375	
Stolt Zulu 61	Singapore-2n	Awaiting available berth	time to count	0.256944444	
Stolt Zulu 62	Durban	shifting	Not to count	0.229166667	
Stolt Zulu 62	Durban	Awaiting available berth	Time to count	3.311111111	
Stolt Zulu 62	Singapore	shifting	Not to count	0.061111111	
Stolt Zulu 62	Singapore	awaiting 2nd berth	Time to count	0.246527778	
Stolt Zulu 62	Singapore	2nd berth shifting	Time to count	0.076388889	
Stolt Zulu 62	Singapore	awaiting 3rd berth	Time to count	0.045833333	
Stolt Zulu 62	Singapore	3rd berth shifting	Time to count	0.061805556	
Stolt Zulu 62	Singapore	awaiting 4th berth	Time to count	1.484722222	
Stolt Zulu 62	Singapore	4th berth shifting	Time to count	0.09375	
Stolt Zulu 62	Xiaohudao	Awaiting daylight	Time to count	0.125	Awaiting Daylight-time to count in Asbatankvoy
Stolt Zulu 62	Xiaohudao	shifting	time to count-vessel already	0.229166667	once on demurrage always on demurrage
Stolt Zulu 63	Singapore	awaiting 2nd berth	Time to count	0.076388889	
Stolt Zulu 63	Singapore	2nd berth shifting	Time to count	0.097222222	
Stolt Zulu 63	Singapore	awaiting 3rd berth	Time to count	0.256944444	
Stolt Zulu 63	Singapore	3rd berth shifting	Time to count	0.121527778	
Stolt Zulu 63	Ulsan	awaiting 2nd berth	Time to count	0.070833333	

Stolt Zulu 63	Ulsan	2nd berth shifting	Time to count	0.050694444	
Stolt Zulu 64	Singapore	awaiting 2nd berth	Time to count	0.128472222	
Stolt Zulu 64	Singapore	2nd berth shifting	Time to count	0.048611111	
Stolt Zulu 64	Singapore	awaiting 3rd berth	Time to count	0.1875	
Stolt Zulu 64	Singapore	3rd berth shifting	Time to count	1.569444444	
Stolt Zulu 64	Map Ta Phut	Awaiting available berth	Time to count	0.58125	
Stolt Zulu 64	Map Ta Phut	shifting	Not to count	0.081944444	
Stolt Zulu 64	Xiaohudao	Awaiting daylight	Time to count	0.120138889	Awaiting Daylight-time to count in Asbatankvoy
Stolt Zulu 64	Xiaohudao	shifting	Not to count	0.277777778	
Stolt Zulu 64	Ulsan	awaiting 2nd berth	Time to count	0.013888889	
Stolt Zulu 64	Ulsan	2nd berth shifting	Time to count	0.052083333	
Stolt Zulu 64	Ulsan	awaiting 3rd berth	Time to count	0.090277778	
Stolt Zulu 64	Ulsan	3rd berth shifting	Time to count	0.069444444	
Fairchem Friendship 19	Durban	shifting	Not to count	0.133333333	
Fairchem Friendship 19	Durban	Awaiting available berth	Time to count	4.145833333	
Fairchem Friendship 19	Durban	Awaiting documentation after hoses disconnected	Time not to count	0.017361114	
Fairchem Friendship 19	Richards Bay	shifting	Not to count	0.075	
Fairchem Friendship 19	Richards Bay	term power failure	Half time to count	0.276388889	
Fairchem Friendship 19	Richards Bay	Awaiting Pilot	Time to count	0.169444444	Awaiting pilot-Time to count under Asbatankvoy (only strike by pilots covered)
Chemstar Seven 97	Kandla	Awaiting available berth	Time to count	1.298611111	
Chemstar Seven 97	Kandla	Shifting	Not to count	0.118055556	
Chemstar Seven 97	Jebel Ali	Shifting	Not to count	0.055555556	
Fairchem Eagle 22	Durban	Awaiting Pilot	time to count	0.127083333	Awaiting pilot-Time to count under Asbatankvoy (only strike by pilots covered)
Fairchem Eagle 22	Durban	shifting	Not to count	0.120833333	
Fairchem Eagle 22	Richards Bay	shifting	Not to count	0.125	
Fairchem Eagle 22	Richards Bay	Bad Weather-Gale force wind	Half time to count	0.319444444	Storm Provision in Asbatankvoy
Fairchem Eagle 22	Richards Bay	Awaiting Pilot	Time to count	0.145833333	Awaiting pilot-Time to count under Asbatankvoy (only strike by pilots covered)
Fairchem Eagle 22	Kandla	shifting	Not to count	0.145833333	
Fairchem Eagle 22	Kandla	Awaiting available berth	Time to count	1.841666667	
Ivory Ray 2	Durban	Awaiting available berth	Time to count	9.590277778	
Ivory Ray 2	Durban	shifting	Not to count	0.114583333	
Ivory Ray 2	Kandla	shifting	time to count-vessel already	0.125	once on demurrage always on demurrage
Ivory Ray 2	Kandla	Awaiting available berth	Time to count	4.597222222	
Fairchem Silver 19	Durban	Awaiting available berth	Time to count	5.475	
Fairchem Silver 19	Durban	shifting	Not to count	0.2	
Fairchem Silver 19	Kandla	shifting	time to count-vessel already	0.045833333	once on demurrage always on demurrage
Fairchem Silver 19	Kandla	Vessel Engine Problems	time to count-vessel already	0.223611111	once on demurrage always on demurrage
Fairchem Silver 19	Kandla	Awaiting available berth	Time to count	1.441666667	
Chemstar Jewel 25	Durban	Awaiting available berth	Time to count	6.464583333	
Chemstar Jewel 25	Durban	shifting	time to count-vessel already	0.177083333	once on demurrage always on demurrage
Chemstar Jewel 25	Richards Bay	shifting	time to count-vessel already	0.128472222	once on demurrage always on demurrage
Chemstar Jewel 25	Richards Bay	Awaiting available berth	Time to count	0.128472222	
Chemstar Jewel 25	Kandla	shifting	time to count-vessel already	0.138888889	once on demurrage always on demurrage
Chemstar Jewel 25	Kandla	Awaiting available berth	Time to count	1.399305556	
Fairchem Sword 4	Richards Bay	Thunderstorm	Time to count	0.034722222	Thunderstorm not an exception
Fairchem Sword 4	New Orleans	Fog	time to count	0.170833333	Fog not an exception
Fairchem Sword 4	New Orleans	Fog	time to count	0.279861111	Fog not an exception
Fairchem Sword 4	New Orleans	shifting	Not to count	0.478472222	
Fairchem Sword 4	New Orleans	COC Inspection	Not to count	0.306944444	
Fairchem Sword 4	New Orleans	2nd berth shifting	Time to count	0.246527778	
Fairchem Sword 4	Freeport	shifting	Not to count	0.081944444	
Fairchem Sword 4	Freeport	Awaiting available berth	Time to count	0.251388889	
Fairchem Sword 4	Houston	Awaiting available berth	Time to count	1.354166667	
Fairchem Sword 4	Houston	shifting	Not to count	0.316666667	
Fairchem Sword 4	Houston	2nd berth shifting	Time to count	0.241666667	
Chemstar Jewel 17	Durban	shifting	Not to count	0.183333333	
Chemstar Jewel 17	Durban	Awaiting available berth	Time to count	1.504166667	
Chemstar Jewel 17	Freeport	shifting	Not to count	0.034722222	
Chemstar Jewel 17	Houston	Awaiting available berth	Time to count	0.152777778	
Chemstar Jewel 17	Houston	shifting	Not to count	0.229166667	
Chemstar Jewel 17	Houston	2nd berth shifting	Time to count	0.204166667	
Chemstar Jewel 17	Houston	awaiting 2nd berth	Time to count	1.750694444	
Fairchem Yuka 30	Durban	shifting	Not to count	0.084722222	
Fairchem Yuka 30	Durban	Awaiting available berth	Time to count	1.477777778	
