

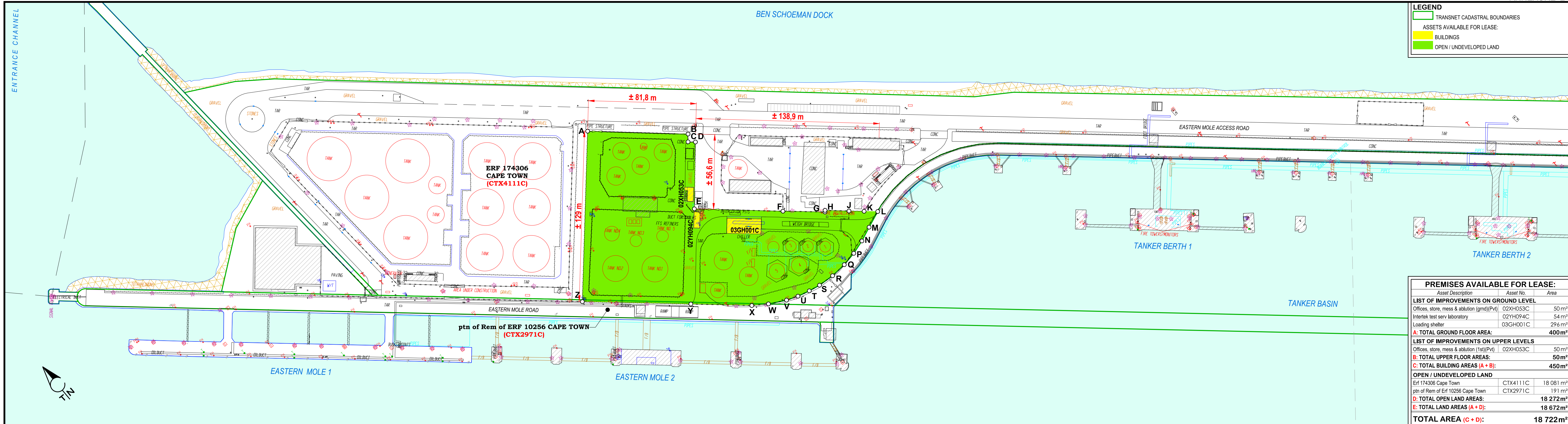
**Annexure A**

**TRANSNET SOC Ltd  
 ACTING THROUGH ITS OPERATING DIVISION  
 TNPA NATIONAL PORTS AUTHORITY("TNPA")**

**BID NOTICE: REQUEST FOR PROPOSAL FOR APPOINTMENT OF A TERMINAL OPERATOR TO, ACQUIRE, OPERATE, MAINTAIN, REFURBISH, AND/OR CONSTRUCT AND TRANSFER A LIQUID BULK TERMINAL FOR A TWENTY-FIVE (25) YEAR CONCESSION PERIOD AT THE PORT OF CAPE TOWN LIQUID BULK PRECINCT.**

**April 2024**

<b>Information Request Description</b>	<b>Acquire, Operate, Maintain, refurbish, and/or construct and Transfer a Liquid Bulk Terminal for a Twenty-Five (25) Year Concession Period at the Port of Cape Town Liquid Bulk Precinct.</b>
<b>RFP Number</b>	<b>TNPA/2024/04/0016/62969/RFP</b>
<b>Issue &amp; Collection Date</b>	<b>16 April 2024</b>
<b>Bid Fee and Banking Details</b>	<b>This RFP is issued free of charge.</b>
<b>Compulsory Briefing Session</b>	<b>30 April 2024 @ 10h00</b>
<b>Briefing Venue</b>	<b>South Arm Road -TNPA House-10 Floor Boardroom</b>
<b>RSVP for:        (1) Compulsory Briefing session.        (2) Site visit.</b>	<b>Requests to be emailed by 26 April 2024 to:  <a href="mailto:Pocliquidbulkrfp@transnet.net">Pocliquidbulkrfp@transnet.net</a></b>
<b>Bid submission Date</b>	<b>15 July 2024 at 16h00</b>



**LEGEND**

- TRANSNET CADASTRAL BOUNDARIES
- ASSETS AVAILABLE FOR LEASE:
- BUILDINGS
- OPEN / UNDEVELOPED LAND

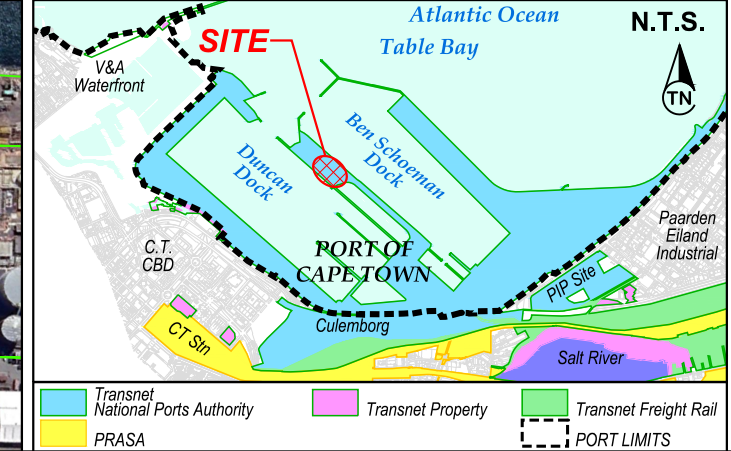
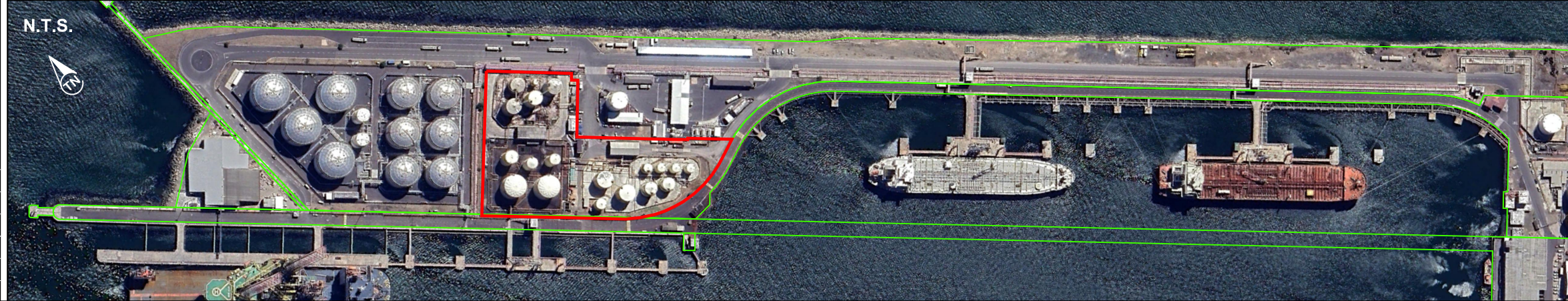
**PREMISES AVAILABLE FOR LEASE:**

Asset Description	Asset No.	Area
<b>LIST OF IMPROVEMENTS ON GROUND LEVEL</b>		
Offices, store, mess & ablution (grnd)(Pvt)	02XH053C	50 m <sup>2</sup>
Intertek test serv laboratory	02YH094C	54 m <sup>2</sup>
Loading shelter	03GH001C	296 m <sup>2</sup>
<b>A: TOTAL GROUND FLOOR AREA:</b>		<b>400m<sup>2</sup></b>
<b>LIST OF IMPROVEMENTS ON UPPER LEVELS</b>		
Offices, store, mess & ablution (1st)(Pvt)	02XH053C	50 m <sup>2</sup>
<b>B: TOTAL UPPER FLOOR AREAS:</b>		<b>50m<sup>2</sup></b>
<b>C: TOTAL BUILDING AREAS (A + B):</b>		<b>450m<sup>2</sup></b>
<b>OPEN / UNDEVELOPED LAND</b>		
Erf 174306 Cape Town	CTX4111C	18 081 m <sup>2</sup>
p/n of Rem of Erf 10256 Cape Town	CTX2971C	191 m <sup>2</sup>
<b>D: TOTAL OPEN LAND AREAS:</b>		<b>18 272m<sup>2</sup></b>
<b>E: TOTAL LAND AREAS (A + D):</b>		<b>18 672m<sup>2</sup></b>
<b>TOTAL AREA (C + D):</b>		<b>18 722m<sup>2</sup></b>

**COORDINATE LIST**

Please note:  
The coordinates of figure A,B,C,D,E,F,G,H,I,J,K,L,M,N,P,Q,R,S,T,U,V,W,X,Y,Z as listed below were scaled from existing P.M.P. plans.  
P.M.P. last updated: 2023-01-31

System: WGS84/19°			System: WGS84/19°			System: WGS84/19°			System: WGS84/19°		
Pt.	Y:	X:	Pt.	Y:	X:	Pt.	Y:	X:	Pt.	Y:	X:
A	+ 51 852.4	+ 3 753 829.6	H	+ 51 753.2	+ 3 753 991.1	Q	+ 51 768.5	+ 3 754 032.0	X	+ 51 842.0	+ 3 754 010.7
B	+ 51 795.5	+ 3 753 880.2	J	+ 51 739.6	+ 3 754 003.1	R	+ 51 780.6	+ 3 754 032.7	Y	+ 51 876.6	+ 3 753 980.1
C	+ 51 799.3	+ 3 753 884.7	K	+ 51 731.0	+ 3 754 010.7	S	+ 51 792.8	+ 3 754 031.8	Z	+ 51 938.4	+ 3 753 926.0
D	+ 51 795.1	+ 3 753 888.4	L	+ 51 723.2	+ 3 754 017.4	T	+ 51 801.5	+ 3 754 030.1			
E	+ 51 828.2	+ 3 753 926.6	M	+ 51 735.8	+ 3 754 022.3	U	+ 51 810.7	+ 3 754 027.7			
F	+ 51 778.0	+ 3 753 971.1	N	+ 51 746.7	+ 3 754 026.8	V	+ 51 819.2	+ 3 754 024.4			
G	+ 51 754.0	+ 3 753 992.0	P	+ 51 757.4	+ 3 754 030.0	W	+ 51 831.6	+ 3 754 017.8			



**TRANSNET**  
national ports authority

**PORT OF CAPE TOWN**  
AVAILABILITY PLAN

LAND AND BUILDINGS AVAILABLE FOR LEASING AT:  
EASTERN MOLE 2 - LIQUID BULK TERMINAL

PLAN FOR DISCUSSION PURPOSES ONLY - NOT TO BE USED TO CONCLUDE ANY AGREEMENT

Compiled:	S.S.	Client File Ref.:	HPM.2/06/
Date:	2024-03-26	Original Ref.:	A8-2086; A8-2206
GS Check:	B.A.S.	Revision:	-
Checked:		SCALE:	1 / 1 500

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GS Plan / File Ref.: **No TBH 106**

**CWX.510m A8-2402 AVAIL**

PLAN SIZE: CWX0408m\_Advertising\_A8



## Transnet Integrated Management System (TIMS) POLICY COMMITMENT STATEMENT

Transnet is a State-Owned Company that operates as an integrated freight transport company, formed around six core operating divisions namely Transnet Freight Rail (TFR), Transnet Engineering (TE), Transnet National Ports Authority (TNPA), Transnet Port Terminals (TPT) and Transnet Pipelines (TPL) and Transnet Property (TP) that complement each other.

Transnet has developed and implemented a TIMS that forms an integral part of the core business. We are committed to **transporting freight, passengers, and provide excellent service** to our customers along key transport corridors. This is done in order to **competitively grow our business**, enhance efficiency of South Africa's logistics system and thereby contribute to economic vibrancy.

TIMS is established, implemented and maintained in accordance with recognised best practices that will enable us to:

- Incorporate and comply with applicable **legislation, regulations, codes, standards, protocols, best practices and customer requirements** to which we subscribe in order to achieve our business objectives;
- Set and achieve **objectives and targets** that address significant enterprise-wide **strategic, tactical and operational risks, opportunities and mitigate the consequences** thereof;
- Proactively implement **waste and pollution prevention strategies** to prevent **environmental degradation**;
- Continually promote the prudent and **sustainable** use of **energy and natural resources**;
- Provide **quality products and services** in order to meet our customers' requirements;
- Provide **safe and secure environment** for our employees and stakeholder;
- Carry out our business in a manner which **protects our assets and information** and **prevents injuries and ill health** to our employees and stakeholders;
- Promote **safe operational principles** during operations to minimize occurrences of safety incidents;
- Strategically **source our contractors** through fair, equitable and transparent processes;
- Provide **soc-economic development** as a good corporate citizen;
- Promote **food safety practices** in our food preparation and handling environments;
- Ensure **proficiency and preparedness** to deal with and **effectively recover** from any **emergency situations**;
- **Develop, train and manage our employees** through inspirational leadership, provide the necessary **organizational information, knowledge and resources** to achieve the intention of this policy statement;
- **Communicate, engage and provide support** and **appropriate information** to relevant stakeholders in order to build relationships based on care, openness, mutual trust and involvement as well as promote a TIMS risks awareness culture;
- Allocate **responsibilities and accountabilities** for meeting the requirements of the TIMS policy statement.
- Drive an **integrated assurance management programme** to ensure **continual improvement** of TIMS.

The TIMS Policy Commitment Statement shall be **reviewed every three years or as circumstances dictate** to ensure that it remains **current and relevant**. Our progress on the achievement of the policy statement commitments shall be reported in the respective Governance Structures. Transnet recognises its accountability for TIMS; all employees including contractors have a role to play in delivering on the commitment set out in this policy statement.

  
 \_\_\_\_\_  
 Group Chief Executive

Date: 29/07/2020  
 Next Review Date: 29/06/2023

Copies of the approved TIMS Policy Commitment Statement can be made available to external Stakeholders on request.

# PORT OF CAPE TOWN

**National Ports  
Authority** of South Africa

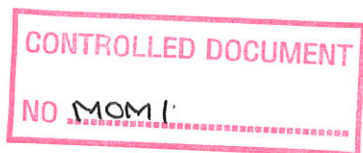


## WORK INSTRUCTION

### BERTHING SERVICES – PLACING VESSEL AT ASSIGNED BERTH

(CTP-BS-BM-WI-6002)

Copy No:



#### AMENDMENTS SCHEDULE

Rev. No.	Date	Revision Description	Reviewed	Authorised
0	17/08/2001	FIRST ISSUE	Chief Berthing Master	Harbour Master

Rev	Title	Page	Reference
0	<b>BERTHING SERVICES – PLACING VESSEL AT ASSIGNED BERTH</b>	2 of 3	<b>CTP-BS-BM-WI-6002</b>

### 1.0 Responsibility:

1.1 The Berthing Master

### 2.0 Purpose & Scope:

2.1 To ensure that the correct procedure is followed when placing vessel at assigned Berth.

### 3.0 Procedure:

- 3.1 Write up assigned job on whiteboard.
- 3.2 Write up assigned job in notebook.
- 3.3 Inform personnel of job.
- 3.4 Proceed to Berth.
- 3.5 Contact Pilot and confirm length of vessel and if taking bunkers.
- 3.6 Check Berth is clear.
- 3.7 Check fenders in order.
- 3.8 Check sufficient length to accommodate vessel.
- 3.9 Calculate where stern/bow will be and where stern/head lines will be affixed.
- 3.10 Indicate to Pilot that Berth is clear.
- 3.11 As ship approaches Berth ahead or astern report distances to Pilot up to end position.
- 3.12 Affix back springs fwd and aft unless Pilot instructs otherwise.
- 3.13 Affix head and stern lines unless Pilot requests otherwise.
- 3.14 Record the following info in notebook:
  - 3.14.1 Times
  - 3.14.2 Draft (fwd and aft)
  - 3.14.3 Name of vessel
  - 3.14.4 Name of Pilot
  - 3.14.5 Bollards for head and stern lines
- 3.15 Report to Ops "Job completed".