Fairchem Yuka 30	Richards Bay	shifting	Not to count	0.088888889	
Fairchem Yuka 30	Richards Bay	Awaiting available berth	Time to count	0.081944444	
Fairchem Yuka 30	New Orleans	shifting	Not to count	0.234722222	
Fairchem Yuka 30	New Orleans	Awaiting available berth	Time to count	1.723611111	
Fairchem Yuka 30	New Orleans	2nd berth shifting	Time to count	0.048611111	
Fairchem Yuka 30	New Orleans	Awaiting available berth	Time to count	0.959722222	
Fairchem Yuka 30	New Orleans	COC inspection	Not to count	0.520138889	
Fairchem Yuka 30	New Orleans	Weather delays	time to count	0.010416667	
Fairchem Yuka 30	Freeport	shifting	time to count-vessel already	0.091666667	once on demurrage always on demurrage
Fairchem Yuka 30	Houston	shifting	time to count-vessel already	0.208333333	once on demurrage always on demurrage
Fairchem Yuka 30	Houston	Awaiting available berth	Time to count	1.729166667	
Fairchem Yuka 30	Houston	2nd berth shifting	Time to count	0.25	
Fairchem Yuka 30	Houston	awaiting 2nd berth	Time to count	2.073611111	
Fairchem Maverick 21	Durban	shifting	Not to count	0.038194444	
Fairchem Maverick 21	Durban	Shore pump problem	Half time to count	0.322916667	Breakdown of machinery shore-half time Asbatankvoy/Asbachemvoy
Fairchem Maverick 21	New Orleans	shifting	Not to count	0.058333333	
Fairchem Maverick 21	New Orleans	2nd berth shifting	Time to count	0.225	
Fairchem Maverick 21	New Orleans	3rd berth shifting	Time to count	0.3875	
Fairchem Maverick 21	Houston	shifting	Not to count	0.020833333	
Fairchem Maverick 21	Houston	awaiting 2nd berth	Time to count	2.479166667	
Fairchem Maverick 21	Houston	2nd berth shifting	Time to count	0.23125	
Fairchem Sabre 15	Durban	shifting	Not to count	0.104166667	
Fairchem Sabre 15	Durban	Berth closure due to urgent maintenance	Half time to count	0.708333333	Berth Closure due to maintenance-half time
Fairchem Sabre 15	Durban	Awaiting available berth	Time to count	4.368055556	
Fairchem Sabre 15	New Orleans	shifting	time to count-vessel already	0.113888889	once on demurrage always on demurrage
Fairchem Sabre 15	New Orleans	Awaiting available berth	Time to count	0.611111111	
Fairchem Sabre 15	New Orleans	2nd berth shifting	Time to count	0.203472222	
Fairchem Sabre 15	Freeport	Awaiting available berth	Time to count	0.254166667	
Fairchem Sabre 15	Freeport	shifting	time to count-vessel already	0.091666667	once on demurrage always on demurrage
Fairchem Sabre 15	Houston	shifting	time to count-vessel already	0.216666667	once on demurrage always on demurrage
Fairchem Sabre 15	Houston	Awaiting available berth	Time to count	1.554166667	
Fairchem Sabre 15	Houston	awaiting 2nd berth	Time to count	1.518055556	
Fairchem Sabre 15	Houston	2nd berth shifting	Time to count	0.229166667	
Fairchem Friesian 55	Durban	Awaiting available berth	Time to count	1.641666667	
Fairchem Friesian 55	Durban	Shifting	Not to count	0.095833333	
Fairchem Friesian 55	New Orleans	shifting	Not to count	0.120833333	
Fairchem Friesian 55	New Orleans	COC inspection	Not to count	0.1375	
Fairchem Friesian 55	New Orleans	shifting 2nd berth	Time to count	0.272916667	
Fairchem Friesian 55	Houston	shifting	time to count-vessel already	0.241666667	once on demurrage always on demurrage
Fairchem Friesian 55	Houston	Channel Closure Dredging	time to count-vessel already	0.338194444	once on demurrage always on demurrage
Fairchem Friesian 55	Houston	Fog	time to count-vessel already	1.128472222	once on demurrage always on demurrage
Fairchem Friesian 55	Houston	Fog	time to count-vessel already	0.125	once on demurrage always on demurrage
Fairchem Friesian 55	Houston	Awaiting available berth	Time to count	2.433333333	
Fairchem Friesian 55	Houston	awaiting 2nd berth	Time to count	3.8875	
Fairchem Friesian 55	Houston	shifting 2nd berth	Time to count	0.220833333	
Jo Sequoia 73	Durban	Awaiting available berth	Time to count	0.315972222	

Jo Sequoia 73	Durban	shifting	Not to count	0.052083333	
Jo Sequoia 75	Le Havre	Awaiting available berth	Time to count	0.069444444	
Jo Sequoia 75	Le Havre	shifting	Not to count	0.111111111	
Jo Sequoia 77	Richards Bay	Manifold sample failure	Not to count	1	
Jo Sequoia 77	Richards Bay	shifting	Not to count	0.090277778	
Jo Lotus 5	Durban	Manifold sample failure	Not to count	1.190972222	
Jo Lotus 5	Antwerp VTL	Awaiting barge	time to count	0.315972222	
Jo Lotus 7	Durban	Awaiting available berth	Time to count	2.18125	No pro rata provisions under Asbatankvoy even though loaded for other charterers at same t
Jo Lotus 7	Durban	shifting	Not to count	0.054861111	
Jo Lotus 7	Durban	Electricity/Power failure	half time to count	0.046875	
Jo Lotus 7	Durban	Awaiting Pilot	Time to count	0.035416667	
Stolt Virtue 50	Singapore	awaiting 2nd berth	Time to count	2.232638889	
Stolt Virtue 50	Singapore	shifting 2nd berth	Time to count	0.163194444	
Stolt Virtue 50	Map Ta Phut	shifting	Not to count	0.060416667	
Stolt Virtue 50	Ulsan	Shifting	Not to count	0.066666667	
Stolt Virtue 50	Ulsan	awaiting 2nd berth	Time to count	0.618055556	
Stolt Virtue 50	Ulsan	shifting 2nd berth	Time to count	0.051388889	
Stolt Virtue 50	Xiaohudao	Awaiting daylight	Not to count	0.108333333	Awaiting Daylight-time not to count in Exxonmobilvoy 2012
Stolt Virtue 51	Durban	Awaiting available berth	Time to count	1.521527778	
Stolt Virtue 51	Durban	shifting	Not to count	0.136805556	
Stolt Virtue 51	Richards Bay	Awaiting available berth	Time to count	0.654166667	
Stolt Virtue 51	Richards Bay	shifting	Not to count	0.116666667	
Stolt Virtue 51	Richards Bay	Burst nitrogen pipe	half time to count	0.078125	Breakdown of machinery in shore- half time to count in Exxonmobilvoy2012
Stolt Virtue 51	Map Ta Phut	shifting	Not to count	0.097222222	
Stolt Virtue 51	Singapore	shifting	Not to count	0.0375	
Stolt Virtue 51	Singapore	2nd berth shifting	Time to count	0.132638889	
Stolt Virtue 51	Xiaohudao	Awaiting daylight	Not to count	0.0875	Awaiting Daylight-time not to count in Exxonmobilvoy 2012
Stolt Virtue 51	Xiaohudao	shifting	Not to count	0.25	
Stolt Virtue 51	Taichung	shifting	Not to count	0.045833333	
Stolt Virtue 51	Taichung	Awaiting available berth	Time to count	0.204166667	
Stolt Virtue 51	Ulsan	awaiting 2nd berth	Time to count	0.416666667	
Stolt Zulu 61	Singapore	Awaiting available berth	Time to count	0.25	
Stolt Zulu 61	Singapore	shifting	Not to count	0.075	
Stolt Zulu 61	Singapore	awaiting 2nd berth	Time to count	0.173611111	
Stolt Zulu 61	Singapore	2nd berth shifting	Time to count	0.0625	
Stolt Zulu 61	Map ta Phut	Awaiting available berth	Time to count	0.040277778	
Stolt Zulu 61	Map ta Phut	shifting	Not to count	0.059027778	
Stolt Zulu 61	Xiaohudao	Awaiting daylight	Not to count	0.466666667	Awaiting Daylight-time not to count in Exxonmobilvoy 2012
Stolt Zulu 61	Xiaohudao	shifting	Not to count	0.247916667	
Stolt Zulu 61	Ulsan	shifting 2nd berth	time to count	0.047222222	
Stolt Zulu 61	Ulsan	awaiting 2nd berth	Time to count	0.291666667	
Stolt Zulu 61	Singapore-2n	shifting	Not to count	0.09375	
Stolt Zulu 61	Singapore-2n	Awaiting available berth	time to count	0.256944444	
Stolt Zulu 62	Durban	shifting	Not to count	0.229166667	
Stolt Zulu 62	Durban	Awaiting available berth	Time to count	3.311111111	
Stolt Zulu 62	Singapore	shifting	Not to count	0.061111111	
Stolt Zulu 62	Singapore	awaiting 2nd berth	Time to count	0.246527778	
Stolt Zulu 62	Singapore	2nd berth shifting	Time to count	0.076388889	
Stolt Zulu 62	Singapore	awaiting 3rd berth	Time to count	0.045833333	
Stolt Zulu 62	Singapore	3rd berth shifting	Time to count	0.061805556	
Stolt Zulu 62	Singapore	awaiting 4th berth	Time to count	1.484722222	
Stolt Zulu 62	Singapore	4th berth shifting	Time to count	0.09375	
Stolt Zulu 62	Xiaohudao	Awaiting daylight	Not to count	0.125	Awaiting Daylight-time not to count in Exxonmobilvoy 2012
Stolt Zulu 62	Xiaohudao	shifting	Not to count	0.229166667	
Stolt Zulu 63	Singapore	awaiting 2nd berth	Time to count	0.076388889	
Stolt Zulu 63	Singapore	2nd berth shifting	Time to count	0.097222222	
Stolt Zulu 63	Singapore	awaiting 3rd berth	Time to count	0.256944444	
Stolt Zulu 63	Singapore	3rd berth shifting	Time to count	0.121527778	
Stolt Zulu 63	Ulsan	awaiting 2nd berth	Time to count	0.070833333	
Stolt Zulu 63	Ulsan	2nd berth shifting	Time to count	0.050694444	
Stolt Zulu 64	Singapore	awaiting 2nd berth	Time to count	0.128472222	
Stolt Zulu 64	Singapore	2nd berth shifting	Time to count	0.048611111	
Stolt Zulu 64	Singapore	awaiting 3rd berth	Time to count	0.1875	
Stolt Zulu 64	Singapore	3rd berth shifting	Time to count	1.569444444	
Stolt Zulu 64	Map Ta Phut	Awaiting available berth	Time to count	0.58125	
Stolt Zulu 64	Map Ta Phut	shifting	Not to count	0.081944444	
Stolt Zulu 64	Xiaohudao	Awaiting daylight	Not to count	0.120138889	Awaiting Daylight-time not to count in Exxonmobilvoy 2012
Stolt Zulu 64	Xiaohudao	shifting	Not to count	0.277777778	
Stolt Zulu 64	Ulsan	awaiting 2nd berth	Time to count	0.013888889	
Stolt Zulu 64	Ulsan	2nd berth shifting	Time to count	0.052083333	
Stolt Zulu 64	Ulsan	awaiting 3rd berth	Time to count	0.090277778	
Stolt Zulu 64	Ulsan	3rd berth shifting	Time to count	0.069444444	
Fairchem Friendship 19	Durban	shifting	Not to count	0.133333333	
Fairchem Friendship 19	Durban	Awaiting available berth	Time to count	4.145833333	
Fairchem Friendship 19	Durban	Awaiting documentation after hoses disconnected	Time to count	0.017361114	
Fairchem Friendship 19	Richards Bay	shifting	Not to count	0.075	
Fairchem Friendship 19	Richards Bay	term power failure	half time to count	0.276388889	Breakdown of machinery in shore- half time to count in Exxonmobilvoy2012
Fairchem Friendship 19	Richards Bay	Awaiting Pilot	Not to count	0.169444444	Awaiting pilot-Time not to count in Exxonmobilvoy2012
Chemstar Seven 97	Kandla	Awaiting available berth	Time to count	1.298611111	
Chemstar Seven 97	Kandla	Shifting	not to count	0.118055556	
Chemstar Seven 97	Jebel Ali	Shifting	Not to count	0.055555556	
Fairchem Eagle 22	Durban	Awaiting Pilot	Not to count	0.127083333	Awaiting pilot-Time not to count in Exxonmobilvoy2012
Fairchem Eagle 22	Durban	shifting	Not to count	0.120833333	
Fairchem Eagle 22	Richards Bay	shifting	Not to count	0.125	
Fairchem Eagle 22	Richards Bay	Bad Weather-Gale force wind	half time to count	0.319444444	Storm Provision in Exxonmobilvoy2012-half time
Fairchem Eagle 22	Richards Bay	Awaiting Pilot	Not to count	0.145833333	Awaiting pilot-Time not to count in Exxonmobilvoy2012
Fairchem Eagle 22	Durban	shifting	Not to count	0.145833333	
Fairchem Eagle 22	Kandla	Awaiting documentation after hoses disconnected	Time to count	0.125000003	Awaiting documentation-time not to count in Exxonmobilvoy 2012
Fairchem Eagle 22	Kandla	Awaiting available berth	Time to count	1.841666667	
Ivory Ray 2	Durban	Awaiting available berth	Time to count	9.590277778	
Ivory Ray 2	Durban	shifting	Not to count	0.114583333	
Ivory Ray 2	Kandla	shifting	Not to count	0.125	
Ivory Ray 2	Kandla	Awaiting available berth	Time to count	4.597222222	
Ivory Ray 2	Durban	Awaiting documentation after hoses disconnected	Time to count	0.048611114	Awaiting documentation-time not to count in Exxonmobilvoy 2012
Fairchem Silver 19	Durban	Awaiting available berth	Time to count	5.475	
Fairchem Silver 19	Durban	shifting	Not to count	0.2	
Fairchem Silver 19	Kandla	shifting	Not to count	0.045833333	
Fairchem Silver 19	Kandla	Engine Problems	Not to count	0.223611111	Breakdown of machinery in vessel-time not to count in Exxonmobilvoy2012
Fairchem Silver 19	Kandla	Awaiting available berth	Time to count	1.441666667	
Chemstar Jewel 25	Durban	Awaiting available berth	Time to count	6.464583333	
Chemstar Jewel 25	Durban	shifting	Not to count	0.177083333	
Chemstar Jewel 25	Richards Bay	shifting	Not to count	0.128472222	
Chemstar Jewel 25	Richards Bay	Awaiting available berth	Time to count	1.725694444	
Chemstar Jewel 25	Kandla	shifting	Not to count	0.138888889	
Chemstar Jewel 25	Kandla	Awaiting available berth	Time to count	1.399305556	
Fairchem Sword 4	Richards Bay	Thunderstorm	Half time to count	0.017361111	
Fairchem Sword 4	New Orleans	Fog	Half time to count	0.225347222	Fog half time to count in Exxonmobilvoy2012
Fairchem Sword 4	New Orleans	shifting	Not to count	0.478472222	
Fairchem Sword 4	New Orleans	COC Inspection	Not to count	0.306944444	COC inspection not to count in Exxonmobilvoy 2012
Fairchem Sword 4	New Orleans	2nd berth shifting	Time to count	0.246527778	

Fairchem Sword 4	Freeport	shifting	Not to count	0.081944444	
Fairchem Sword 4	Freeport	Awaiting available berth	Time to count	0.251388889	
Fairchem Sword 4	Houston	Awaiting available berth	Time to count	1.354166667	
Fairchem Sword 4	Houston	shifting	Not to count	0.316666667	