**Responsibility:**  
Berthing Master

### 4.0 References / Standards

4.1 ISO 9000:2000

### 5.0 Definitions

The words or phrases below, when applied within this procedure shall assume the following meanings:

- |     |       |  |
|-----|-------|--|
| 5.1 | CTP   | Documents that is applicable to Cape Town Port                         |
| 5.2 | BS    | Procedures that are applicable to Berthing Services (60..)             |
| 5.3 | MED   | Procedures that are applicable to Marine Engineering Department (70..) |
| 5.4 | ADM   | Procedures that are applicable to Administration (80..)                |
| 5.5 | SLP   | System Level Procedures  |
| 5.6 | SOP   | Standard Operating Procedure   |
| 5.7 | WI    | Work Instructions  |
| 5.8 | PC    | Port Captain   |
| 5.9 | SAMSA | South African Maritime Authority                                       |



**Annexure E**

**TNPA SECURITY POLICY**

**TRANSNET NATIONAL PORTS AUTHORITY**

**SECURITY POLICY**

**PORTFOLIO: LEGAL, RISK & COMPLIANCE**

**DEPARTMENT: SECURITY**

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## **1. STATEMENT OF PURPOSE**

1.1 Transnet National Port Authority (TNPA) depends on its personnel, information and other assets to deliver services that ensure the health, safety, security and economic growth and development of our country. TNPA must therefore manage these resources with due diligence and take appropriate measures to protect them.

1.2 Threats that can cause harm to TNPA, and some economies abroad, include acts of terror and sabotage, espionage, unauthorised access to buildings and premises, theft, armed robbery, fraud and corruption, vandalism, fire, natural disasters, technical failures and accidental damage. The threat of cyber attack and malicious activity through the internet is prevalent and can cause severe harm to electronic services and critical infrastructure. Threats to the national interests, such as transnational criminal activity, foreign intelligence activities and terrorism, continue to evolve as the result of changes in local, national and international environment.

1.3 The Security Policy of TNPA prescribes the application of security measures to reduce the risk of harm that can be caused to the company if the above threats should materialise. It has been designed to protect employees, preserve the confidentiality, integrity, availability and value of information and assets, and assure the continued delivery of services. Since TNPA relies extensively on information and communication technology (ICT) to provide its services, this policy emphasises the need for acceptable use of ICT equipment as well as ICT protection measures to be complied with by employees.

1.4 The main objective of this Policy therefore is to support the national interest and TNPA's business objectives by protecting employees, information and other assets and assuring the continued delivery of services to South African citizens and the maritime community.

1.5 This Policy complements other TNPA Policies (e.g. sexual harassment, occupational health and safety, official languages, information management, asset control, real estate and financial resources).



**2. SCOPE**

**2.1 This Policy applies to the following individuals and entities:**

- All TNPA employees;
- All contractors and consultants delivering a service to TNPA, including their employees who may interact with TNPA;
- Temporary TNPA employees;
- All information assets of TNPA;
- All intellectual property of TNPA;
- All fixed property that is owned or leased out by TNPA;
- All moveable property that is owned or leased out by TNPA;
- All Facilities operating at TNPA Ports including their employees;
- All private port users;
- All State Agencies operating at the Ports;
- All Port users with a temporary right of access.

**2.2 The Policy further covers the following seven elements of the security program of TNPA:**

- Security organisation

Port      Security  
 Plans

- Security administration
- Information security
- Physical security
- Personnel security
- Information and communication Technology (ICT) security
- Business Continuity Planning (BCP)

### **3. LEGISLATIVE OR REGULATORY REQUIREMENTS**

3.1 This Policy is informed by and complies with applicable national legislation, international codes, national security policies and national security standards. A list of applicable regulatory documents in this regard has been attached as Annexure 1.

See Disciplinary Code

### **4. POLICY STATEMENT**

#### **4.1 General**

- Employees of TNPA must be protected against identified threats according to baseline security requirements and continuous security risk management;
- Information and assets of TNPA must be protected according to baseline security requirements and continuous security risk management;
- Continued delivery of services of TNPA must be assured through baseline security requirements,

See organisational diagram of the security component

including business continuity planning and continuous security risk management.

## 4.2 Compliance requirements

4.2.1 All individuals and institutions mentioned in par. 2 above must comply with the baseline requirements (refer 4.3 below) of this Policy and its associated Security Directives as contained in the Port Security Plans of TNPA (i.e. Security Plans of the respective Ports). These requirements are/shall be based on integrated security Threat and Risk Assessments (TRA's) to the national interest as well as employees, information and assets of TNPA. The necessity of security measures above baseline levels will also be determined by the continual updating of the security TRA's.

See detailed functions the Security Component SOP's in the Security Directive

### 4.2.2 Security threat and risk assessments involve:

- Establishing the scope of the assessment and identifying the information, employees and assets to be protected;
- Determining the threats to information, employees and assets of TNPA and assessing the probability and impact of threat occurrence;
- Assessing the security risk based on the adequacy of existing security measures and vulnerabilities;
- Implementing any supplementary security measures that will reduce the security risk to an acceptable level.

See Security Directive Reporting of Security Breaches

### 4.2.3 Staff accountability and acceptable use of assets

4.2.3.1 The Chief Executive (CE) of TNPA shall ensure that information and assets of TNPA are used in accordance with





<p>management, security audits, sharing of information and assets);</p> <ul style="list-style-type: none"> <li>• Setting of access limitations;</li> <li>• Administration of security screening (refer par. 4.3.5 below);</li> <li>• Implementing physical security;</li> <li>• Ensuring the protection of employees;</li> <li>• Ensuring the protection of information;</li> <li>• Ensuring ICT security;</li> <li>• Ensuring security in emergency and increased threat situations;</li> <li>• Facilitating business continuity planning;</li> <li>• Ensuring security in contracting; and</li> <li>• Facilitating security breach reporting and investigations.</li> </ul> <p><b>4.3.2.2 Security incident/breaches reporting process</b></p> <p>4.3.2.2.1 Whenever an employee of TNPA becomes aware of an incident that might constitute a security breach or an unauthorised disclosure of information (whether accidentally or intentionally), he/she shall report that to the Head of Security of TNPA by utilising the formal reporting procedure prescribed in the Security Breach Directive of TNPA; who will then report to the CE.</p> <p>4.3.2.2.2 The CE of TNPA shall report to the appropriate authority (as indicated in the Security Breach Directive of TNPA) all cases or suspected cases of security breaches, for investigations;</p>	<p>See Security Directive Protection of Information Requirements</p>          <p>See Security Directive Physical Security</p>
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<p>4.3.2.2.3 The Head of Security of TNPA shall ensure that all employees are informed about the procedure for reporting security breaches.</p>	
<p>4.3.2.3 <b>Security incidents/breaches response process</b></p>	<p>See Security Directive</p>
<p>4.3.2.3.1 The Security Department shall develop and implement security breach response mechanisms for TNPA in order to address all security breaches/alleged breaches which are reported;</p>	<p>Protection of Information Requirements</p>
<p>4.3.2.3.2 The Head of Security shall ensure that the CE of TNPA is advised of such incidents as soon as possible;</p>	
<p>4.3.2.3.3 It shall be the responsibility of the National Intelligence Structures (e.g. NIA or SAPS ) to conduct an investigation on reported security breaches and provide feedback with recommendations to TNPA;</p>	
<p>4.3.2.3.4 Access privileges to classified information, assets and/or to premises may be suspended by the CE of TNPA until administrative, disciplinary and/or criminal processes have been concluded, flowing from investigations into security breaches or alleged security breaches;</p>	<p>See Security Directive Security Screening</p>
<p>4.3.2.3.5 The end result of these investigations, disciplinary action or criminal prosecutions may be taken into consideration by the CE of TNPA in determining whether to restore, or limit, the security access privileges of an individual or whether to revoke or alter the security clearance of the individual.</p>	
<p>4.3.3 <b>Information Security</b></p>	
<p>4.3.3.1.1 <b>Categorisation of information and information classification system</b></p>	
<p>4.3.3.1.1 The Head of Security must ensure that a comprehensive information classification system is developed for and implemented at TNPA. All sensitive information produced or processed by TNPA must be identified, categorised and classified according to the origin of its source and contents and according to its sensitivity to loss or disclosure;</p>	

<p>4.3.3.1.2 All sensitive information must be categorised into one of the following categories:</p> <ul style="list-style-type: none"> <li>• State Secret;</li> <li>• Trade Secret; and</li> <li>• Personal Information.</li> </ul> <p>And subsequently classified according to its level of sensitivity by using one of the recognised levels of classification:</p> <ul style="list-style-type: none"> <li>• Confidential;</li> <li>• Secret; and</li> <li>• Top secret.</li> </ul>	<p>See Security Directive Security Screening</p>
<p>4.3.3.1.2 Employees of TNPA who generate sensitive information are responsible for determining information classification levels and the classification thereof, subject to management review. This responsibility includes the labelling of classified documents;</p>	<p>See Security Directive Security Training and Awareness</p>
<p>4.3.3.1.3 The classification assigned to documents must be strictly adhered to and the prescribed security measures to protect such documents must be applied at all times;</p>	
<p>4.3.3.1.5 Access to classified information will be determined by the following principles:</p> <ul style="list-style-type: none"> <li>• Intrinsic secrecy approach;</li> <li>• Need-to-know;</li> <li>• Level of security clearance.</li> </ul>	<p>See ICT Security Policy and Security Directive ICT Security</p>
<p><b>4.3.4 Physical Security</b></p>	
<p>4.3.4.1 Physical security involves the proper layout and design of facilities of TNPA and the use of physical security</p>	

<p>measures to delay and prevent unauthorised access to assets of TNPA. It includes measures to detect attempted or actual unauthorised access and the activation of an appropriate response.</p> <p>4.3.4.2 Physical security measures must be developed, implemented and maintained in order to ensure that the entire personnel, property and information are secured. These security measures shall be based on the findings of the Threat and Risk Assessment (TRA) conducted by auditor/s under the guidance of the Head of Security.</p> <p>4.3.4.3 TNPA shall ensure that physical security is fully integrated with business processes early in the process of planning, selecting, designing and modifying of its facilities. TNPA shall:</p> <ul style="list-style-type: none"> <li>• Select, design and modify facilities in order to facilitate the effective control of access thereto;</li> <li>• Demarcate restricted access areas and have the necessary entry barriers, security systems and equipment to effectively control access thereto;</li> <li>• Include the necessary security specifications in planning, request for proposals and tender documentation;</li> </ul> <p>4.3.4.4 TNPA will also ensure the implementation of appropriate physical security measures for the secure storage, transmittal and disposal of classified and protected information in all forms;</p> <p>4.3.4.5 All employees, respective State Agents personnel, employees of Facilities at the respective Ports, private port users, port users' visitors are required to comply with access control procedures of TNPA at all times. This includes the producing of Corporate ID Cards/permits upon entering any sites of TNPA including Ports, the display thereof whilst on the premises and the escorting of official visitors.</p> <p>4.3.5 <b>Personnel Security</b></p>	<p>See BCP</p> <p>See Security Directive ICT Security</p>
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<p><b>4.3.5.1 Security Screening</b></p> <p>4.3.5.1.1 All employees, contractors and consultants of TNPA, who require access to classified information and critical assets in order to perform their duties or functions, must be subjected to a security screening investigation conducted by the National Intelligence Agency (NIA) so that they could be granted a security clearance at the appropriate level;</p> <p>4.3.5.1.2 The level of security clearance given to a person will be determined by the content of or access to classified information entailed by the post already occupied or to be occupied in accordance with their respective responsibilities and accountability;</p> <p>4.3.5.1.3 A security clearance provides access to classified information subject to the need-to-know principle;</p> <p>4.3.5.1.4 A declaration of secrecy shall be signed by every individual issued with a security clearance to complement the entire security screening process. This will remain valid even after the individual has terminated his/her service with TNPA;</p> <p>4.3.5.1.5 A security clearance will be valid for a period of ten years in respect of the Confidential Level and five years for Secret and Top Secret. This does not preclude re-screening on a more frequent basis as and when need arises and/or as determined by the CE of TNPA, based on information which impact negatively on an individual's security competence;</p> <p>4.3.5.1.6 Security clearances in respect of all individuals who have terminated their services with TNPA shall be immediately withdrawn.</p> <p><b>4.3.5.2 Polygraph Examination</b></p> <p>4.3.5.2.1 A polygraph examination shall be utilised to provide support to the security screening process. All employees subjected to a Top Secret security clearance will also be subjected to a polygraph examination. The polygraph shall only be used to determine the reliability of the information gathered during the security screening investigation and does not imply any suspicion or risk on the part of the applicant;</p>	<p>See Security Directive ICT Security</p> <p>See Security Directive ICT Security</p>
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4.3.5.2.2 In the event of any negative information being obtained with regard to the applicant during the security screening investigation (all levels), the applicant shall be given an opportunity to prove his/her honesty and/or innocence by making use amongst others of the polygraph examination. Refusal by the applicant to undergo the examination does not necessarily signify that a security clearance will not be granted.

See Security Directive Secure Discussion Areas

**4.3.5.3 Transferability of Security Clearances**

4.3.5.3.1 A security clearance issued in respect of an official from other government institutions shall not be automatically transferable to TNPA. The responsibility for deciding whether the official should be re-screened rests with the CE of TNPA.

**4.3.5.4 Security Awareness and Training**

4.3.5.4.1 A security training and awareness program must be developed by the Security Department and implemented to effectively ensure that all personnel and service providers of TNPA remain security conscious;

See BCP

4.3.5.4.2 All employees shall be subjected to the security awareness and training programs and must certify that the contents of the program have been understood and will be complied with. The program will not only cover training with regard to specific security responsibilities but also sensitise employees, relevant contractors and consultants about the security policy, security measures of TNPA as well as the need to protect sensitive information against disclosure, loss or destruction;

4.3.5.4.3 Periodic security awareness presentations, briefings and workshops will be conducted and in addition to that, posters and pamphlets will be frequently distributed in order to enhance the training and awareness program. Attendance of the above programs will be compulsory for all employees who shall have been identified and notified to attend;

4.3.5.4.4 Regular audits, surveys and walkthrough inspections shall be conducted by the Head of Security and members of the

security department to monitor the effectiveness of the security training and awareness program.

#### **4.3.6 Information and Communication Technology (ICT) Security**

##### **4.3.6.1 IT Security**

4.3.6.1.1 A secure network shall be established for TNPA in order to ensure that information systems are secured against rapidly evolving threats that have the potential to impact on their confidentiality, integrity, availability, intended use and value;

4.3.6.1.2 To prevent the compromise of IT systems, TNPA shall implement baseline security controls and any additional control identified through the security TRA. These controls, and the security roles and responsibilities of all personnel, shall be clearly defined, documented and communicated to all employees;

4.3.6.1.3 To ensure policy compliance, the Chief Information Officer of TNPA shall:

- Certify that all its systems are secure after procurement, accredit IT systems prior to operation and comply with minimum security standards and directives;
- Conduct periodic security evaluations of systems, including assessments of configuration changes conducted on a routine basis;
- Periodically request assistance, review and audits from the National Intelligence Agency (NIA) in order to get an independent assessment.