Fairchem Sword 4	Houston	2nd berth shifting	Time to count	0.241666667	
Chemstar Jewel 17	Durban	shifting	Not to count	0.183333333	
Chemstar Jewel 17	Durban	Awaiting available berth	Time to count	1.504166667	
Chemstar Jewel 17	Freeport	shifting	Not to count	0.034722222	
Chemstar Jewel 17	Houston	Awaiting available berth	Time to count	0.152777778	
Chemstar Jewel 17	Houston	shifting	Not to count	0.229166667	
Chemstar Jewel 17	Houston	2nd berth shifting	Time to count	0.204166667	
Chemstar Jewel 17	Houston	awaiting 2nd berth	Time to count	1.750694444	
Fairchem Yuka 30	Durban	shifting	Not to count	0.084722222	
Fairchem Yuka 30	Durban	Awaiting available berth	Time to count	1.477777778	
Fairchem Yuka 30	Richards Bay	shifting	Not to count	0.088888889	
Fairchem Yuka 30	Richards Bay	Awaiting available berth	Time to count	0.081944444	
Fairchem Yuka 30	New Orleans	shifting	Not to count	0.234722222	
Fairchem Yuka 30	New Orleans	Awaiting available berth	Time to count	1.723611111	
Fairchem Yuka 30	New Orleans	2nd berth shifting	Time to count	0.048611111	
Fairchem Yuka 30	New Orleans	Awaiting available berth	Time to count	0.959722222	
Fairchem Yuka 30	New Orleans	COC inspection	Not to count	0.520138889	COC inspection not to count in Exxonmobilvoy 2012
Fairchem Yuka 30	New Orleans	Weather delays	half time to count	0.005208333	Bad weather provisions in Exxonmobilvoy 2012
Fairchem Yuka 30	Freeport	shifting	Not to count	0.091666667	
Fairchem Yuka 30	Houston	shifting	Not to count	0.208333333	
Fairchem Yuka 30	Houston	Awaiting available berth	Time to count	1.729166667	
Fairchem Yuka 30	Houston	2nd berth shifting	Time to count	0.25	
Fairchem Yuka 30	Houston	awaiting 2nd berth	Time to count	2.073611111	
Fairchem Maverick 21	Durban	shifting	Not to count	0.038194444	
Fairchem Maverick 21	Durban	Shore pump problem	half time to count	0.322916667	Breakdown of machinery in shore- half time to count in Exxonmobilvoy2012
Fairchem Maverick 21	New Orleans	shifting	Not to count	0.058333333	
Fairchem Maverick 21	New Orleans	2nd berth shifting	Time to count	0.225	
Fairchem Maverick 21	New Orleans	3rd berth shifting	Time to count	0.3875	
Fairchem Maverick 21	Houston	shifting	Not to count	0.020833333	
Fairchem Maverick 21	Houston	awaiting 2nd berth	Time to count	2.479166667	
Fairchem Maverick 21	Houston	2nd berth shifting	Time to count	0.23125	
Fairchem Sabre 15	Durban	shifting	Not to count	0.104166667	
Fairchem Sabre 15	Durban	Berth closure due to urgent maintenance	Half time to count	0.708333333	Berth Closure due to maintenance-half time
Fairchem Sabre 15	Durban	Awaiting available berth	Time to count	4.368055556	
Fairchem Sabre 15	Durban	Awaiting documentation after hoses disconnected	Time to count	0.02916667	
Fairchem Sabre 15	New Orleans	shifting	Not to count	0.113888889	
Fairchem Sabre 15	New Orleans	Awaiting available berth	Time to count	0.611111111	
Fairchem Sabre 15	New Orleans	2nd berth shifting	Time to count	0.203472222	
Fairchem Sabre 15	Freeport	Awaiting available berth	Time to count	0.254166667	
Fairchem Sabre 15	Freeport	shifting	Not to count	0.091666667	
Fairchem Sabre 15	Houston	shifting	Not to count	0.216666667	
Fairchem Sabre 15	Houston	Awaiting available berth	Time to count	1.554166667	
Fairchem Sabre 15	Houston	awaiting 2nd berth	Time to count	1.518055556	
Fairchem Sabre 15	Houston	2nd berth shifting	Time to count	0.229166667	
Fairchem Friesian 55	Durban	Awaiting available berth	Time to count	1.641666667	
Fairchem Friesian 55	Durban	Shifting	Not to count	0.095833333	
Fairchem Friesian 55	New Orleans	shifting	Not to count	0.120833333	
Fairchem Friesian 55	New Orleans	COC inspection	Not to count	0.1375	COC inspection not to count in Exxonmobilvoy 2012
Fairchem Friesian 55	New Orleans	shifting 2nd berth	Time to count	0.272916667	
Fairchem Friesian 55	Houston	shifting	Not to count	0.241666667	
Fairchem Friesian 55	Houston	Channel Closure Dredging	Half time to count	0.169097222	
Fairchem Friesian 55	Houston	Fog	Half time to count	0.564236111	Fog half time to count in Exxonmobilvoy2012
Fairchem Friesian 55	Houston	Fog	Half time to count	0.0625	Fog half time to count in Exxonmobilvoy2012
Fairchem Friesian 55	Houston	Awaiting available berth	Time to count	2.433333333	
Fairchem Friesian 55	Houston	awaiting 2nd berth	Time to count	3.8875	
Fairchem Friesian 55	Houston	shifting 2nd berth	Time to count	0.220833333	
Jo Sequoia 73	Durban	Awaiting available berth	Time to count	0.315972222	
Jo Sequoia 73	Durban	shifting	Not to count	0.052083333	
Jo Sequoia 75	Le Havre	Awaiting available berth	Time to count	0.069444444	
Jo Sequoia 75	Le Havre	shifting	Not to count	0.111111111	
Jo Sequoia 77	Richards Bay	Manifold sample failure	Not to count	1	not to count in Exxonmobilvoy2012
Jo Sequoia 77	Richards Bay	shifting	Not to count	0.090277778	
Jo Lotus 5	Durban	Manifold sample failure	Not to count	1.190972222	not to count in Exxonmobilvoy2012
Jo Lotus 5	Antwerp VTL	Awaiting barge	time to count	0.315972222	
Jo Lotus 7	Durban	Awaiting available berth	Time to count	2.18125	No pro rata provisions under Exxonmobilvoy2012 even though loaded for other charterers at
Jo Lotus 7	Durban	shifting	Not to count	0.054861111	
Jo Lotus 7	Durban	Electricity/Power failure	Half time to count	0.046875	Breakdown of machinery in shore- half time to count in Exxonmobilvoy2012
Jo Lotus 7	Durban	Awaiting Pilot	Not to count	0.035416667	Awaiting pilot-Time not to count in Exxonmobilvoy2012
Stolt Virtue 50	Singapore	awaiting 2nd berth	Time to count	2.232638889	
Stolt Virtue 50	Singapore	shifting 2nd berth	Time to count	0.163194444	
Stolt Virtue 50	Map Ta Phut	shifting	Not to count	0.060416667	
Stolt Virtue 50	Ulsan	Shifting	Not to count	0.066666667	
Stolt Virtue 50	Ulsan	awaiting 2nd berth	Time to count	0.618055556	
Stolt Virtue 50	Ulsan	shifting 2nd berth	Time to count	0.051388889	
Stolt Virtue 50	Xiaohudao	Awaiting daylight	Time to count	0.108333333	Awaiting Daylight-time to count in Bimchemvoy 2008
Stolt Virtue 51	Durban	Awaiting available berth	Time to count	1.521527778	
Stolt Virtue 51	Durban	shifting	Not to count	0.136805556	
Stolt Virtue 51	Richards Bay	Awaiting available berth	Time to count	0.654166667	
Stolt Virtue 51	Richards Bay	shifting	Not to count	0.116666667	
Stolt Virtue 51	Richards Bay	Burst nitrogen pipe	Half time to count	0.078125	Breakdown of machinery in shore- half time to count in Bimchemvoy2008