4.3.6.1.4 Server rooms and other related security zones where IT equipment is kept shall be secured with adequate physical security measures and strict access control shall be enforced and monitored;

<p>4.3.6.1.5 Access to the resources on the network of TNPA shall be strictly controlled to prevent unauthorised access. Access to all computing and information systems and peripherals of TNPA shall be restricted unless explicitly authorised;</p> <p>4.3.6.1.6 System hardware, operating and application software, the network and communication systems of TNPA shall be adequately configured and safeguarded against both physical attack and unauthorised network intrusion;</p> <p>4.3.6.1.7 All employees shall make use of IT systems of TNPA in an acceptable manner and for business purposes only. All employees shall comply with the IT Security Directives in this regards at all times;</p> <p>4.3.6.1.8 The selection of passwords, their use and management as a primary means to control access to systems is to strictly adhere to best practice guidelines as reflected in the IT Security Directives. In particular, passwords shall not be shared with any other person for any reason;</p> <p>4.3.6.1.9 To ensure the ongoing availability of critical services, TNPA shall develop IT continuity plans as part of its overall Business Continuity Planning (BCP) and recovery activities.</p> <p><b>4.3.6.2 Internet Access</b></p> <p>4.3.6.2.1 The Chief Information Officer (CIO) of TNPA, having the overall responsibility for setting up Internet Access for TNPA, shall ensure that the network of TNPA is safeguarded from malicious external intrusion by developing, as a minimum, a configured firewall. Human Resources management shall ensure that all personnel with Internet access (including e-mail) are aware of, and will comply with, an acceptable code of conduct in their usage of the Internet;</p> <p>4.3.6.2.2 The CIO of TNPA shall be responsible for controlling user access to the Internet, as well as ensuring that users are aware of the threats, and are trained in the safeguards, to reduce the risk of Information Security breaches and incidents;</p>	<p>See Disciplinary</p>
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4.3.6.2.3 Incoming e-mails must be treated with the utmost care due to its inherent Information Security risks. The opening of e-mail with file attachments is not permitted unless such attachments have already been scanned for possible computer viruses or other malicious code;

**4.3.6.3 Use of Laptop Computers**

4.3.6.3.1 Usage of laptop computers by employees of TNPA is restricted to business purposes only, and users shall be aware of, and accept the terms and conditions of use, especially the responsibility for the security of the information held on such devices;

4.3.6.3.2 The information stored on a laptop computer of TNPA shall be suitably protected at all times, in line with the protection measures prescribed in the IT Security Directive;

4.3.6.3.3 Employees shall also be responsible for implementing the appropriate security measures for the physical protection of laptop computers at all times, in line with the protection measures prescribed in the IT Security Directive.

**4.3.6.4 Communication Security**

4.3.6.4.1 The application of appropriate security measures shall be instituted in order to protect all sensitive and confidential communication of TNPA in all its forms and at all times;

4.3.6.4.2 All sensitive electronic communications by employees or contractors of TNPA must be encrypted in accordance with the South African Communication Security Agency (SACSA) standards and the Communication Security Directive of TNPA. Encryption devices shall only be purchased from SACSA or COMSEC and will not be purchased from commercial suppliers;

4.3.6.4.3 Access to communication security equipment of TNPA and the handling of information transmitted and/or received by such equipment, shall be restricted to authorised personnel only i.e. personnel with a Top Secret Clearance who successfully completed the SACSA Course.

See Security  
 Directive Security  
 Training and  
 Awareness

**4.3.6.5 Technical Surveillance Counter Measures (TSCM)**

4.3.6.5.1 All offices, meeting, conference and boardroom venues of TNPA where sensitive and classified matters are discussed on a regular basis shall be identified and shall be subjected to proper and effective physical security and access control measures. Periodic electronic Technical Surveillance Counter Measures (sweeping) will be conducted by NIA to ensure that these areas are kept sterile and secure;

4.3.6.5.2 The Head of Security of TNPA shall ensure that areas that are utilised for discussions of a sensitive nature as well as offices or rooms that house electronic communications equipment, are physically secured in accordance with the standards laid down by NIA in order to support the sterility of the environment after a TSCM examination, before any request for a TSCM examination is submitted;

4.3.6.5.3 No unauthorised electronic devices shall be allowed in any boardrooms and conference facilities where sensitive information of TNPA is discussed. Authorisation must be obtained from the Head of Security.

**4.3.7 Business Continuity Planning (BCP)**

4.3.7.1 The Head of Security of TNPA must establish a Business Continuity Plan (BCP) to provide for the continued availability of critical services, information and assets if a threat materialises and to provide for appropriate steps and procedures to respond to an emergency situation to ensure the safety of employees, contractors, consultants, facilities, private port users and visitors;

See Security Directive Security Audits and Inspections

4.3.7.2 The BCP shall be periodically tested to ensure that the management and employees of TNPA understand how it is to be executed;

4.3.7.3 All employees of TNPA shall be made aware and trained on the content of the BCP to ensure understanding of their own respective roles in terms thereof;

4.3.7.4 The Business Continuity Plan shall be kept up to date and re-tested periodically by the Head of Security.

## **5. SPECIFIC RESPONSIBILITIES**

### **5.1 Chief Executive**

5.1.1 The CE of TNPA bears the overall responsibility for implementing and enforcing the security program of TNPA. In executing this responsibility, the CE shall:

- Establish the post of the Head of Security and appoint a well-trained and competent security official in the post;
- Establish a **Security Committee** for the company and ensure the participation of all Senior Management members of all the core business functions of TNPA in the activities of the Committee;
- Approve and ensure compliance with this Policy and its associated Security Plans and Directives.

### **5.2 Head of Security**

5.2.1 The delegated security responsibility lies with the Head of Security of TNPA who will be responsible for the execution of the entire security function and program within TNPA (co-ordination, planning, implementing, controlling). In executing his/her responsibilities, the Head of Security shall, amongst others;

- Chair the Security Committee of TNPA;
- Draft the internal Security Policy and Security Plan (containing the specific and detailed Security Directives) of TNPA in conjunction with the Security Committee;

- Ensure that Port Security and Port Facility Security Plans are in place and reviewed annually; for all regulated ports falling under TNPA jurisdiction;
- Review the Security Policy and Security Plan at regular intervals;
- Conduct a security TRA of TNPA with the assistance of the Security Committee;
- Advise management on the security implications of management decisions;
- Implement a security risk awareness program;
- Conduct internal compliance audits and inspections at TNPA at regular intervals;
- Conduct preliminary enquiries on security breaches within TNPA;
- Establish a good working relationship with both NIA and SAPS and liaise with these institutions on a regular basis.

### 5.3 **Security Committee**

5.3.1 The Security Committee referred to in par. 5.1.1 above shall consist of senior managers of TNPA representing all main business units of TNPA.

5.3.2 Participation in the activities of the Security Committee by the appointed representatives of business units of TNPA shall be compulsory;

5.3.3 The Security Committee of TNPA shall be responsible for, amongst others, assisting the Head of Security in the execution of all security related responsibilities at TNPA, including completing



tasks such as drafting/reviewing of the Security Policy and Plan; conducting of a security TRA; conducting of security audits; drafting of BCP; and assisting with security risk awareness and training.

#### **5.4 Port Managers**

5.4.1 All Port Managers have a delegated responsibility and commensurate authority to manage security at their respective regulated ports and must account on security matters to the Head of Security's Office;

5.4.2 Port Managers must ensure that appropriate measures are implemented and steps are taken immediately to rectify any non-compliance issues that may come to their attention. This includes taking disciplinary action against employees if warranted.

#### **5.5 Port Security Officer (PSO)**

5.5.1 Manage, lead, co-ordinate, plan and organise the total TNPA security function within a specified port;

5.5.2 Carry out duties as specified in the Maritime Security Regulations 2004.

#### **5.6 Port Facilities (Terminal Operators)**

5.6.1 All Terminal Operators are required to manage their security in accordance with their approved Port Facility Security Plans.

5.6.2 All Terminal Operators are required to act upon the security levels as set by the Director General, National Department of Transport.

5.6.3 All Terminal Operators are required to comply with all applicable legislation and International Legal Instruments.

#### **5.7 Line Management**

5.7.1 All managers of TNPA shall ensure that their subordinates comply with this policy and the Security Directives as contained in the Security Plan of TNPA at all times;

5.7.2 Managers must ensure that appropriate measures are implemented and steps are taken immediately to rectify any non-compliance issues that may come to their attention. This includes taking disciplinary action against employees if warranted.

## 5.8 **Port Facility Security Officer (PFSO)**

A Port Facility Security Officer shall:

5.8.1 Ensure that Port Facility Security Plans are developed in line with the respective overall Port Security Plan;

5.8.2 Ensure that regular reviews are held and plans updated accordingly;

5.8.3 Carry out functions as per the Maritime Regulations 2004; and the ISPS Code;

5.8.4 Report incidents as provided for in Section 62 (5) of the National Ports Authority Act (Act 12 of 2005).

## 5.9 **Employees, Consultants, Contractors and Other Service Providers**

5.9.1 Every employee, consultant, contractor, various port users and other service providers of TNPA shall know what their security responsibilities are, accept it as part of their normal job function, and not only co-operate, but contribute to improving and maintaining security at TNPA at all times.

## 6. **AUDIENCE**

6.1 This Policy is applicable to all members of the management, employees, consultants, contractors, port facilities & various port users and any other service providers of TNPA. It is further applicable to all visitors and members of the public visiting premises of, or may officially interact with, TNPA.

## **7. ENFORCEMENT**

7.1 The CE of TNPA and the appointed Head of Security are accountable for the enforcement of this Policy;

7.2 All employees of TNPA are required to fully comply with this Policy and its associated Security Directives and Port Facility Security Plans as contained in the Security Plan. Non-compliance with any prescripts shall be addressed in terms of the Disciplinary Code of TNPA;

7.3 Prescripts to ensure compliance to this Policy and the Security Directives by all consultants, contractors, or other service providers of TNPA shall be included in the contracts signed with such individuals/institutions/companies. The consequences of any transgression/deviation or non-compliance shall be clearly stipulated in said contracts and shall be strictly enforced. Such consequences may include the payment of prescribed penalties or termination of the contract, depending on the nature of any non-compliance.

## **8. EXCEPTIONS**

8.1 Deviations from this Policy and its associated Security Directives will only be permitted in the following circumstances;

- When security can be breached in order to save or protect the lives of people;
- During unavoided emergency circumstances e.g. natural disasters;
- On written permission by the CE of TNPA (reasons for allowing non-compliance to one or more aspects of the Policy and directives shall be clearly stated in such permission; no blanket non-compliance shall be allowed under any circumstances).

## **9. OTHER CONSIDERATIONS**

9.1 The following shall be taken into consideration when implementing this Policy:

9.1.1 Occupational Health and Safety issues within TNPA operations;

9.1.2 Disaster management at TNPA;

9.1.3 Disabled persons shall not be inconvenienced by physical security measures and must be catered for in such a manner that they have access without compromising security or the integrity of this Policy;

9.1.4 Environmental issues as prescribed and regulated in relevant legislation (e.g. when implementing physical security measures that may impact on the environment).

## **10. COMMUNICATING THE POLICY**

10.1 The Head of Security of TNPA shall ensure that the content of this Policy (or applicable aspects thereof) is communicated to all employees, port facilities and various port users, consultants, contractors, other service providers, clients, visitors, members of the public that may officially interact with TNPA. The Head of Security will further ensure that all security policy and directive prescriptions are enforced and complied with.

10.2 The Head of Security must ensure that a comprehensive security risk awareness program is developed and implemented within TNPA to facilitate the above said communication. Communication of the Policy by means of this program shall be conducted as follows:

- Awareness workshops and briefings to be attended by all employees, port facilities and various port users;
- Distribution of memos and circulars to all employees;

- Access to the policy and applicable directives on the intranet of TNPA.

## **11. REVIEW AND UPDATE PROCESS**

11.1 The Head of Security, assisted by the Security Committee of TNPA, must ensure that this Policy and its associated Security Directives is reviewed and updated on an annual basis. Amendments shall be made to the Policy and Directives as need arises.

## **12. IMPLEMENTATION**

12.1 The Head of Security of TNPA must manage the implementation process of this Policy and its associated Security Directives (contained in the Security Plan by means of an action plan (also to be included in the Security Plan of TNPA).

12.2 Implementation of the Policy and its associated Security Directives is the responsibility of each and every individual this Policy is applicable to (see par. 2.1 above).

## **13. MONITORING OF COMPLIANCE**

13.1 The Head of Security, with the assistance of the security department and Security Committee of TNPA must ensure compliance with this policy and it's associated Security Directives by means of conducting internal security audits and inspections on a frequent basis.

13.2 The findings of the said audits and inspections shall be reported to the CE of TNPA forthwith after completion thereof.

## **14. DISCIPLINARY ACTION**

14.1 Non-compliance with this Policy and its associated Security Directives shall result in disciplinary action which may include, but is not limited to:

- Re-training;
- Verbal and written warnings;
- Termination of contracts in the case of contractors or consultants delivering a service to TNPA;
- Dismissal;
- Suspension;
- Loss of TNPA information and asset resources access privileges.

14.2 Any disciplinary action taken in terms of non-compliance with this Policy and its associated directives will be in accordance with the Disciplinary Code of TNPA.

**15. APPROVAL**

**APPROVED BY**

\_\_\_\_\_ **Date:**  
 \_\_\_\_\_

**Summary of Changes:**

Version	Status/Changes	Author	Year of Issue
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01	Second Issue	MJ Moleya	2008/09	
<b>Distribution:</b> To all				

## **ANNEXURE "1"**

### **APPLICABLE LEGISLATION AND OTHER REGULATORY FRAMEWORK DOCUMENTS**

#### **1. Applicable Legislation**

- 1.1 The Constitution Act 108 of 1996
- 1.2 The National Ports Authority Act 12 of 2005
- 1.3 Control of Access to Public Premises and Vehicles Act 53 of 1985 as amended
- 1.4 The Criminal Procedure Act 51 of 1977 as amended
- 1.5 The Protection of Information Act 84 of 1982 as amended
- 1.6 The Occupational Health and Safety Act 85 of 1993 as amended
- 1.7 The Promotion of Access to Information Act of 2 of 2000
- 1.8 Firearms Control Act 60 of 2000
- 1.9 State Information Technology Act 88 of 1998
- 1.10 Private Security Industry Regulation Act 56 of 2001
- 1.11 Trespass Act 6 of 1959 as amended
- 1.12 National Archives of South Africa Act, 43 of 1996
- 1.13 Fire Brigade Services Act, 99 of 1987 as amended
- 1.14 Public Finance Management Act, 1 of 1999
- 1.15 Public Service Regulations of 2001
- 1.16 The National Strategic Intelligence Act, 39 of 1994
- 1.17 The National Key Points Act 102 of 1980
- 1.18 The Corruption Act, 94 of 1992
- 1.19 Prevention of Organised Crime Act, 121 of 1998
- 1.20 Protected Disclosures Act, 26 of 2000
- 1.21 Telecommunications Act, 2 of 2000
- 1.22 Prevention of Interception and Monitoring Act, 70 of 2002
- 1.23 Electronic Communication Security Act, 68 of 2002



- 1.24 The National Building Regulations and Standards Act, 103 of 1956 as amended
- 1.25 The Prevention and Combating of Corrupt Activities Act 12 of 2004
- 1.26 National Environmental Management Act, 107 of 1995

## 2. **Other Regulatory Framework Documents**

- 2.1 Minimum Information Security Standards (MISS), Second Edition March 1998;
- 2.2 Minimum Physical Security Standards (MPSS)
- 2.3 International Ship and Port Facility Security Code and SOLAS Amendments 2002;
- 2.4 Merchant Shipping Act (Maritime Security Regulations) of 2004
- 2.5 Risk Management Standard GRB 1.1 Transnet Generic Security Standard;
- 2.6 White Paper on Intelligence (1995)
- 2.7 SACSA/090/1(4) Communication Security in the RSA
- 2.8 NIA Guidance Documents: ICT Policy and Standards: Part 1 & 2
- 2.9 ISO 17799
- 2.10 National Building Regulations

## ANNEXURE "2"

### GLOSSARY AND DEFINITIONS

- "accreditation" means the official authorisation by management for the operation of an Information Technology (IT) system, and acceptance by that management of the associated residual risk. Accreditation is based on the certification process as well as other management considerations;
- "assets" means material and immaterial property of an institution. Assets include but are not limited to information in all forms and stored on any media, networks or systems, or material, real property, financial resources, employee trust, public confidence and international reputation;
- "availability" means the condition of being usable on demand to support operations, programs and services;
- "business continuity planning" includes the development of plans, measures, procedures and arrangements to ensure minimal or no interruption of the availability of critical services and assets;
- "candidate" means an applicant, an employee, a contract employee or a person acting on behalf of a contract appointee or independent contractor;
- "certification" means the issuing of a certificate certifying that a comprehensive evaluation of the technical and non-technical security features of an Information and Communication Technology system (hereinafter referred to as an ICT system) and its related safeguards has been undertaken and that it was established that its design and implementation meets a specific set of security requirements;
- "COMSEC" means the organ of state known as the Electronic Communications Security (Pty) Ltd, which was established in terms of section 2 of the Electronic Communications Security Act, 2002 (Act No. 68 of 2002) and until such time as COMSEC becomes operational, the South African Communication Security Agency will be in force;

- “critical service” means a service identified by an institution as a critical service through a Threat and Risk Assessment and the compromise of which will endanger the effective functioning of the institution;
  
- “document” means –
  - any note or writing, whether produced by hand or by printing, typewriting or any other similar process, in either tangible or electronic format;
  - any copy, plan, picture, sketch or photographic or other representation of any place or article;
  - any disc, tape, card, perforated roll or other device in or on which sound or any signal has been recorded for reproduction;
  
- “information security” includes, but is not limited to;
  - document security;
  - physical security measures for the protection of information;
  - information and communication technology security;
  - personnel security;
  - business continuity planning;
  - contingency planning;
  - security screening;
  - technical surveillance counter-measures;
  - dealing with information security breaches;
  - security investigations; and
  - administration and organisation of the security function at organs of state;
  
- “National Intelligence Structures” means the National Intelligence Structures as defined in section 1 of the National Strategic Intelligence Act, (Act 39 of 1994);

- "reliability check" means an investigation into the criminal record, credit record and past performance of an individual or private organ of state to determine his, her or its reliability;
- "risk means the likelihood of a threat materialising by exploitation of a vulnerability;
- "screening investigator" means a staff member of a National Intelligence Structure designated by the head of the relevant National Intelligence Structure to conduct security clearance investigations;
- "security breach" means the negligent or intentional transgression of or failure to comply with security measures;
- "security clearance" means a certificate issued to a candidate after the successful completion of a security screening investigation, specifying the level of classified information to which the candidate may have access subject to the need-to-know principle;
- "site access clearance" means clearance required for access to installations critical to the national interests;
- "Technical Surveillance Counter measures" (TSCM) means the process involved in the detection, localisation, identification and neutralisation of technical surveillance of an individual, an organ of state, facility or vehicle;
- "technical/electronic surveillance" means the interception or monitoring of sensitive or proprietary information or activities (also referred to as bugging);
- "threat" means any potential event or act, deliberate or accidental, that could cause injury to person, compromise the integrity of information or could cause the loss or damage of assets;

- “Threat and Risk Assessment” (TRA) means, within the context of security risk management, the process through which it is determined when to avoid reduce, and accept risk, as well as how to diminish the potential impact of a threatening event;
- “vulnerability” means a deficiency related to security that could permit a threat to materialise.

## **ANNEXURE "3"**

### **SUPPORTING DOCUMENTS**

- Security Plan containing the following:
  - Security Component Organisation Structure
  - Security Component SOP's
  - Specific Responsibilities of Key Role Players
  - Port Security Plans
  - Security Directive: Reporting of Security Breaches
  - Security Directive: Security Breaches Response Procedures
  - Security Directive: Information Security: General Responsibilities
  - Security Directive: Classification System
  - Security Directive: Security Screening
  - Security Directive: Physical Security
  - Security Directive: Access Control
  - Security Directive: ICT Security
  - Security Directive: Secure Discussion Areas
  - Security Directive: TRA
  - Security Directive: Security Audits and Inspections
- ICT Security Policy
- BCP
- OHS Policy
- Disciplinary Code

GOVERNMENT NOTICES • GOEWERMENTSKENNISGEWINGS

DEPARTMENT OF EMPLOYMENT AND LABOUR

NO. R. 2989

31 January 2023

**OCCUPATIONAL HEALTH AND SAFETY ACT (ACT No. 85 OF 1993), as  
amended**

**PROMULGATION OF MAJOR HAZARD INSTALLATION REGULATIONS, 2022**

I, Thembelani Waltermade Nxesi, Minister of Employment and Labour, hereto, after consultation with the Advisory Council of Occupational Health and Safety, promulgates the new regulation relating to Major Hazard Installations; in terms of section 43(1)(c) of the Occupational Health and Safety Act, 1993 (Act no. 85 of 1993).



MR TW-NXESI, MP  
MINISTER OF EMPLOYMENT AND LABOUR  
DATE: 13/11/2022

**OCCUPATIONAL HEALTH AND SAFETY ACT, 1993**  
**MAJOR HAZARD INSTALLATION REGULATIONS 20XX**

The Minister of Employment and Labour intends, after consultation with the Advisory Council for Occupational Health and Safety, in terms of section 43 of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993), to make the Regulations in the Schedule.



## SCHEDULE

### Definitions

1. In these Regulations, a word or expression to which a meaning has been assigned in the Act has the meaning so assigned and, unless the context otherwise indicates—

**"affected or interested party"** means a person, group of persons or organisations interested in or affected by an establishment and an organ of state that has jurisdiction over an establishment;

**"change"** means—

- (a) a modification in the methods, equipment or procedures in use or the handling or processing of dangerous substances in the establishment that may increase the establishment's risk profile;
- (b) an increase or decrease in the quantity of dangerous substances contemplated in Chapters 1 and 2 that results in the establishment being classified as a major hazard installation where—
  - (i) a low hazard establishment becomes a medium hazard establishment or vice versa;
  - (ii) a medium hazard establishment becomes a high hazard establishment or vice versa;
  - (iii) a low hazard establishment becomes a high hazard establishment or vice versa; or
  - (iv) an installation below the low hazard establishment threshold becomes a low, medium or high hazard establishment;
- (c) when an emergency plan is brought into action for a major incident;

**"dangerous substances"** means substances or mixtures used or present at the workplace that could, if not properly controlled, cause harm to people, the environment and property as a result of loss of containment, fire or explosion;

**"direction"** means a notice, or a recommendation or instruction served by an inspector in writing;

**"duty holder"** means an employer, a self-employed person, a user or a pipeline operator who is in control of an establishment;

**"establishment"** means a major hazard installation under the control of a duty holder where Chapter 1, 2 or 3 dangerous substances are present;

**"emergency plan"** means a plan contemplated in regulation 15;

**"existing establishment"** means an establishment where dangerous substances are present in quantities listed in Chapter 1, 2 or 3;

**"high hazard establishment"** means—

- (a) an establishment where Chapter 1 or 2 dangerous substances are present in quantities equal to or in excess of the quantities listed in column 3 of Chapter 1 or 2; and
- (b) pipelines contemplated in Chapter 3;

**"impact zone"** means the zone where other installations or neighbours could be affected due to a major incident;

**"installation"** means a technical unit within an establishment, above or below ground level, in which substances are produced, used and stored and which includes all the equipment, structures, pipework, machinery, tools, railway sidings and quays, warehouses and similar structures necessary for the operation of that installation;

**"low hazard establishment"** means an establishment where Chapter 1 or 2 dangerous substances are present and the quantity is equal to or exceeds the quantity in column 1 but is less than quantities listed in column 2 of Chapter 1 or 2;

**"licence to operate"** means a licence contemplated in regulation 13;

**"major incident prevention policy"** means a policy contemplated in regulation 11;

**"medium hazard establishment"** means an establishment where Chapter 1 or 2 dangerous substances are present and the quantity is equal to or exceeds the quantity in column 2, but is less than the quantity in column 3 of Chapter 1 or 2;

**"near miss"** means an event (causing damage to property, a negative impact on the environment or loss of human life) or operational interruption that could plausibly have resulted if the circumstances had been slightly different;

**"new establishment"** means an establishment which, after the date of entry into force of these Regulations, is erected or declared to be an establishment;

**"prescribed quantity"**, in relation to a given dangerous substance or a category or categories, means a quantity equal to the value set out in Annexure A;

**"process safety management system"** means a system contemplated in regulation 11(3)(h);

**"responsible person"** means a person designated, in writing, by a duty holder to be responsible, in a full-time capacity, for the premises on which an establishment is operated;

**"risk assessment"** means the process contemplated in regulation 10;

**"the Act"** means the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993);

**"transit"** means a time or place in which dangerous substances are transported by rail, road, waterways or airways, which may be between planned points of departure and arrival;

**"Safety Data Sheet"** means a document aligned to globally harmonised systems, that provides information on the hazard classification, properties of hazardous chemicals and procedures for the handling of, or working with, hazardous chemicals in a safe manner and how hazardous chemicals affect health and safety in the workplace;

**"safety report"** means a report contemplated in regulation 12;

**"SANS 1461"** means South African National Standard: Major Hazard Installation – Risk Assessments, as amended from time to time;

**"SANS 1514"** means South African National Standard: Major Hazard Installation: Emergency Response Planning, as amended from time to time;

**"UN number"** means the dangerous substance four-figure identification number in the United Nations Transport of Dangerous Goods – Model Regulations, as amended from time to time;

**"UN Trough Test"** means Part III of the United Nations classification procedures, tests methods and criteria relating to class 2, class 3 and class 4, division 5.1, class 8 and class 9, as amended from time to time;

**"United Nations Recommendations on the Transport of Dangerous Goods"** means guidance documents developed by the United Nations to harmonise dangerous goods transport regulations, as amended from time to time, commonly known as the UN Orange Book.

### **Scope of application**

2. (1) These Regulations apply to—

- (a) major hazard installations;
- (b) establishments with the prescribed quantity of substances listed in Chapter 1 or 2; and
- (c) major pipeline establishments.

(2) These Regulations, excluding regulations 11, 12 and 13, apply to low hazard establishments.

- (3) These Regulations, excluding regulations 12 and 13, apply to medium hazard establishments.
- (4) Regulations 14 and 15 apply to local government.
- (5) Regulations 21 and 22 apply to an approved inspection authority.
- (6) These Regulations do not apply to nuclear installations registered in terms of the Nuclear Energy Act, 1993 (Act No. 131 of 1993).

### **Management of establishment**

3. (1) In order to ensure that the provisions of the Act and these Regulations in relation to major hazard installation are complied with, the duty holder must designate a responsible person in writing and in full-time capacity in respect of every premises where an establishment is operated.
- (2) Subject to subregulation (1), the chief inspector may require that any high hazard establishment be operated by a designated responsible person who holds a relevant qualification.
- (3) A duty holder may appoint, in writing, one or more deputies to assist the responsible person designated in terms of subregulation (1), and must clearly define the duties of such deputies without exempting the responsible person designated in subregulation (1) to properly discharge their duties.
- (4) If, in the opinion of the chief inspector, circumstances require the appointment of one or more deputies as contemplated in subregulation (3), the chief inspector may instruct the duty holder to appoint a specified number of deputies.
- (5) Every duty holder must on a regular basis consult with the neighbouring establishments and counterparts within the potential impact zone—
  - (a) to discuss any associated major incident associated with the type of establishment;
  - (b) to share any changes made to the establishment that alters the risk profile; and
  - (c) to share alert systems in a case of emergency.
- (6) The duty holder must keep a record of all consultations contemplated in subregulation (5).

### **Notification of establishment**

4. (1) A duty holder must notify the chief inspector, the relevant chief director: provincial operations and the local government on Form A, 90 days—
- (a) before the erection of an establishment; or
  - (b) when there is an anticipated change to an existing establishment.
- (2) A duty holder, after the entry into force of these Regulations, must update the notification of an existing establishment and send it to the chief inspector, the relevant chief director: provincial operations and the local government on a prescribed form A, within 24 months.
- (3) The notification referred to in subregulation (1) or (2) must be accompanied by—
- (a) proof of permission or approval from the relevant local government on land use indicating the exact location of the site;
  - (b) a letter of designation contemplated in regulation 3(2) and the responsible person's competency profile;
  - (c) an inventory list and safety data sheets of all the dangerous substances that resulted in the installation being classified as an establishment;
  - (d) a statement containing the envisaged maximum quantity of all the substances that may be present at the establishment at any one time;
  - (e) the most recent risk assessment report contemplated in regulation 10;
  - (f) a site map showing the establishment location and indicating developments around the vicinity of the establishment;
  - (g) a substance location plan drawn to a scale of not less than 1 to 2 500 which identifies the area on the site where the dangerous substances will be stored, handled, used or processed, showing the location of the major items of plant used in such activities;
  - (h) information regarding the neighbours or other establishments within the impact zone, including—
    - (i) sites that are likely to be affected by a major incident and their exact distances from the establishment;
    - (ii) known future development that might increase the risk or consequences of a major incident; and
    - (iii) other establishments and their exact distances;
  - (i) proof of the publication of the advertisement contemplated in subregulation (4); and

- (j) where applicable, the latest version of the major incident prevention policy.
- (4) A duty holder who erects an establishment or updates a risk assessment or converts an existing installation into an establishment must—
  - (a) place an advertisement, in English and the predominant language in the area, in at least one newspaper serving the communities in the vicinity of the establishment; and
  - (b) post notices within those communities, containing at least the—
    - (i) name and location of the establishment;
    - (ii) name, title and telephone number of the contact person from whom further information can be obtained;
    - (iii) nature of the dangerous substances and the major incidents that may occur; and
    - (iv) time and place where a risk assessment report will be explained and may be viewed.
- (5) Any affected or interested party may make representations, in writing, to the relevant local government and the chief inspector, within 60 days after the publication of an advertisement referred to in subregulation (4), if the establishment is not acceptable and poses a risk to that party.

### **Registration of establishment**

- 5.** (1) After considering the notification referred to in regulation 4(1) or (2), the chief inspector may on payment of the appropriate registration fee specified in Annexure B—
- (a) register the premises as a major hazard installation subject to such conditions as the chief inspector deems fit to impose;
  - (b) enter into the register, particulars pertaining to the name of the major hazard installation, the premises address and other details as the chief inspector deems fit; and
  - (c) issue to the duty holder a certificate of registration within 60 days; or
  - (d) refuse to register the major hazard installation.
- (2) Where the chief inspector refuses to register the major hazard installation in respect of which a notification has been made, the chief inspector must notify the duty holder of the reasons for the refusal.

(3) The duty holder must conspicuously display the latest registration certificate received in terms of subregulation (1)(c).

#### **Duration of registration and renewal**

6. (1) Subject to regulation 5(1), the registration is valid for a period of five years or for such other period as the chief inspector may determine in a particular case, unless the registration is earlier suspended or revoked in accordance with the Regulations.

(2) The chief inspector shall renew the registration upon the updating of a risk assessment and documents as may be required and on payment of the appropriate renewal fee specified.

#### **Alteration to particulars of registered establishment**

7. The duty holder must, where there is an alteration in any of the particulars of a major hazard installation, furnish the alterations to the chief inspector, relevant chief director: provincial operations and relevant local government not later than 14 days after such alteration occurs.