Stolt Virtue 51	Map Ta Phut	shifting	Not to count	0.097222222	
Stolt Virtue 51	Singapore	shifting	Not to count	0.0375	
Stolt Virtue 51	Singapore	2nd berth shifting	Time to count	0.132638889	
Stolt Virtue 51	Xiaohudao	Awaiting daylight	time to count	0.0875	Awaiting Daylight-time to count in Bimchemvoy 2008
Stolt Virtue 51	Xiaohudao	shifting	Not to count	0.25	
Stolt Virtue 51	Taichung	shifting	Not to count	0.045833333	
Stolt Virtue 51	Taichung	Awaiting available berth	Time to count	0.204166667	
Stolt Virtue 51	Ulsan	awaiting 2nd berth	Time to count	0.416666667	
Stolt Zulu 61	Singapore	Awaiting available berth	Time to count	0.25	
Stolt Zulu 61	Singapore	shifting	Not to count	0.075	
Stolt Zulu 61	Singapore	awaiting 2nd berth	Time to count	0.173611111	
Stolt Zulu 61	Singapore	2nd berth shifting	Time to count	0.0625	
Stolt Zulu 61	Map ta Phut	Awaiting available berth	Time to count	0.040277778	
Stolt Zulu 61	Map ta Phut	shifting	Not to count	0.059027778	
Stolt Zulu 61	Xiaohudao	Awaiting daylight	Time to count	0.466666667	Awaiting Daylight-time to count in Bimchemvoy 2008
Stolt Zulu 61	Xiaohudao	shifting	Not to count	0.247916667	
Stolt Zulu 61	Ulsan	shifting 2nd berth	time to count	0.047222222	
Stolt Zulu 61	Ulsan	awaiting 2nd berth	Time to count	0.291666667	
Stolt Zulu 61	Singapore-2n	shifting	Not to count	0.09375	
Stolt Zulu 61	Singapore-2n	Awaiting available berth	time to count	0.256944444	
Stolt Zulu 62	Durban	shifting	Not to count	0.229166667	
Stolt Zulu 62	Durban	Awaiting available berth	Time to count	3.311111111	
Stolt Zulu 62	Singapore	shifting	Not to count	0.061111111	
Stolt Zulu 62	Singapore	awaiting 2nd berth	Time to count	0.246527778	
Stolt Zulu 62	Singapore	2nd berth shifting	Time to count	0.076388889	
Stolt Zulu 62	Singapore	awaiting 3rd berth	Time to count	0.045833333	

Stolt Zulu 62	Singapore	3rd berth shifting	Time to count	0.061805556	
Stolt Zulu 62	Singapore	awaiting 4th berth	Time to count	1.484722222	
Stolt Zulu 62	Singapore	4th berth shifting	Time to count	0.09375	
Stolt Zulu 62	Xiaohudao	Awaiting daylight	time to count	0.125	Awaiting Daylight-time to count in Bimchemvoy 2008
Stolt Zulu 62	Xiaohudao	shifting	Not to count	0.229166667	
Stolt Zulu 63	Singapore	awaiting 2nd berth	Time to count	0.076388889	
Stolt Zulu 63	Singapore	2nd berth shifting	Time to count	0.097222222	
Stolt Zulu 63	Singapore	awaiting 3rd berth	Time to count	0.256944444	
Stolt Zulu 63	Singapore	3rd berth shifting	Time to count	0.121527778	
Stolt Zulu 63	Ulsan	awaiting 2nd berth	Time to count	0.070833333	
Stolt Zulu 63	Ulsan	2nd berth shifting	Time to count	0.050694444	
Stolt Zulu 64	Singapore	awaiting 2nd berth	Time to count	0.128472222	
Stolt Zulu 64	Singapore	2nd berth shifting	Time to count	0.048611111	
Stolt Zulu 64	Singapore	awaiting 3rd berth	Time to count	0.1875	
Stolt Zulu 64	Singapore	3rd berth shifting	Time to count	1.569444444	
Stolt Zulu 64	Map Ta Phut	Awaiting available berth	Time to count	0.58125	
Stolt Zulu 64	Map Ta Phut	shifting	Not to count	0.081944444	
Stolt Zulu 64	Xiaohudao	Awaiting daylight	time to count	0.120138889	Awaiting Daylight-time to count in Bimchemvoy 2008
Stolt Zulu 64	Xiaohudao	shifting	Not to count	0.277777778	
Stolt Zulu 64	Ulsan	awaiting 2nd berth	Time to count	0.013888889	
Stolt Zulu 64	Ulsan	2nd berth shifting	Time to count	0.052083333	
Stolt Zulu 64	Ulsan	awaiting 3rd berth	Time to count	0.090277778	
Stolt Zulu 64	Ulsan	3rd berth shifting	Time to count	0.069444444	
Fairchem Friendship 19	Durban	shifting	Not to count	0.133333333	
Fairchem Friendship 19	Durban	Awaiting available berth	Time to count	4.145833333	
Fairchem Friendship 19	Durban	Awaiting documentation after hoses disconnected	Time to count	0.017361114	Awaiting documentation-time not to count >2hrs after hoses disconnected in Bimchemvoy 2
Fairchem Friendship 19	Richards Bay	shifting	Not to count	0.075	
Fairchem Friendship 19	Richards Bay	term power failure	Half time to count	0.276388889	Breakdown of machinery in shore- half time to count in Bimchemvoy2008
Fairchem Friendship 19	Richards Bay	Awaiting Pilot	Time to count	0.169444444	Awaiting pilot-time to count in Bimchemvoy 2008
Chemstar Seven 97	Kandla	Awaiting available berth	Time to count	1.298611111	
Chemstar Seven 97	Kandla	Shifting	Not to count	0.118055556	
Chemstar Seven 97	Jebel Ali	Shifting	Not to count	0.055555556	
Fairchem Eagle 22	Durban	Awaiting Pilot	Time to count	0.127083333	Awaiting pilot-time to count in Bimchemvoy 2008
Fairchem Eagle 22	Durban	shifting	Not to count	0.120833333	
Fairchem Eagle 22	Richards Bay	shifting	Not to count	0.125	
Fairchem Eagle 22	Richards Bay	Bad Weather-Gale force wind	Half time to count	0.319444444	half time weather in Bimchemvoy 2008
Fairchem Eagle 22	Richards Bay	Awaiting Pilot	Time to count	0.145833333	Awaiting pilot-time to count in Bimchemvoy 2008
Fairchem Eagle 22	Kandla	shifting	Not to count	0.145833333	
Fairchem Eagle 22	Kandla	Awaiting documentation after hoses disconnected	Time to count	0.125000003	Awaiting documentation-time not to count >2hrs after hoses disconnected in Bimchemvoy 2
Fairchem Eagle 22	Kandla	Awaiting available berth	Time to count	1.841666667	
Ivory Ray 2	Durban	Awaiting available berth	Time to count	9.590277778	
Ivory Ray 2	Durban	shifting	Not to count	0.114583333	
Ivory Ray 2	Kandla	shifting	Not to count	0.125	
Ivory Ray 2	Kandla	Awaiting available berth	Time to count	4.597222222	
Ivory Ray 2	Durban	Awaiting documentation after hoses disconnected	Time to count	0.048611114	Awaiting documentation-time not to count >2hrs after hoses disconnected in Bimchemvoy 2
Fairchem Silver 19	Durban	Awaiting available berth	Time to count	5.475	
Fairchem Silver 19	Durban	shifting	Not to count	0.2	
Fairchem Silver 19	Kandla	shifting	Not to count	0.045833333	
Fairchem Silver 19	Kandla	Engine Problems	Not to count	0.223611111	Breakdown of machinery in vessel- time not to count in Bimchemvoy2008
Fairchem Silver 19	Kandla	Awaiting available berth	Time to count	1.441666667	
Chemstar Jewel 25	Durban	Awaiting available berth	Time to count	6.464583333	
Chemstar Jewel 25	Durban	shifting	Not to count	0.177083333	
Chemstar Jewel 25	Richards Bay	shifting	Not to count	0.128472222	
Chemstar Jewel 25	Richards Bay	Awaiting available berth	Time to count	1.725694444	
Chemstar Jewel 25	Kandla	shifting	Not to count	0.138888889	