#### **Revocation or suspension of registration**

8. (1) The inspector may issue a direction instructing the duty holder immediately to comply with the requirements specified in the direction, if the premises of the registered major hazard installation become unfit for occupation or use because of a—

- (a) failure by the duty holder to ensure that work is carried out safely; or
- (b) change effected on the establishment without notifying the chief inspector, the chief director: provincial operations and the local government; or
- (c) new hazardous fact or circumstance that was not present when the establishment was registered.

(2) The chief inspector may revoke the registration if—

- (a) the duty holder fails to comply with the issued direction;
- (b) the chief inspector has established that the duty holder has contravened a condition of registration; or
- (c) the inspector has proven that the duty holder has ceased occupation or use of the premises as an establishment.

- (3) An inspector must, before advising the chief inspector to revoke or suspend the registration of an establishment as contemplated in subregulations (2) and (3)–
- (a) issue to the duty holder a direction, in writing, of the intention to revoke or suspend the registration; and
  - (b) give the duty holder a reasonable opportunity to submit reasons as to why the registration should not be revoked or suspended.
- (4) The revocation or suspension of registration does not take effect–
- (a) until the expiration of 21 days after the date on which direction of the chief inspector's intention to revoke or suspend the registration was given to the duty holder as contemplated in subregulation (4)(a); or
  - (b) where an appeal against the decision of the chief inspector is made to the Labour Court in terms of section 35 of the Act, until the appeal has been determined or withdrawn.
- (5) An inspector may advise the chief inspector at any time, and for a valid reason, to shorten the period for which the registration is suspended.

### **Sharing of information with adjacent establishments**

9. The chief inspector may designate one or more registered major hazard installations in a certain location as a group of establishments, and require such establishments to share information, including the–

- (a) basic particulars of the establishment;
- (b) responsible person for that establishment;
- (c) description of major incidents associated with that type of establishment, and consequences of such incidents; and
- (d) information on how affected neighbours will be alerted in the event of a major incident.

### **Risk assessment**

10. (1) A duty holder must, after consultation with the relevant health and safety representative or health and safety committee, ensure that an approved inspection authority carries out a risk assessment in accordance with SANS 1461 at intervals not exceeding five years or when there is a change in the establishment.

(2) Every duty holder must–



# Annexure

- (a) inform the relevant health and safety representative or health and safety committee, in writing, of the arrangements made to carry out a risk assessment contemplated in subregulation (1); and
  - (b) ensure that the results of the risk assessment are made available to the relevant health and safety representative or committee, who may comment thereon.
- (3) Where a risk assessment has been reviewed or revised, without a change to the establishment, the duty holder must submit an updated copy of the risk assessment report to the chief inspector, the relevant chief director: provincial operations and the relevant local government within 60 days.
- (4) Every duty holder must ensure that a copy of the most recent risk assessment report is available on site for inspection by an inspector or a local government.
- (5) Subregulation (1) shall not apply in the case of rolling stock in transit: Provided that the operator of a railway shall ensure—
- (a) that a risk assessment applicable to rolling stock in transit is carried out and made available for inspection at the request of an inspector or a local government or both that inspector and that local government, as the case may be; and
  - (b) that, in the interest of the health and safety of the public, the necessary precautions are taken.
- (6) A duty holder shall ensure that the risk assessments contemplated in subregulations (1) and (3) be made available for scrutiny by any affected or interested person that may be affected by the activities of the establishment, at a time and place and in a manner agreed upon between the parties.

## **Major incident prevention policy**

11. (1) The duty holder must prepare and retain a written major incident prevention policy, as contemplated in Annexure C, on the—
- (a) construction and building of the establishment;
  - (b) change in the establishment; or
  - (c) safe operation of the establishment.
- (2) Every duty holder must, within 36 months after the entry into force of these Regulations, establish and have in record a major incident prevention policy.
- (3) The major incident prevention policy must provide for a high level of protection for employees and the public and must include at least—

- (a) the aims and objectives of the policy;
  - (b) the roles and responsibilities of the establishment's management;
  - (c) process safety performance indicators;
  - (d) commitments towards the maintenance and continual improvement of the policy;
  - (e) the aims and objectives of the—
    - (i) emergency plan;
    - (ii) evacuation plan regarding the—
      - (aa) speedy evacuation of persons;
      - (bb) roll-call after evacuation; and
      - (cc) plant shut down;
  - (f) reasons for revision;
  - (g) mandatory agreements; and
  - (h) the process safety management system with principles specified in Annexure D.
- (4) A duty holder must review the major incident prevention policy, every five years or when there is a change in the establishment which renders the existing policy inadequate: Provided that an updated copy is available for inspection by an inspector and a local government.

### **Safety report**

- 12.** (1) The duty holder of a high hazard establishment must prepare a comprehensive, site-specific, safety report, which must be—
- (a) developed during the design phase and be continually updated until the start date of operations; and
  - (b) maintained for the duration of the life of the establishment.
- (2) The safety report must demonstrate a suitable and sufficiently documented plan to ensure—
- (a) that reliable built-in safety has been incorporated into the—
    - (i) design;
    - (ii) construction;
    - (iii) operation; and
    - (iv) maintenance of any equipment and infrastructure used in the establishment; and

- (b) the application of–
  - (i) the major incident prevention policy;
  - (ii) the process safety management system;
  - (iii) the organisational and necessary measures to prevent major incidents and to limit their consequences;
  - (iv) the on-site emergency plan.
- (3) The safety report must also contain information regarding an off-site emergency plan to take the necessary measures in the event of a major incident.
- (4) The duty holder of a proposed high hazard establishment must submit to the chief inspector a–
  - (a) preliminary safety report at the design stage of that establishment; and
  - (b) final safety report within a reasonable time before the establishment starts operations.
- (5) The duty holder must send a safety report to the chief inspector within 36 months after the entry into force of these Regulations.
- (6) Every duty holder must review the safety report–
  - (a) every five years;
  - (b) prior to any change to the establishment; or
  - (c) whenever there is a change in the process safety management system which could have significant repercussions with respect to the prevention of major incidents or the limitation of the consequences of major incidents:  
Provided that the updated copy of the safety report, revised under this subregulation, is sent to the chief inspector within 60 days.

### **Licence to operate**

- 13.** (1) A duty holder who operates a high hazard establishment must apply for a licence to operate such an establishment.
- (2) An existing duty holder must apply for a licence not later than 36 months after the entry into force of these Regulations.
- (3) The chief inspector, upon receipt of an application in terms of subregulations (1) and (2), with a written proof of occupancy from the local government, may–
  - (a) issue a licence;
  - (b) decide not to issue a licence and give reasons for the decision; or

- (c) issue a licence subject to any condition that the chief inspector deems reasonable and necessary.
- (4) A licence issued under subregulation (3)–
  - (a) may not be transferred to another establishment; and
  - (b) lapses after 12 months if the new installation has not started operations or the establishment has not been operated within 12 months after the issue of the licence.
- (5) The chief inspector may–
  - (a) suspend or withdraw a licence if the conditions subject to which the licence was issued are not complied with; or
  - (b) alter a condition in an existing licence after consultation with the duty holder and the relevant health and safety representative or the relevant health and safety committee.

#### **General duties of local government**

- 14.** (1) Without derogating from the provisions of the National Building Regulations and Building Standards Act, 1977 (Act No. 103 of 1977), and the Spatial Planning and Land Use Management Act, 2013 (Act No. 16 of 2013), a local government must not permit the erection of a new establishment or the expansion of an establishment at a separation distance that poses an unacceptable risk in terms of the risk assessment contemplated in regulation 10.
- (2) The local government must–
    - (a) permit a new development only where there is a separation distance which will not pose an unacceptable risk in terms of the risk assessment contemplated in regulation 10; and
    - (b) prohibit any new property development adjacent to an establishment that will result in that new development being declared an establishment.
  - (3) The relevant local government must give consent for the on-site emergency plan and participate in the annual emergency test drill as contemplated in regulation 15(4)(e).
  - (4) Where a relevant local government does not have the facilities available to control a major incident or to comply with the requirements of these Regulations, that local government must make prior arrangements with a neighbouring local government, the relevant provincial government or the duty holder for assistance.

(5) The relevant local government is responsible for the off-site emergency plan to be followed outside the premises of the establishment.

(6) The relevant local government must prepare an off-site emergency plan in accordance with SANS 1514 and in consultation with the duty holder and interested or affected persons, within 24 months after the entry into force of these Regulations, and thereafter immediately for new establishments, and review the plan when there are significant changes to the hazard profile of the area.

(7) The duty holder must, on written request by, and within the time limits imposed by the local government, furnish the local government with the necessary information needed to prepare the off-site emergency plan.

### **Emergency plan**

**15.** (1) A duty holder must, immediately after submission of the notification contemplated in regulation 4, in consultation with the relevant health and safety representatives or health and safety committee, in writing, appoint an emergency coordinating team consisting of at least—

- (a) the responsible person contemplated in regulation 3(2); or
- (b) a responsible person's deputy contemplated in regulation 3(3); and
- (c) a representative from the health and safety committee.

(2) The duty holder must develop and maintain an on-site emergency plan before the establishment commences operations in consultation with the emergency coordinating team and in accordance with SANS 1514.

(3) The on-site emergency plan for an existing establishment must be aligned and updated to SANS 1514 within 12 months after the entry into force of these Regulations.

(4) A duty holder must—

- (a) ensure that the manner in which employees, visitors and neighbours will be warned of major incidents is included in the plan;
- (b) sign a copy of the on-site emergency plan in the presence of at least two witnesses who have knowledge in emergency planning and who must be satisfied with the content of the emergency plan and attest to the signature of the duty holder;
- (c) obtain approval of the on-site emergency plan from the relevant local government;

- (d) ensure that the on-site emergency plan is readily available at all times for implementation and use;
  - (e) cause the on-site emergency plan to be tested or exercised in practice at least once a year and take the necessary steps to arrange for the local government to participate in such tests; and
  - (f) give an early warning to affected or interested parties in case a major incident is likely to go beyond the borders of the establishment.
- (5) The duty holder and the relevant local government must take reasonable steps to activate the on-site emergency plan in case of an incident which may result in—
- (a) a major incident; or
  - (b) an uncontrolled event which may reasonably be expected to lead to a major incident; or
  - (c) a near miss that could reasonably be expected to have resulted in a major incident.
- (6) The duty holder must review the on-site emergency plan at least once every three years and, if necessary, revise the plan.
- (7) The duty holder and the local government must jointly ensure that all first responders at the scene of a major incident have the necessary skill to deal with the dangerous substances and are dressed in the appropriate emergency personal protective equipment as required in their respective emergency plans.

### **Reporting of risk and emergency occurrences**

- 16.** (1) A duty holder must—
- (a) subject to regulation 8 of the General Administrative Regulations, published under Government Notice R. 929 in *Government Gazette* 25129 of 25 June 2003, within 48 hours, inform the chief inspector by means of telephone, facsimile or similar means of communication of—
    - (i) a major incident; or
    - (ii) an incident that brought the emergency plan into activation;
  - (b) investigate and submit a written preliminary incident report to the chief inspector within seven days after an emergency occurrence and a major incident;
  - (c) submit a final report as soon as reasonably practicable but not later than six months after the incident;

- (d) investigate and record all near misses in a register which must at all times be available for inspection by an inspector and the local government.
- (2) A duty holder must, in the case of an emerging major incident or an emergency occurrence that was or may have been caused by a dangerous substance, inform the supplier of that dangerous substance about the incident.

### **Information and training**

**17.** (1) A duty holder must, after consultation with the relevant health and safety representative or health and safety committee, ensure that all employees are adequately trained with regard to—

- (a) the scope of these Regulations;
- (b) the nature of the establishment;
- (c) potential major hazards and associated major incidents;
- (d) potential risks to health and safety caused by the identified major hazards;
- (e) the practices and control procedures for a major incident;
- (f) the content of the emergency plan and that visitors also are conversant with such content; and
- (g) the safety protocols and measures to be followed on-site.

(2) The duty holder must ensure that all trained employees undergo refresher training whenever there is a change in the establishment or when the risk assessment has been reviewed.

(3) The duty holder must provide induction orientation about the kept substances, major hazard areas and actions to be followed in case of emergency to all mandatorys, visitors and any person who, in any manner, assists in carrying out or conducting allocated duties, before they enter the establishment.

(4) The duty holder must ensure the induction orientation as contemplated in subregulation (3) is refreshed in the event of any change to an establishment which significantly alters the risk associated with the establishment: Provided that the induction training will be valid for periods not exceeding 12 months.

### **General duties of suppliers**

**18.** (1) Every person that supplies a dangerous substance to an establishment must issue a safety data sheet that is supplied with the substance and must also provide basic information for training on the use and handling of the substance.

(2) On receipt of information contemplated in regulation 16(2), a supplier of a dangerous substance involved in an emerging major incident or potential major incident must inform all clients supplied with that substance of the emerging potential dangers surrounding the dangerous substance.

(3) A supplier must, in the event of a major incident with regard to the dangerous substance supplied, provide information and advice that must be readily available on a 24-hour basis to all duty holders, the relevant local government and any other body concerned.

### **Payable fees**

19. (1) A duty holder must pay a prescribed fee each time a notification, a renewal or a revision of a risk assessment is sent to the chief inspector: Provided that the chief inspector may grant an exemption from payment of such fees or may determine any other fee, if necessary.

(2) The chief inspector may waive but not refund the whole or any part of any fee paid or payable under these Regulations.

### **MHI Advisory Committee**

20. (1) The chief inspector may, with the approval of the Advisory Council for Occupational Health and Safety, establish an MHI Advisory Committee to advise on any matter related to major hazard installations, codes, standards and training requirements: Provided that any accredited or approved training must be in accordance with South African Qualifications Authority standards.

(2) The chief inspector shall appoint members of the MHI Advisory Committee for a period that he may determine at the time of appointment: Provided that the members are approved by the Advisory Council for Occupational Health and Safety.

(3) Any person affected by the decision of the MHI Advisory Committee may appeal to the chief inspector within 60 days of such decision becoming known and the chief inspector shall, after considering the grounds of the appeal and the MHI Advisory Committee's reasons for the decision, confirm or set aside or vary the decision or substitute such decision for any other decision which the MHI Advisory Committee in the chief inspector's opinion ought to have taken.



(4) Any person aggrieved by the decision taken by the chief inspector under subregulation (3) may, within 60 days after the chief inspector's decision, appeal against such decision to the Labour Court.

### **Approved inspection authorities**

**21.** (1) An inspection body accredited in terms of the Accreditation for Conformity Assessment, Calibration and Good Laboratory Practice Act, 2006 (Act No. 19 of 2006), or a foreign inspection body must apply for registration to the chief inspector on Form B.

(2) On receipt of the application contemplated in subregulation (1) the chief inspector must, subject to conditions if deemed necessary, approve the application.

(3) In the event of a dispute between an approved inspection authority (AIA) and a duty holder regarding a technical or safety matter, which cannot be reasonably resolved, the disputing parties may refer the case to the chief inspector in writing for arbitration, setting out the full details of the dispute.

(4) The chief inspector must, upon receiving a dispute contemplated in subregulation (3), appoint an arbitrator mutually agreed upon between the South African National Accreditation System and the parties.

(5) The dispute must be investigated and arbitrated within a maximum of 90 days after the submission of a request for arbitration.

(6) The chief inspector may at any time withdraw any approval granted to an approved inspection authority, subject to section 35 of the Act.

### **Duties of approved inspection authority**

**22.** (1) An approved inspection authority must ensure that the risk assessment contemplated in regulation 10 is carried out in terms of SANS 1461.

(2) An approved inspection authority must provide results on the classification and acceptability of risk, and make recommendations with regard to the following:

- (a) the suitability of the existing emergency procedures for the major risks identified;
- (b) any organisational measures that may be required;
- (c) risk reduction proposals; and
- (d) any other relevant matter.

(3) The approved inspection authority must, after each risk assessment, furnish the duty holder with the latest risk assessment report and attachments as required in terms of SANS 1461: Provided that such reports must be made available upon request by the chief inspector.

(4) An approved inspection authority must, on a monthly basis, submit a list of all major hazard installations assessed, to the chief inspector, in the form contemplated in Annexure E.

### Closure

23. A duty holder must notify the chief inspector, the relevant chief director: provincial operations and the local government in writing, not less than 60 days prior to the installation ceasing to be a major hazard installation.

### Offences and penalties

24. (1) A duty holder who contravenes any of the provisions of these Regulations commits an offence and is, on conviction, liable to a fine not exceeding R5 000 000 or to imprisonment for a period not exceeding 24 months.

(2) The maximum permissible fines that may be imposed for contravening the Regulations are set out in the table below:

PREVIOUS CONTRAVENTIONS	CONTRAVENTIONS OF REGULATIONS: 3(1), 4(1), 4(4), 6(3), 7, 10, 11(1), 12(1), 13(1), 15(2), 16, 20(6) and 22
No previous contraventions	R500 000
A previous contravention within 12 months	R1 000 000
A previous contravention in respect of the same contravention within three years	R2 500 000
Three previous contraventions in respect of the same provision within three years	R5 000 000

### **Repeal of regulations**

25. The Major Hazard Installation Regulations, 2001, published in Government Notice No. R. 692 of 30 July 2001, are hereby repealed.

### **Short title and commencement**

26. These Regulations are called the "Major Hazard Installation Regulations, 2022", and come into operation on a date determined by the Minister by notice in the *Government Gazette*.

## ANNEXURE A

### Dangerous substances to which these Regulations apply

This Annexure applies to the presence of dangerous substances at any establishment and determines the application of the relevant regulations in accordance with regulation 2(1). The quantities set relate to each establishment.

### Chapter 1

#### Named Dangerous Substances

Where a substance or group of substances listed in this Annexure also falls within Chapter 2 substances, the qualifying quantities set out in Chapter 1 must be used.

Named substances	UN NUMBER	Quantities in tonnes		
		Column 1 Low Hazard	Column 2 Medium Hazard	Column 3 High Hazard
Ammonia anhydrous	1005	15	50	200
Ammonium nitrate (as described in Note 3)	Fertiliser based 2067 2071	2 000	5 000	10 000
Ammonium nitrate (as described in Note 4 )		500	1 250	5 000
Ammonium nitrate (as described in Note 5 )		150	350	2 500
Ammonium nitrate (as described in Note 6)		4	10	50
Potassium nitrate (as described in Note 7)	1486	2 000	5 000	10 000
Potassium nitrate (as described in Note 8)	1488	500	1 250	5 000

Named substances	UN NUMBER	Quantities in tonnes		
		Column 1 Low Hazard	Column 2 Medium Hazard	Column 3 High Hazard
Arsenic pentoxide, arsenic (V) acid and/or salts	1559	1	1	2
Arsenic trioxide, arsenious (III) acid and/or salts	1561	0,1	0,1	0,1
Bromine	(I) 1701 (a)1744	5	20	100
Chlorine	1017	5	10	25
Nickel compounds in inhalable powder form (nickel monoxide, nickel dioxide, nickel sulphide, tri-nickel disulphide, di-nickel trioxide)	3089	1	1	1
Ethyleneimine	1185	5	10	20
Fluorine	1045	5	10	20
Formaldehyde (concentration $\geq$ 90%)	1198	2,5	5	50
Hydrogen	1049	2,5	5	50
Hydrogen chloride (liquefied gas)	1050	5	25	250
Hydrogen fluoride	1052	2,5	5	20
Lead alkyls	-	2,5	5	50
Liquefied extremely flammable gases (including LPG) and natural gas (whether liquefied or not)	1075	20	50	200
Acetylene	1001	2,5	5	50
Ethylene oxide	3089	2,5	5	50

Named substances	UN NUMBER	Quantities in tonnes		
		Column 1 Low Hazard	Column 2 Medium Hazard	Column 3 High Hazard
Propylene oxide	1280	2,5	5	50
Methanol	1230	50	500	5 000
4,4-Methylenebis (2-chloraniline) and/or salts, in powder form	3077	0,01	0,01	0,01
Methyl isocyanate	2480	0,15	0,15	0,15
Oxygen	(compressed) 1072 (refrigerated) 1073	50	200	2 000
Toluene di-isocyanate	2078	1	10	100
Carbonyl dichloride (phosgene)	1076	0,3	0,3	0,75
Arsenic trihydride (arsine)	2188	0,2	0,2	1
Phosphorus trihydride (phosphine)	2199	0,2	0,2	1
Sulphur dichloride	1828	1	1	1
Sulphur dioxide	1079	2,5	5	20
Sulphur trioxide	1829	7,5	15	75
Polychlorodibenzofurans and polychlorodibenzodioxins (including TCDD), calculated in TCDD equivalent (see Note 8)	-	0,001	0,001	0,001
The following CARCINOGENS at concentrations above 5% by weight:	-	0,5	0,5	2

Named substances	UN NUMBER	Quantities in tonnes		
		Column 1 Low Hazard	Column 2 Medium Hazard	Column 3 High Hazard
4-Aminobiphenyl and/or its salts, Benzotrithloride, Benzidine and/or salts, Bis (chloromethyl) ether, Chloromethyl methyl ether, 1,2-Dibromoethane, Diethyl sulphate, Dimethyl sulphate, Dimethylcarbamoyl chloride, 1,2-Dibromo-3-chloropropane, 1,2-Dimethylhydrazine, Dimethylnitrosamine, Hexamethylphosphoric triamide, Hydrazine, 2-Naphthylamine and/or salts, 4-Nitrodiphenyl and 1,3-Propanesultone				
Petroleum products: gasolines, naphthas, kerosenes (including jet fuels), gas oils (including diesel fuels, home heating oils and gas oil blending streams)	Gas (1075)  Crude (1275)	250	2 500	25 000
Boron trifluoride	1008	5	5	20
Hydrogen sulphide	1053	5	5	20
Piperidine	2401	20	50	200

Named substances	UN NUMBER	Quantities in tonnes		
		Column 1 Low Hazard	Column 2 Medium Hazard	Column 3 High Hazard
Bis(2-dimethylaminoethyl) (methyl)amine	-	20	50	200
3-(2-Ethylhexyloxy) propylamine	-	20	50	200
Propylamine	1277	200	500	2 000
Tert-butyl acrylate	-	100	200	500
2-Methyl-3-butenenitrile	-	200	500	2 000
Tetrahydro-3,5-dimethyl- 1,3,5-thiadiazine-2-thione (Dazomet)	1277	50	100	200
Methyl acrylate	1919	200	500	2 000
3-Methylpyridine	2313	200	500	2 000
1-Bromo-3-chloropropane	2688	200	500	2 000



## Chapter 2

### Categories of Dangerous Substances

This Chapter covers all dangerous substances falling under the hazard categories in column 1 in accordance with the GHS as reflected in the CLP Regulations:

Hazard categories	Column 1 Low Hazard	Column 2 Medium Hazard	Column 3 High Hazard
<b>1. Health Hazards: "H"</b>			
1.1 H1 Acute Toxic Category 1, all exposure routes	5	5	20
1.2 H2 Acute Toxic Category 2, all exposure routes Category 3, inhalation exposure route (see Note 9)	15	50	200
1.3 H3 Specific Target Organ Toxicity (STOT) Category 1, Single Exposure (SE STOT)	15	50	200
<b>2. Physical Hazards: "P"</b>			
2.1 P2 Flammable gases Flammable gases, Category 1 or 2	2,5	10	50
2.2 P3a Flammable aerosols (see Note 10) Flammable aerosols Category 1 or 2, containing flammable gases Category 1 or 2 or flammable liquids Category 1	50 (net)	150 (net)	500 (net)
2.3 P3b Flammable aerosols (see Note 11)	1 250 (net)	5 000 (net)	50 000 (net)

<b>Hazard categories</b>	<b>Column 1 Low Hazard</b>	<b>Column 2 Medium Hazard</b>	<b>Column 3 High Hazard</b>
Flammable aerosols Category 1 or 2, not containing flammable gases Category 1 or 2 nor flammable liquids category 1 (see Note 12)			
2.4 P4 Oxidising gases Oxidising gases, Category 1	20	50	200
P5a Flammable liquids Flammable liquids, Category 1 maintained at a temperature above their boiling point, or Flammable liquids Category 2 or 3 maintained at a temperature above their boiling point, or Other liquids with a flash point $\leq 60^{\circ}\text{C}$ , maintained at a temperature above their boiling point (see Note 12)	5	10	50
2.6 P5b Flammable liquids Flammable liquids Category 2 or 3 where particular processing conditions, such as high pressure or high temperature, may create major accident hazards, or Other liquids with a flash point $\leq 60^{\circ}\text{C}$ where particular processing conditions, such as high pressure or high temperature, may create major accident hazards (see Note 13)	20	50	200
2.6 P5c Flammable liquids Flammable liquids, Categories 2 or 3 not covered by P5a and P5b	1 250	5 000	50 000

<b>Hazard categories</b>	<b>Column 1 Low Hazard</b>	<b>Column 2 Medium Hazard</b>	<b>Column 3 High Hazard</b>
2.7 P6a Self-reactive substances and mixtures and organic peroxides Self-reactive substances and mixtures, Type A or B or organic peroxides, Type A or B	5	10	50
2.8 P6b Self-reactive substances and mixtures and organic peroxides Self-reactive substances and mixtures, Type C, D, E or F or organic peroxides, Type C, D, E or F	20	50	200
2.9 P7 Pyrophoric liquids and solids Pyrophoric liquids, Category 1 Pyrophoric solids, Category 1	20	50	200
2.10 P8 Oxidising liquids and solids Oxidising liquids, Category 1, 2 or 3, or Oxidising solids, Category 1, 2 or 3	20	50	200
<b>3. Other Hazards: "O"</b>			
3.1 O1 Substances or mixtures that react violently with water. Examples: acetyl chloride, alkali metals and titanium tetrachloride	40	100	500
3.2 O2 Substances and mixtures which in contact with water emit flammable gases, Category 1	40	100	500
3.3 O3 Substances or mixtures that liberate toxic gas when in contact with water.	20	50	200

Hazard categories	Column 1 Low Hazard	Column 2 Medium Hazard	Column 3 High Hazard
Examples: aluminium phosphide and phosphorus pentasulphide			

Net: indicates the flammable content and not the full gross mass, thus the mass of the containers is ignored.

### Chapter 3

#### Classification of pipelines as major hazard establishment

A pipeline is considered an establishment if it contains any of the following:

- (1) A fluid which—
  - (a) is flammable in air;
  - (b) has a boiling point below 5°C at 1 bar absolute; and
  - (c) is or is to be conveyed in a pipeline as a liquid.
- (2) A fluid which is or is to be conveyed in a pipeline as a gas which is—
  - (a) at pressures at above 8 bar absolute\*;
  - (b) flammable in air\*\*.
- (3) Pressurised substances:
  - (a) Mixtures of gas and liquid which have a vapour pressure in excess of 0,5 bar above atmospheric pressure when in equilibrium with its vapour included;
  - (b) A liquid which has a vapour pressure greater than 1,5 bar absolute when in equilibrium with its vapour at either the actual temperature of the liquid or at 20°C.
- (4) A very toxic fluid which—
  - (a) at 20°C has a saturated vapour pressure greater than 0,001 bar; or
  - (b) is or is to be conveyed in the pipeline as a liquid at a pressure greater than 4,5 bar absolute.
- (5) A very toxic or toxic fluid which—
  - (a) is a gas at 20°C and 1 bar absolute; and

- (b) is or is to be conveyed as a liquid or a gas, i.e. ammonia.
- (6) A toxic fluid which—
  - (a) at 20°C has a saturated vapour pressure greater than 0,4 bar; and
  - (b) is or is to be conveyed in the pipeline as a liquid.
- (7) An oxidising fluid which is or is to be conveyed as a liquid.
- (8) A fluid which reacts violently with water.
- (9) Acrylonitrile.
- (10) Carbon dioxide.
- (11) Gasoline. (Note14)

\* Paragraph 2(a) also covers liquefied gases which are flammable in air when they are conveyed as a liquid. This includes butane and propane when conveyed in a pipeline as a liquid.

\*\*Paragraph 2(b) is applicable to flammable gases conveyed as a gas. In such cases the additional duties only apply when the flammable gas is conveyed at a pressure in excess of 8 bars absolute. This covers such fluids as methane, butane and propane when conveyed as a gas.

## NOTES

- (1) The quantities set in Chapters 1 and 2 relate to each establishment.
- (2) Mixtures and preparations must be treated in the same way as pure substances, provided they remain within the concentration limits set according to their properties under the CLP Regulations (EC 1272\2008, as amended), unless a percentage composition or other description is specifically given.
- (3) Ammonium nitrate: fertilisers capable of *self-sustaining decomposition*.  
This applies to ammonium nitrate-based compound/composite fertilisers (compound or composite fertilisers containing ammonium nitrate with phosphate and/or potash) which are capable of self-sustaining decomposition according to UN Trough Test (Part III, subsection 38.2) and in which the nitrogen content as a result of ammonium nitrate is—
  - (a) between 15,75% and 24,5% by weight and either with not more than 0,4% total combustible or organic materials or which satisfies the

requirements of United Nations Recommendations on the Transport of Dangerous Goods: Manual of Tests and Criteria (3rd revised Edition, or as amended from time to time), Ammonium Nitrate Materials (High Nitrogen Content) Safety Regulations 2003, as amended, "the detonation resistance test"; or

(b) 15,75% or less by weight and unrestricted combustible materials.

(4) Ammonium nitrate: *fertiliser grade*.

This applies to straight ammonium nitrate-based fertilisers and to ammonium nitrate-based compound/composite fertilisers which satisfies the requirements of UN TDG and in which the nitrogen content as a result of ammonium nitrate is—

- (a) more than 24,5% by weight, except for mixtures of ammonium nitrate with dolomite, limestone and/or calcium carbonate with a purity of at least 90%;
- (b) more than 15,75% by weight for mixtures of ammonium nitrate and ammonium sulphate;
- (c) more than 28% by weight for mixtures of ammonium nitrate with dolomite, limestone and/or calcium carbonate with a purity of at least 90%, and which satisfy the detonation resistance test.

(5) Ammonium nitrate: *technical grade*.

This applies to—

- (a) ammonium nitrate and preparations of ammonium nitrate in which the nitrogen content as a result of the ammonium nitrate is—
    - (i) *between 24,5% and 28% by weight, and which contain not more than 0,4% combustible substances; or*
    - (ii) *more than 28% by weight, and which contain not more than 0,2% combustible substances;*
  - (b) aqueous ammonium nitrate solutions in which the concentration of ammonium nitrate is more than 80% by weight.
- (6) Ammonium nitrate (10/50): *"off-specs" material not satisfying the detonation test.*

This applies to—

- (a) material rejected during the manufacturing process and to ammonium nitrate and preparations of ammonium nitrate, straight ammonium nitrate-based fertilisers and ammonium nitrate-based compound/composite fertilisers referred to in Notes 2 and 3, that are

being or have been returned from the final user to a manufacturer, temporary storage or reprocessing plant for reworking, recycling or treatment for safe use, because they no longer comply with the specifications of Notes 4 and 5; or

- (b) fertilisers which do not fall within Notes 3(a) and 5 because they do not satisfy the detonation resistance test, other than fertilisers which—
- (i) *at the time of delivery to a final user satisfied the detonation resistance test; but*
  - (ii) *later became degraded or contaminated; and*
  - (iii) *are temporarily present at the establishment of the final user prior to their return for reworking, recycling or treatment for safe use or to their being applied as fertiliser.*

\*15,75% nitrogen content by weight as a result of ammonium nitrate corresponds to 45% ammonium nitrate.