Chemstar Jewel 25	Kandla	Awaiting available berth	Time to count	1.399305556	
Fairchem Sword 4	Richards Bay	Thunderstorm	Half time to count	0.017361111	half time weather in Bimchemvoy 2008
Fairchem Sword 4	New Orleans	Fog	Half time to count	0.225347222	half time weather in Bimchemvoy 2008
Fairchem Sword 4	New Orleans	shifting	Not to count	0.478472222	
Fairchem Sword 4	New Orleans	COC Inspection	Not to count	0.306944444	Time awaiting relevant certificates for trading in a port not to count-Bimchemvoy2008
Fairchem Sword 4	New Orleans	2nd berth shifting	Time to count	0.246527778	
Fairchem Sword 4	Freeport	shifting	Not to count	0.081944444	
Fairchem Sword 4	Freeport	awaiting available berth	Time to count	0.251388889	
Fairchem Sword 4	Houston	Awaiting available berth	Time to count	1.354166667	
Fairchem Sword 4	Houston	shifting	Not to count	0.316666667	
Fairchem Sword 4	Houston	2nd berth shifting	Time to count	0.241666667	
Chemstar Jewel 17	Durban	shifting	Not to count	0.183333333	
Chemstar Jewel 17	Durban	Awaiting available berth	Time to count	1.504166667	
Chemstar Jewel 17	Freeport	shifting	Not to count	0.034722222	
Chemstar Jewel 17	Houston	Awaiting available berth	Time to count	0.152777778	
Chemstar Jewel 17	Houston	shifting	Not to count	0.229166667	
Chemstar Jewel 17	Houston	2nd berth shifting	Time to count	0.204166667	
Chemstar Jewel 17	Houston	awaiting 2nd berth	Time to count	1.750694444	
Fairchem Yuka 30	Durban	shifting	Not to count	0.084722222	
Fairchem Yuka 30	Durban	Awaiting available berth	Time to count	1.477777778	
Fairchem Yuka 30	Richards Bay	shifting	Not to count	0.088888889	
Fairchem Yuka 30	Richards Bay	Awaiting available berth	Time to count	0.081944444	
Fairchem Yuka 30	New Orleans	shifting	Not to count	0.234722222	
Fairchem Yuka 30	New Orleans	Awaiting available berth	Time to count	1.723611111	
Fairchem Yuka 30	New Orleans	2nd berth shifting	Time to count	0.048611111	
Fairchem Yuka 30	New Orleans	Awaiting available berth	Time to count	0.959722222	
Fairchem Yuka 30	New Orleans	COC inspection	Not to count	0.520138889	Time awaiting relevant certificates for trading in a port not to count-Bimchemvoy2008
Fairchem Yuka 30	New Orleans	Weather delays	Half time to count	0.005208333	half time weather in Bimchemvoy 2008
Fairchem Yuka 30	Freeport	shifting	Not to count	0.091666667	
Fairchem Yuka 30	Houston	shifting	Not to count	0.208333333	
Fairchem Yuka 30	Houston	Awaiting available berth	Time to count	1.729166667	
Fairchem Yuka 30	Houston	2nd berth shifting	Time to count	0.25	
Fairchem Yuka 30	Houston	awaiting 2nd berth	Time to count	2.073611111	
Fairchem Maverick 21	Durban	shifting	Not to count	0.038194444	
Fairchem Maverick 21	Durban	Shore pump problem	Half time to count	0.322916667	Breakdown of machinery in shore- half time to count in Bimchemvoy2008
Fairchem Maverick 21	New Orleans	shifting	Not to count	0.058333333	
Fairchem Maverick 21	New Orleans	2nd berth shifting	Time to count	0.225	
Fairchem Maverick 21	New Orleans	3rd berth shifting	Time to count	0.3875	
Fairchem Maverick 21	Houston	shifting	Not to count	0.020833333	
Fairchem Maverick 21	Houston	awaiting 2nd berth	Time to count	2.479166667	
Fairchem Maverick 21	Houston	2nd berth shifting	Time to count	0.23125	
Fairchem Sabre 15	Durban	shifting	Not to count	0.104166667	
Fairchem Sabre 15	Durban	Berth closure due to urgent maintenance	Half time to count	0.708333333	Breakdown of machinery in shore- half time to count in Bimchemvoy2008
Fairchem Sabre 15	Durban	Awaiting available berth	Time to count	4.368055556	
Fairchem Sabre 15	Durban	Awaiting documentation after hoses disconnected	Time to count	0.02916667	Awaiting documentation-time not to count >2hrs after hoses disconnected in Bimchemvoy 2
Fairchem Sabre 15	New Orleans	shifting	Not to count	0.113888889	
Fairchem Sabre 15	New Orleans	Awaiting available berth	Time to count	0.611111111	
Fairchem Sabre 15	New Orleans	2nd berth shifting	Time to count	0.203472222	
Fairchem Sabre 15	Freeport	Awaiting available berth	Time to count	0.254166667	
Fairchem Sabre 15	Freeport	shifting	Not to count	0.091666667	
Fairchem Sabre 15	Houston	shifting	Not to count	0.216666667	
Fairchem Sabre 15	Houston	Awaiting available berth	Time to count	1.554166667	
Fairchem Sabre 15	Houston	awaiting 2nd berth	Time to count	1.518055556	
Fairchem Sabre 15	Houston	2nd berth shifting	Time to count	0.229166667	
Fairchem Friesian 55	Durban	Awaiting available berth	Time to count	1.641666667	

Fairchem Friesian 55	Durban	Shifting	Not to count	0.095833333	
Fairchem Friesian 55	New Orleans	shifting	Not to count	0.120833333	
Fairchem Friesian 55	New Orleans	COC inspection	Not to count	0.1375	Time awaiting relevant certificates for trading in a port not to count-Bimchemvoy2008
Fairchem Friesian 55	New Orleans	shifting 2nd berth	Time to count	0.272916667	
Fairchem Friesian 55	Houston	shifting	Not to count	0.241666667	
Fairchem Friesian 55	Houston	Channel Closure Dredging	Half time to count	0.169097222	
Fairchem Friesian 55	Houston	Fog	Half time to count	0.564236111	half time weather in Bimchemvoy 2008
Fairchem Friesian 55	Houston	Fog	Half time to count	0.0625	half time weather in Bimchemvoy 2008
Fairchem Friesian 55	Houston	Awaiting available berth	Time to count	2.433333333	
Fairchem Friesian 55	Houston	awaiting 2nd berth	Time to count	3.8875	
Fairchem Friesian 55	Houston	shifting 2nd berth	Time to count	0.220833333	
Jo Sequoia 73	Durban	Awaiting available berth	Time to count	0.315972222	
Jo Sequoia 73	Durban	shifting	Not to count	0.052083333	
Jo Sequoia 75	Le Havre	Awaiting available berth	Time to count	0.069444444	
Jo Sequoia 75	Le Havre	shifting	Not to count	0.111111111	
Jo Sequoia 77	Richards Bay	Manifold sample failure	Not to count	1	not to count in Bimchemvoy 2008
Jo Sequoia 77	Richards Bay	shifting	Not to count	0.090277778	
Jo Lotus 5	Durban	Manifold sample failure	Not to count	1.190972222	not to count in Bimchemvoy 2008
Jo Lotus 5	Antwerp VTL	Awaiting barge	time to count	0.565972222	
Jo Lotus 7	Durban	Pro rata time awaiting berth	Not to count	0.2730925	Pro rata of waiting time applies in Bimchemvoy 2008
Jo Lotus 7	Durban	shifting	Not to count	0.054861111	
Jo Lotus 7	Durban	Electricity/Power failure	half time to count	0.046875	Breakdown of machinery in shore- half time to count in Bimchemvoy2008