\*\*24,5% nitrogen content by weight as a result of ammonium nitrate corresponds to 70% ammonium nitrate.

\*\*\*28% nitrogen content by weight as a result of ammonium nitrate corresponds to 80% ammonium nitrate.

(7) Potassium nitrate:

- (a) Potassium nitrate (5 000/10 000): composite potassium nitrate-based fertilisers composed of potassium nitrate in prilled/granular form.
- (b) Potassium nitrate (1 250/5 000): composite potassium nitrate-based fertilisers composed of potassium nitrate in crystalline form.

(8) Polychlorodibenzofurans and polychlorodibenzodioxins. The quantities of polychlorodibenzofurans and polychlorodibenzodioxins are calculated using the following factors:

TABLE 8.1 ITEF

International Toxic Equivalent Factors (ITEF) for the congeners of concern (NATO/CCMS)*			
2, 3, 7, 8-TCDD	1	2, 3, 7, 8-TCDF	0,1
1, 2, 3, 7, 8-PeCDD	0,5	2, 3, 4, 7, 8-PeCDF	0,5
		1, 2, 3, 7, 8-PeCDF	0,05
1, 2, 3, 4, 7, 8-HxCDD	0,1		
1, 2, 3, 6, 7, 8-HxCDD	0,1	1, 2, 3, 4, 7, 8-HxCDF	0,1
1, 2, 3, 7, 8, 9-HxCDD	0,1	1, 2, 3, 7, 8, 9-HxCDF	0,1
		1, 2, 3, 6, 7, 8-HxCDF	0,1
1, 2, 3, 4, 6, 7, 8-HpCDD	0,01	2, 3, 4, 6, 7, 8-HxCDF	0,1
		1, 2, 3, 4, 6, 7, 8-HpCDF	0,01
OCDD	0,001	1, 2, 3, 4, 7, 8, 9-HpCDF	0,01
		OCDF	0,001

\* (T = tetra, Pe = penta, Hx = hexa, Hp = hepta, O = octa)

- (9) In a case where dangerous substances fall within category P5a flammable liquids or P5b flammable liquids, then for the purposes of these Regulations the lowest qualifying quantities apply.
- (10) Dangerous substances that fall within the Acute Toxic Category 3 via the oral route (H 301) fall under entry H2 Acute Toxic in those cases where neither acute inhalation toxicity classification nor acute dermal toxicity classification can be derived, for example, due to lack of conclusive inhalation and dermal toxicity data.
- (11) Flammable aerosols classified in accordance with the Classification and Labelling of Chemicals (GHS) classification criteria for substances and mixtures, physical hazards, and flammable gases and aerosols.
- (12) In order to use paragraph (11), the aerosol dispensers must not contain flammable gas Category 1 or 2 nor flammable liquid Category 1.
- (13) In accordance with CLP Regulation, the liquids with a flash point of more than 35°C need not be classified in Category 3 if negative results have been obtained in the sustained combustibility test L.2, Part III, section 32 of the UN



Manual of Tests Criteria. This is, however, not valid under elevated conditions such as high temperature or pressure and therefore such liquids are included in this categories.

- (14) "Gasoline" means any petroleum derivative, other than liquefied petroleum gas, with a flash point between  $-51^{\circ}\text{C}$  and  $-40^{\circ}\text{C}$  and which is suitable for use in motor vehicles.
- (15) The following examples are for illustrative purposes only and each situation should be considered carefully. In case of any doubt, the individual situation should be discussed with the approved inspection authority.
- (16) The substances present at an establishment only in quantities equal to or less than 2% of the relevant qualifying quantity must be ignored for the purposes of calculating the total quantity present if their location within an establishment is such that it cannot act as an initiator of a major incident elsewhere on site.

(16.1) **Application of the aggregation of substances**

**Example 1**

*A site with 4 tonnes of hydrogen (medium hazard threshold 5 tonnes) and 1 500 tonnes of flammable liquids meeting Category 6 of Chapter 3 of Annexure A (medium hazard threshold 5 000 tonnes).*

*The aggregation rule gives:  $(4/5) + (1\ 500/5\ 000) = 0,8 + 0,3 = 1,1$*

*As this result is greater than 1, medium hazard category applies.*

**Example 2**

*A site with 150 tonnes of toxic substances meeting Category 2 of Chapter 2 of Annexure A (high hazard threshold 200 tonnes) and 1 tonne of arsenic pentoxide (high hazard threshold 2 tonnes).*

*The aggregation rule gives:  $(150/200) + (1/2) = 0,75 + 0,5 = 1,25$*

*As this result is greater than 1, high hazard category applies.*

- (17) In the case of an establishment where no individual substance or preparation is present in a quantity above or equal to the relevant qualifying quantities, the following rules must be applied to determine if the establishment is covered by the relevant requirements of these Regulations:

(17.1) **Application of the aggregation of categories**

**1. High Hazard Category:**

If the sum -  $q_1/Q_{U1} + q_2/Q_{U2} + q_3/Q_{U3} + q_4/Q_{U4} + q_5/Q_{U5} + \dots$  is greater than or equal to 1, where—

- (a)  $q_x$  = the quantity of dangerous substance  $x$  (or category of dangerous substances) falling within Chapter 1 or 2; and
- (b)  $Q_{UX}$  = the relevant qualifying quantity for substance or category  $x$  from column 5 of Chapter 1 or 2, then these Regulations shall apply.

**2. Medium Hazard Category:**

If the sum -  $q_1/Q_{M1} + q_2/Q_{M2} + q_3/Q_{M3} + q_4/Q_{M4} + q_5/Q_{M5} + \dots$  is greater than or equal to 1, where—

- (a)  $q_x$  = the quantity of dangerous substance  $x$  (or category of dangerous substances) falling within Chapter 1 or 2; and
- (b)  $Q_{MX}$  = the relevant qualifying quantity for substance or category  $x$  from column 4 of Chapter 1 or 2, then these Regulations shall apply.

**3. Low Hazard Category:**

If the sum -  $q_1/Q_{L1} + q_2/Q_{L2} + q_3/Q_{L3} + q_4/Q_{L4} + q_5/Q_{L5} + \dots$  is greater than or equal to 1, where—

- (c)  $q_x$  = the quantity of dangerous substance  $x$  (or category of dangerous substances) falling within Chapter 1 or 2; and
- (d)  $Q_{LX}$  = the relevant qualifying quantity for substance or category  $x$  from column 3 of Chapter 1 or 2, then these Regulations shall apply.

- (18) These rules must be used to assess the overall hazards associated with toxicity, flammability and eco-toxicity. They must therefore be applied three times—

- (a) for the addition of substances and preparations named in Annexure A and classified as toxic or very toxic, together with substances and preparations falling into Category 1 or 2 in Chapter 2;
- (b) for the addition of substances and preparations named in Annexure A and classified as oxidising, explosive, flammable, highly flammable or extremely flammable, together with substances and preparations falling into Category 3, 6, 7a, 7b or 8 of Chapter 2; and
- (c) for the addition of substances and preparations named in Annexure A1 and classified as Annexure A for the environment (toxic to aquatic organisms), together with substances and preparations falling into Category 7(a) or 9(b) in Chapter 2, and the relevant provisions of these Regulations shall apply if any of the sums thereby obtained is greater than or equal to 1.

The relevant provisions of these Regulations apply where any of the sums obtained by (a), (b) or (c) is greater than or equal to 1, *stated in material safety data sheets of substances as per Dangerous Substances Directive (67/548/EEC)*.

#### (18.1) **Application of the 2% rule**

The 2% rule should be applied as follows:

1. The substances present at an establishment only in quantities equal to or less than 2% of the relevant qualifying quantity must be ignored for the purposes of calculating the total quantity present if their location within an establishment is such that it cannot act as an initiator of a major incident elsewhere on site.
2. This allows for some quantities of substances to be ignored when deciding whether the Regulations apply. Individual quantities of dangerous substances can be ignored if they fulfil the following criteria:
  - (a) *the quantity is 2% or less of its threshold quantity; and*
  - (b) *its location means that it cannot start a major incident elsewhere on site.*
3. *Note that–*
  - (a) *both criteria must be met;*
  - (b) *the quantity involved may be capable of producing a major incident by itself;*
  - (c) *it may be capable of starting a major incident off site; and*

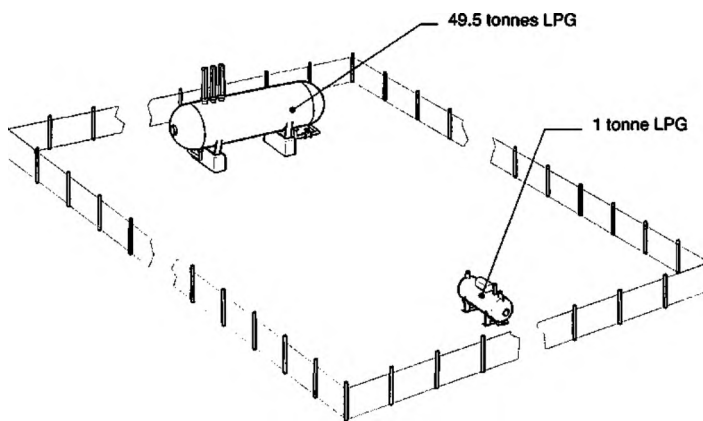
- (d) *if it meets the criteria, it can be ignored only when determining whether the establishment is within the scope of these Regulations. If the establishment is subject to the Regulations because of the presence of other dangerous substances, any quantity of 2% or less must be taken into account when considering the sources and consequences of major incidents.*

The diagram below does not depict an approved installation but it is meant for illustrative purposes only.

### **Example 1**

*An establishment with—*

- (a) *a large tank containing 49,5 tonnes of LPG; and*
- (b) *a small tank containing 1,0 tonne of LPG.*



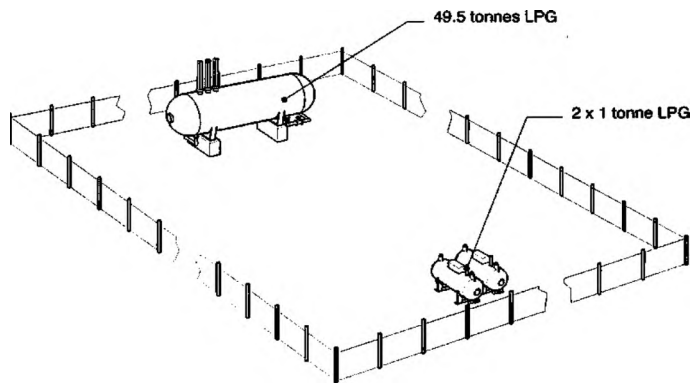
*The small tank = 2% of medium hazard threshold (50 tonnes), but the separation from the large tank is sufficient to prevent the small tank starting a major incident at the large tank. It can therefore be ignored in terms of the 2% rule.*

*The result is that medium hazard category does not apply, even though the total quantity of 50,5 tonnes is above the medium hazard threshold, which places it in the low hazard category.*

**Example 2**

An establishment with—

- (a) a large tank containing 49,5 tonnes of LPG; and
- (b) two small tanks each containing 1,0 tonne of LPG.



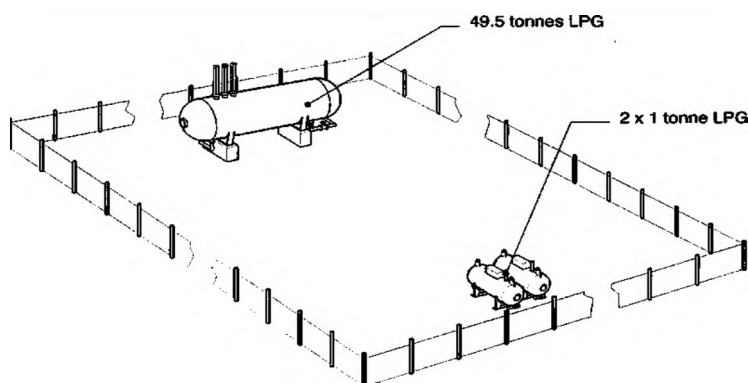
Each small tank = 2% of medium hazard threshold (50 tonnes), but their separation from the large tank and from each other is sufficient to prevent either of them starting a major incident at the other small tank or the large tank. Therefore, each can be ignored in terms of the 2% rule.

The result is that medium hazard category does not apply, even though the total quantity of 51,5 tonnes is above the medium hazard threshold, which places it in the low hazard category.

**Example 3**

An establishment with—

- (a) a large tank containing 49,5 tonnes of LPG; and
- (b) two small tanks each containing 1,0 tonne of LPG.



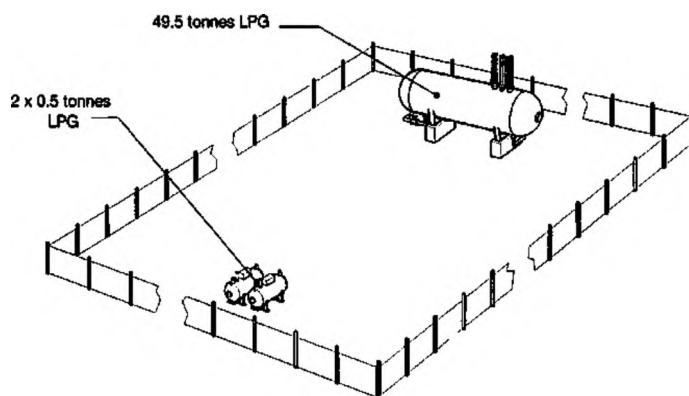
The small tanks are adjacent to each other but their separation from the large tank is not sufficient to prevent the small tanks starting a major incident at the large tank.

Both small tanks = 2% of threshold (50 tonnes), but as they are adjacent they should be regarded as one quantity of more than 2%; therefore, the 2% rule does not apply. As the total quantity of 51,5 tonnes exceeds the medium hazard threshold, the medium hazard threshold applies to this establishment.

#### **Example 4**

An establishment with—

- (a) a large tank containing 49,5 tonnes of LPG; and
- (b) two small tanks each containing 0,5 tonnes of LPG.



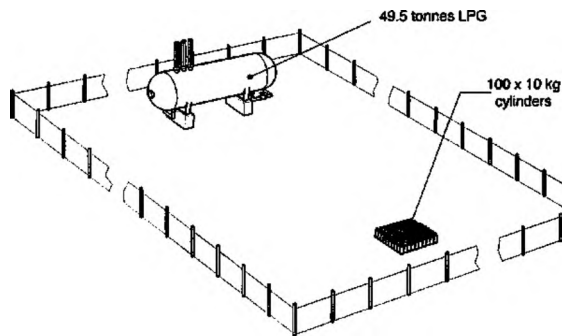
The small tanks are adjacent to each other but well separated from the large tank.

Both small tanks = 1% of threshold (50 tonnes), but as they are adjacent they should be regarded as one quantity of 1 tonne which = 2%. As this cannot start a major incident elsewhere on site, the 2% rule applies and the medium hazard category does not apply even though the total quantity is greater than the medium hazard threshold, which places it in the low hazard category.

#### **Example 5**

An establishment with—

- (a) a large tank containing 49,5 tonnes of LPG; and
- (b) a compound containing 100 x 10 kg cylinders of LPG, i.e. 1 tonne in total.