Jo Lotus 7	Durban	Awaiting Pilot	time to count	0.035416667	Awaiting pilot-time to count in Bimchemvoy 2008
Stolt Virtue 50	Singapore	awaiting 2nd berth	Time to count	2.232638889	
Stolt Virtue 50	Singapore	shifting 2nd berth	Time to count	0.163194444	
Stolt Virtue 50	Map Ta Phut	shifting	Not to count	0.060416667	
Stolt Virtue 50	Ulsan	Shifting	Not to count	0.066666667	
Stolt Virtue 50	Ulsan	awaiting 2nd berth	Time to count	0.618055556	
Stolt Virtue 50	Ulsan	shifting 2nd berth	Time to count	0.051388889	
Stolt Virtue 50	Xiaohudao	Awaiting daylight	Not to count	0.108333333	awaiting daylight not to count in BPVOY5
Stolt Virtue 51	Durban	Awaiting available berth	Time to count	1.521527778	
Stolt Virtue 51	Durban	shifting	Not to count	0.136805556	
Stolt Virtue 51	Richards Bay	Awaiting available berth	Time to count	0.654166667	
Stolt Virtue 51	Richards Bay	shifting	Not to count	0.116666667	
Stolt Virtue 51	Richards Bay	Burst nitrogen pipe	half time to count	0.078125	Breakdown of machinery in shore- half time to count in BPVOY5
Stolt Virtue 51	Map Ta Phut	shifting	Not to count	0.097222222	
Stolt Virtue 51	Singapore	shifting	Not to count	0.0375	
Stolt Virtue 51	Singapore	2nd berth shifting	Time to count	0.132638889	
Stolt Virtue 51	Xiaohudao	Awaiting daylight	Not to count	0.0875	awaiting daylight not to count in BPVOY5
Stolt Virtue 51	Xiaohudao	shifting	Not to count	0.29375	
Stolt Virtue 51	Taichung	shifting	Not to count	0.045833333	
Stolt Virtue 51	Taichung	Awaiting available berth	Time to count	0.204166667	
Stolt Virtue 51	Ulsan	awaiting 2nd berth	Time to count	0.416666667	
Stolt Zulu 61	Singapore	Awaiting available berth	Time to count	0.25	
Stolt Zulu 61	Singapore	shifting	Not to count	0.075	
Stolt Zulu 61	Singapore	awaiting 2nd berth	Time to count	0.173611111	
Stolt Zulu 61	Singapore	2nd berth shifting	Time to count	0.0625	
Stolt Zulu 61	Map ta Phut	Awaiting available berth	Time to count	0.040277778	
Stolt Zulu 61	Map ta Phut	shifting	Not to count	0.059027778	
Stolt Zulu 61	Xiaohudao	Awaiting daylight	not to count	0.466666667	awaiting daylight not to count in BPVOY5
Stolt Zulu 61	Xiaohudao	shifting	Not to count	0.247916667	
Stolt Zulu 61	Ulsan	shifting 2nd berth	time to count	0.047222222	
Stolt Zulu 61	Ulsan	awaiting 2nd berth	Time to count	0.291666667	
Stolt Zulu 61	Singapore-2n	shifting	Not to count	0.09375	
Stolt Zulu 61	Singapore-2n	Awaiting available berth	time to count	0.256944444	
Stolt Zulu 62	Durban	shifting	Not to count	0.229166667	
Stolt Zulu 62	Durban	Awaiting available berth	Time to count	3.311111111	
Stolt Zulu 62	Singapore	shifting	Not to count	0.25	
Stolt Zulu 62	Singapore	awaiting 2nd berth	Time to count	0.246527778	
Stolt Zulu 62	Singapore	2nd berth shifting	Time to count	0.076388889	
Stolt Zulu 62	Singapore	awaiting 3rd berth	Time to count	0.045833333	
Stolt Zulu 62	Singapore	3rd berth shifting	Time to count	0.061805556	
Stolt Zulu 62	Singapore	awaiting 4th berth	Time to count	1.484722222	
Stolt Zulu 62	Singapore	4th berth shifting	Time to count	0.09375	
Stolt Zulu 62	Xiaohudao	Awaiting daylight	not to count	0.125	awaiting daylight not to count in BPVOY5
Stolt Zulu 62	Xiaohudao	shifting	Not to count	0.229166667	
Stolt Zulu 63	Singapore	awaiting 2nd berth	Time to count	0.076388889	
Stolt Zulu 63	Singapore	2nd berth shifting	Time to count	0.097222222	
Stolt Zulu 63	Singapore	awaiting 3rd berth	Time to count	0.256944444	
Stolt Zulu 63	Singapore	3rd berth shifting	Time to count	0.121527778	
Stolt Zulu 63	Ulsan	awaiting 2nd berth	Time to count	0.070833333	
Stolt Zulu 63	Ulsan	2nd berth shifting	Time to count	0.050694444	
Stolt Zulu 64	Singapore	awaiting 2nd berth	Time to count	0.128472222	
Stolt Zulu 64	Singapore	2nd berth shifting	Time to count	0.048611111	
Stolt Zulu 64	Singapore	awaiting 3rd berth	Time to count	0.1875	
Stolt Zulu 64	Singapore	3rd berth shifting	Time to count	1.569444444	
Stolt Zulu 64	Map Ta Phut	Awaiting available berth	Time to count	0.58125	
Stolt Zulu 64	Map Ta Phut	shifting	Not to count	0.081944444	
Stolt Zulu 64	Xiaohudao	Awaiting daylight	Not to count	0.120138889	
Stolt Zulu 64	Xiaohudao	shifting	Not to count	0.277777778	
Stolt Zulu 64	Ulsan	awaiting 2nd berth	Time to count	0.013888889	
Stolt Zulu 64	Ulsan	2nd berth shifting	Time to count	0.052083333	
Stolt Zulu 64	Ulsan	awaiting 3rd berth	Time to count	0.090277778	
Stolt Zulu 64	Ulsan	3rd berth shifting	Time to count	0.069444444	
Fairchem Friendship 19	Durban	shifting	Not to count	0.133333333	
Fairchem Friendship 19	Durban	Awaiting available berth	Time to count	4.145833333	
Fairchem Friendship 19	Richards Bay	shifting	Not to count	0.075	
Fairchem Friendship 19	Richards Bay	term power failure	half time to count	0.276388889	Half time breakdown of machinery in BPVOY5
Fairchem Friendship 19	Richards Bay	Awaiting Pilot	Not to count	0.169444444	Awaiting pilot not to count BPVOY5
Chemstar Seven 97	Kandla	Awaiting available berth	Time to count	1.298611111	
Chemstar Seven 97	Kandla	Shifting	not to count	0.118055556	
Chemstar Seven 97	Jebel Ali	Shifting	Not to count	0.055555556	
Fairchem Eagle 22	Durban	Awaiting Pilot	Not to count	0.127083333	Awaiting pilot not to count BPVOY5
Fairchem Eagle 22	Durban	shifting	Not to count	0.120833333	
Fairchem Eagle 22	Richards Bay	shifting	Not to count	0.125	
Fairchem Eagle 22	Richards Bay	Bad Weather-Gale force wind	half time to count	0.319444444	Adverse weather-half time in BPVOY5
Fairchem Eagle 22	Richards Bay	Awaiting Pilot	Not to count	0.145833333	Awaiting pilot not to count BPVOY5
Fairchem Eagle 22	Kandla	shifting	Not to count	0.145833333	
Fairchem Eagle 22	Kandla	Awaiting documentation after hoses disconnected	Time to count	0.083333333	>3hrs after hoses disconnected, laytime resumes in BPVOY5
Fairchem Eagle 22	Kandla	Awaiting available berth	Time to count	1.841666667	
Ivory Ray 2	Durban	Awaiting available berth	Time to count	9.590277778	
Ivory Ray 2	Durban	shifting	Not to count	0.114583333	
Ivory Ray 2	Kandla	shifting	Not to count	0.125	
Ivory Ray 2	Kandla	Awaiting available berth	Time to count	4.597222222	
Ivory Ray 2	Durban	Awaiting documentation after hoses disconnected	Time to count	0.006944444	>3hrs after hoses disconnected, laytime resumes in BPVOY5
Fairchem Silver 19	Durban	Awaiting available berth	Time to count	5.475	
Fairchem Silver 19	Durban	shifting	Not to count	0.2	
Fairchem Silver 19	Kandla	shifting	Not to count	0.045833333	
Fairchem Silver 19	Kandla	Engine Problems	Not to count	0.223611111	Breakdown of vessel not to count in BPVOY5
Fairchem Silver 19	Kandla	Awaiting available berth	Time to count	1.441666667	

Chemstar Jewel 25	Durban	Awaiting available berth	Time to count	6.464583333	
Chemstar Jewel 25	Durban	shifting	Not to count	0.177083333	
Chemstar Jewel 25	Richards Bay	shifting	Not to count	0.128472222	
Chemstar Jewel 25	Richards Bay	Awaiting available berth	Time to count	1.725694444	
Chemstar Jewel 25	Kandla	shifting	Not to count	0.138888889	
Chemstar Jewel 25	Kandla	Awaiting available berth	Time to count	1.399305556	
Fairchem Sword 4	Richards Bay	Thunderstorm	Half time to count	0.017361111	Adverse weather-half time in BPVOY5
Fairchem Sword 4	New Orleans	Fog	Half time to count	0.225347222	Adverse weather-half time in BPVOY5
Fairchem Sword 4	New Orleans	shifting	Not to count	0.478472222	
Fairchem Sword 4	New Orleans	COC Inspection	Not to count	0.306944444	COC inspection not to count in BPVOY5
Fairchem Sword 4	New Orleans	2nd berth shifting	Time to count	0.246527778	
Fairchem Sword 4	Freeport	shifting	Not to count	0.081944444	
Fairchem Sword 4	Freeport	Awaiting available berth	Time to count	0.251388889	
Fairchem Sword 4	Houston	Awaiting available berth	Time to count	1.354166667	
Fairchem Sword 4	Houston	shifting	Not to count	0.316666667	
Fairchem Sword 4	Houston	2nd berth shifting	Time to count	0.241666667	
Chemstar Jewel 17	Durban	shifting	Not to count	0.183333333	
Chemstar Jewel 17	Durban	Awaiting available berth	Time to count	1.504166667	
Chemstar Jewel 17	Freeport	shifting	Not to count	0.034722222	
Chemstar Jewel 17	Houston	Awaiting available berth	Time to count	0.152777778	
Chemstar Jewel 17	Houston	shifting	Not to count	0.229166667	
Chemstar Jewel 17	Houston	2nd berth shifting	Time to count	0.204166667	
Chemstar Jewel 17	Houston	awaiting 2nd berth	Time to count	1.750694444	
Fairchem Yuka 30	Durban	shifting	Not to count	0.084722222	
Fairchem Yuka 30	Durban	Awaiting available berth	Time to count	1.477777778	
Fairchem Yuka 30	Richards Bay	shifting	Not to count	0.088888889	
Fairchem Yuka 30	Richards Bay	Awaiting available berth	Time to count	0.081944444	
Fairchem Yuka 30	New Orleans	shifting	Not to count	0.234722222	
Fairchem Yuka 30	New Orleans	Awaiting available berth	Time to count	1.723611111	
Fairchem Yuka 30	New Orleans	2nd berth shifting	Time to count	0.048611111	
Fairchem Yuka 30	New Orleans	Awaiting available berth	Time to count	0.959722222	
Fairchem Yuka 30	New Orleans	COC inspection	Not to count	0.520138889	COC inspection not to count in BPVOY5
Fairchem Yuka 30	New Orleans	Weather delays	half time to count	0.005208333	Adverse weather-half time in BPVOY5
Fairchem Yuka 30	Freeport	shifting	Not to count	0.091666667	
Fairchem Yuka 30	Houston	shifting	Not to count	0.208333333	
Fairchem Yuka 30	Houston	Awaiting available berth	Time to count	1.729166667	
Fairchem Yuka 30	Houston	2nd berth shifting	Time to count	0.25	
Fairchem Yuka 30	Houston	awaiting 2nd berth	Time to count	2.073611111	
Fairchem Maverick 21	Durban	shifting	Not to count	0.038194444	
Fairchem Maverick 21	Durban	Shore pump problem	half time to count	0.322916667	breakdown of machinery at shore half time to count in BPVOY5
Fairchem Maverick 21	New Orleans	2nd berth shifting	Time to count	0.225	
Fairchem Maverick 21	New Orleans	3rd berth shifting	Time to count	0.3875	
Fairchem Maverick 21	Houston	awaiting 2nd berth	Time to count	2.479166667	
Fairchem Maverick 21	Houston	2nd berth shifting	Time to count	0.23125	
Fairchem Sabre 15	Durban	shifting	Not to count	0.104166667	
Fairchem Sabre 15	Durban	Berth closure due to urgent maintenance	Half time to count	0.708333333	breakdown of machinery at shore half time to count in BPVOY5
Fairchem Sabre 15	Durban	Awaiting available berth	Time to count	4.368055556	
Fairchem Sabre 15	New Orleans	shifting	Not to count	0.113888889	
Fairchem Sabre 15	New Orleans	Awaiting available berth	Time to count	0.611111111	
Fairchem Sabre 15	New Orleans	2nd berth shifting	Time to count	0.203472222	
Fairchem Sabre 15	Freeport	Awaiting available berth	Time to count	0.254166667	
Fairchem Sabre 15	Freeport	shifting	Not to count	0.091666667	
Fairchem Sabre 15	Houston	shifting	Not to count	0.216666667	
Fairchem Sabre 15	Houston	Awaiting available berth	Time to count	1.554166667	
Fairchem Sabre 15	Houston	awaiting 2nd berth	Time to count	1.518055556	
Fairchem Sabre 15	Houston	2nd berth shifting	Time to count	0.229166667	
Fairchem Friesian 55	Durban	Awaiting available berth	Time to count	1.641666667	
Fairchem Friesian 55	Durban	Shifting	Not to count	0.095833333	
Fairchem Friesian 55	New Orleans	shifting	Not to count	0.120833333	
Fairchem Friesian 55	New Orleans	COC inspection	Not to count	0.1375	COC inspection not to count in BPVOY5
Fairchem Friesian 55	New Orleans	shifting 2nd berth	Time to count	0.272916667	
Fairchem Friesian 55	Houston	shifting	Not to count	0.241666667	
Fairchem Friesian 55	Houston	Channel Closure Dredging	Half time to count	0.169097222	
Fairchem Friesian 55	Houston	Fog	Half time to count	0.564236111	Adverse weather-half time in BPVOY5
Fairchem Friesian 55	Houston	Fog	Half time to count	0.0625	Adverse weather-half time in BPVOY5
Fairchem Friesian 55	Houston	Awaiting available berth	Time to count	2.433333333	
Fairchem Friesian 55	Houston	awaiting 2nd berth	Time to count	3.8875	
Fairchem Friesian 55	Houston	shifting 2nd berth	Time to count	0.220833333	
Jo Sequoia 73	Durban	Awaiting available berth	Time to count	0.315972222	
Jo Sequoia 73	Durban	shifting	Not to count	0.052083333	
Jo Sequoia 75	Le Havre	Awaiting available berth	Time to count	0.069444444	
Jo Sequoia 75	Le Havre	shifting	Not to count	0.111111111	
Jo Sequoia 77	Richards Bay	Manifold sample failure	Not to count	1	not to count in BPVOY5
Jo Sequoia 77	Richards Bay	shifting	Not to count	0.097222222	
Jo Lotus 5	Durban	Manifold sample failure	Not to count	1.190972222	
Jo Lotus 5	Antwerp VTL	Awaiting barge	time to count	0.315972222	
Jo Lotus 7	Durban	Awaiting available berth	Time to count	2.18125	No pro rata provisions under BPVOY5 even though loaded for other charterers at same berth
Jo Lotus 7	Durban	shifting	Not to count	0.054861111	
Jo Lotus 7	Durban	Electricity/Power failure	half time to count	0.046875	
Jo Lotus 7	Durban	Awaiting Pilot	Not to count	0.035416667	