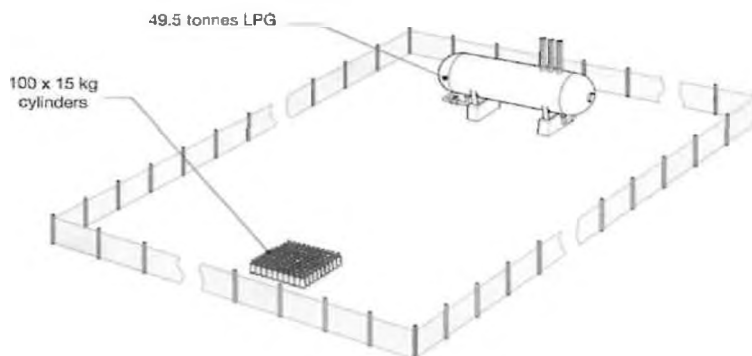
*The separation between the compound and the large tank is sufficient to prevent the cylinders starting a major incident at the large tank.*

*Each cylinder contains less than 2% of the medium hazard threshold (50 tonnes) and the total quantity in the cylinders is 1 tonne, which is 2% of the medium hazard threshold. The cylinder compound cannot start a major incident elsewhere on site, so the 2% rule applies. Therefore, the medium hazard category does not apply, which places it in the low hazard category.*

### **Example 6**

*An establishment with—*

- (a) a large tank containing 49,5 tonnes of LPG; and*
- (b) a compound containing 100 x 15 kg cylinders of LPG, i.e. 1,5 tonnes in total.*



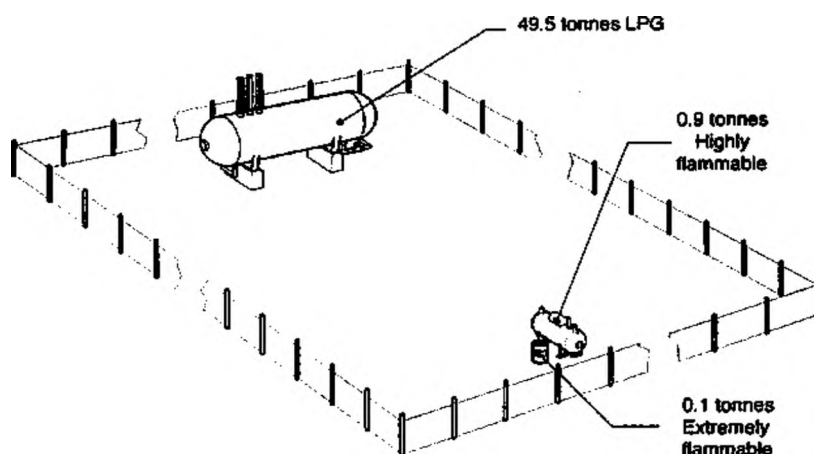
*The separation between the compound and the large tank is sufficient to prevent the cylinders starting a major incident at the large tank.*

Each cylinder contains less than 2% of the medium hazard threshold (50 tonnes) but as they are adjacent to each other they should be treated as one quantity of 1,5 tonnes, which is greater than 2% of the medium hazard threshold. Therefore, the medium hazard category applies to this establishment.

### Example 7

An establishment with—

- (a) a large tank containing 49,5 tonnes of LPG;
- (b) a tank containing 0,9 tonnes of highly flammable liquid (medium hazard threshold 50 tonnes); and
- (c) a tank containing 0,1 tonnes of extremely flammable liquid (medium hazard threshold 10 tonnes).



The small tanks are adjacent, but their separation from the large tank is enough to prevent the small tanks starting a major incident at the large tank. The total quantity for application purposes is determined by the aggregation rules, but first it is necessary to determine if the small tanks together exceed 2% of their threshold.

To do this, each one is expressed as a percentage of its own threshold and added together:

1. Small tanks

$(0,9/50) + (0,1/10) = 0,018 + 0,01 = 1,8\% + 1,0\% = 2,8\%$ . As this is greater than 2%, they cannot be ignored for application purposes.



The aggregation rule gives:

$$(49,5/50) + (0,9/50) + (0,1/10)$$

$$= 0,99 + 0,018 + 0,01$$

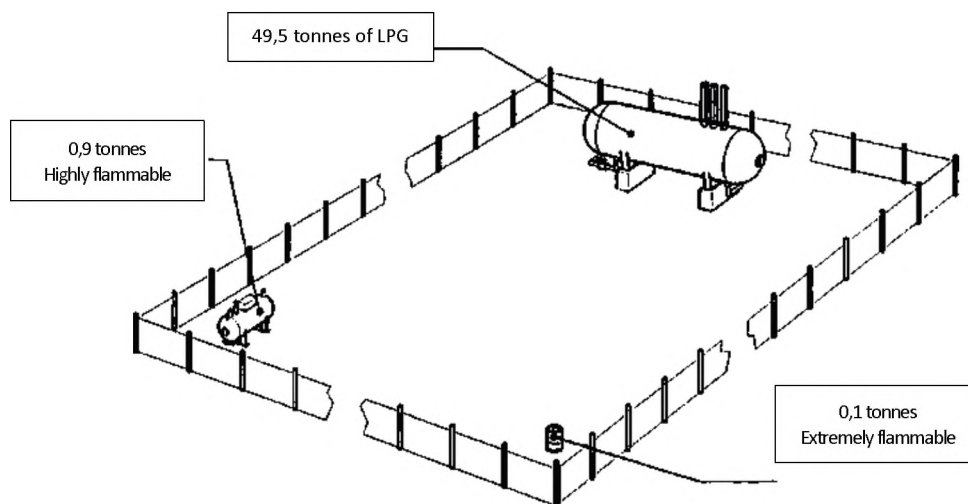
$$= 1,018$$

1,018 is greater than 1, so the medium hazard category applies to the establishment.

### Example 8

An establishment with—

- (a) a large tank containing 49,5 tonnes of LPG;
- (b) a tank containing 0,9 tonnes of highly flammable liquid (medium hazard threshold 50 tonnes); and
- (c) a tank containing 0,1 tonnes of extremely flammable liquid (medium hazard threshold 10 tonnes).



The separation is sufficient that neither small tank can start a major incident at either the other small tank or the large tank.

Because neither small tank exceeds 2% of its threshold, they can both be ignored for application purposes and the total quantity for application purposes is, therefore, the 49,5 tonnes of LPG. This is below its medium hazard threshold, so the medium hazard category does not apply to the establishment, which places it in the low hazard category.

**ANNEXURE B**

The fees for the registration and renewal of a certificate of registration are set out in the third and fourth columns of the table below:

CATEGORY OF MHI	CLASSES OF MHI	REGISTRATION FEE	RENEWAL FEE
Considered an MHI	-	R350	R350
Storage, use, handling, manufacturing and processing of one or more dangerous substances	LOW	R350	R350
	MEDIUM	R400	R400
	HIGH	R450	R450

**ANNEXURE C****Major Incident Prevention Policy**

The following principles should be taken into account when preparing a major incident prevention policy:

- (1) For the purpose of implementing the duty holder's major incident prevention policy and process safety management system, the following elements must be considered:
  - (a) the requirements laid down in the major incident prevention policy document must be proportionate to the hazards associated with major incidents present in the establishment;
  - (b) the major incident prevention policy must include the duty holder's aims and principles of action with respect to the control of hazards associated with major incidents.
  - (c) the process safety management system must include resources for determining and implementing the major incident prevention policy.
- (2) The following issues must be addressed by the process safety management system:
  - (a) organisation and personnel – the roles and responsibilities of personnel involved in the management of major hazards at all levels in the organisation. The identification of training needs of such personnel and

- the provision of the training so identified. The involvement of employees and, where appropriate, subcontractors;*
- (b) identification and evaluation of major hazards – adoption and implementation of procedures for systematically identifying major hazards arising from normal and abnormal operation and the assessment of their likelihood and severity;*
  - (c) operational control – adoption and implementation of procedures and instructions for safe operation, including maintenance of plant, processes, equipment and temporary stoppages;*
  - (d) management of change – adoption and implementation of procedures for planning modifications to, or the design of, new installations, processes or storage facilities;*
  - (e) planning for emergencies – adoption and implementation of procedures to identify foreseeable emergencies by systematic analysis and to prepare, test and review emergency plans to respond to such emergencies;*
  - (f) monitoring performance – adoption and implementation of procedures for the ongoing assessment of compliance with the objectives set by the duty holder major incident prevention policy and process safety management system, and the mechanisms for investigation and taking corrective action in the case of non-compliance. The procedures must cover the employer, self-employed person or user's system for reporting major incidents or near misses, particularly those involving failure of protective measures, and their investigation and follow-up on the basis of lessons learnt;*
  - (g) audit and review – adoption and implementation of procedures for periodic systematic assessment of the major incident prevention policy and the effectiveness and suitability of the process safety management system; the documented review of performance of the policy and process safety management system and its updating by senior management.*

## **ANNEXURE D**

### **SAFETY REPORTS**

**MINIMUM INFORMATION TO BE INCLUDED IN SAFETY REPORT**

*The information referred to in regulation 12(1), (5) and (7) is as follows:*

- (1) *Information on the management system and on the organisation of the establishment with a view to major incident prevention.*
- (2) A process safety management system must—
  - (a) be proportionate to the hazards, industrial activities and complexity of the organisation in the establishment;
  - (b) be based on assessment of the risks;
  - (c) include within its scope the general management system, including the organisational structure, responsibilities, practices, procedures, processes and resources for determining and implementing the major incident prevention policy.
- (3) The following matters must be addressed by the process safety management system:
  - (a) in relation to the organisation and personnel—
    - (i) the roles and responsibilities of personnel involved in the management of major hazards at all levels in the organisation, together with the measures taken to raise awareness of the need for continuous improvement;
    - (ii) the identification of the training needs of such personnel and the provision of the training;
    - (iii) the involvement of employees and of subcontracted personnel working in the establishment, who are important from the point of view of safety;
  - (b) the identification and evaluation of major hazards: the adoption and implementation of procedures for systematically identifying major hazards arising from normal and abnormal operation, including subcontracted activities where applicable, and the assessment of their likelihood and severity;
  - (c) in relation to operational control—
    - (i) the adoption and implementation of procedures and instructions for safe operation, including maintenance of plant, processes and

- equipment, and for alarm management and temporary stoppages;
- (ii) the taking into account of available information on best practices for monitoring and control, with a view to reducing the risk of system failure;
  - (iii) the management and control of the risks associated with ageing equipment installed in the establishment and its corrosion;
  - (iv) the inventory of the establishment's equipment, and the strategy and methodology for the monitoring and control of the condition of the equipment;
  - (v) appropriate follow-up actions and any necessary countermeasures;
- (d) the management of change: the adoption and implementation of procedures for planning modifications to, or the design of, new installations, processes or storage facilities;
- (e) in relation to planning for emergencies—
- (i) the adoption and implementation of procedures to identify foreseeable emergencies by systematic analysis;
  - (ii) the preparation, testing and review of emergency plans to respond to emergencies and the provision of specific training for staff, such training to be given to all personnel working in the establishment, including relevant subcontracted personnel;
- (f) in relation to monitoring performance—
- (i) the adoption and implementation of procedures for the ongoing assessment of compliance with the objectives set by the operator's major accident prevention policy and safety management system, and the mechanisms for investigation and taking corrective action in case of non-compliance;
  - (ii) the procedures must cover the operator's system for reporting major incidents or 'near misses', particularly those involving failure of protective measures, and their investigation and follow-up on the basis of lessons learned;
  - (iii) the procedures could also include performance indicators such as safety performance indicators and/or other relevant indicators;

- (g) in relation to audit and review—
  - (i) the adoption and implementation of procedures for periodic systematic assessment of the major accident prevention policy and the effectiveness and suitability of the process safety management system;
  - (ii) the documented review of performance of the policy and process safety management system and its updating by senior management, including consideration and incorporation of necessary changes indicated by the audit and review.

The information in the safety report must contain the elements set out in Annexure C.

*(4) Presentation of the site and surrounding area of the establishment:*

- (a) description of the site and its surrounding area, including the geographical location, meteorological, geographical and hydrographic conditions and, if necessary, its history;*
- (b) identification of installations and other activities of the establishment which could present a major incident hazard;*
- (c) description of areas where a major incident may occur.*

*(5) Description of the establishment:*

- (a) description of the main activities and products of the parts of the establishment which are important from the point of view of safety, sources of major incident risks and conditions under which such a major incident could happen, together with a description of proposed preventive measures;*
- (b) description of processes, in particular the operating methods;*
- (c) description of dangerous substances:*
  - (i) inventory of dangerous substances, including—*
    - (aa) the identification of dangerous substances: chemical name, the UN number;*
    - (bb) the maximum quantity of dangerous substances present;*
  - (ii) physical, chemical, toxicological characteristics and indication of the hazards, both immediate and delayed for people;*

- (iii) *physical and chemical behaviour under normal conditions of use or under potential incidental conditions.*
- (6) *Identification and incidental risks analysis and prevention methods:*
  - (a) *detailed description of the possible major incident scenarios and their probability or the conditions under which they occur, including a summary of the events which may play a role in triggering each of these scenarios, the causes being internal or external to the establishment;*
  - (b) *assessment of the extent and severity of the consequences of identified major incidents;*
  - (c) *description of technical consideration, methods and tools used for the safety evaluation of the establishment.*
- (7) *Measures of protection and intervention to limit the consequences of an incident:*
  - (a) *description of the equipment installed in the plant to limit the consequences of major incidents;*
  - (b) *organisational alert and intervention;*
  - (c) *description of internal or external resources that can be mobilised;*
  - (d) *summary of elements described in subparagraphs (a), (b) and (c);*
  - (e) *necessity for drawing up the on-site emergency plan.*

**ANNEXURE E**

**AIA REPORTS:** \_\_\_\_\_

\_\_\_\_\_ **AIA number:** \_\_\_\_\_

<i>Physical address</i>	<i>Type</i>	<i>Responsible person</i>	<i>Assessor</i>	<i>Type of assessment</i>	<i>Date of previous assessment</i>	<i>Date of assessment</i>



**FORM A**  
**NOTIFICATION OF AN ESTABLISHMENT**

**(Regulation 4)**

*Detailed guidance can be obtained from the Major Hazard Installation Regulations, 2022, which is available on the Department of Employment and Labour's website, [www.labour.gov.za](http://www.labour.gov.za).*

*The completed form must be hand-delivered to the Department of Employment and Labour's offices.*

**Physical address:**

*215 Francis Baard Street  
Laboria House Building  
Pretoria  
0001*

*Or, alternatively, you may make enquiries by email to [webmail@labour.gov.za](mailto:webmail@labour.gov.za). As electronic communication cannot be guaranteed to be secure, you may decide not to use this means if you regard any of the information as confidential.*

*A determination must be made by the applicant who the correct recipient at the local government is. This recipient must be an appropriate member from the relevant section or senior management at the local government.*

**2. BASIC PARTICULARS OF THE ESTABLISHMENT**

Name of the establishment:	
Registered name of the business:	
Company Registration No.:	
Chief Executive Officer:	
CEO's physical address:	
CEO's telephone number:	
Name of the responsible person and contact:	
Physical address of the establishment:	
Telephone number of the establishment:	
Email:	
Industry sector:	
Brief description of activity or proposed activity concerned:	
Health and safety representative(s). (At least two, where applicable)	
Trade Union	

**2. CLASSIFICATION**

2.1 Type of hazard of the establishment (mark with an X)

<b>Low</b>		<b>Medium</b>		<b>High</b>	
------------	--	---------------	--	-------------	--

2.2 Type of notification

<b>Proposed</b>		<b>Renewal</b>		<b>Review due to changes</b>	
-----------------	--	----------------	--	------------------------------	--

Comment on the lifetime of the establishment:

---



---



---



---

2.3 When did the assessment expire? \_\_\_\_\_

2.4 Age of the establishment \_\_\_\_\_

2.5 Subsequent risk assessments

<b>DATE OF MHI RISK ASSESSMENT</b>	<b>TYPE OF MHI RISK ASSESSMENT</b>	<b>AIA</b>

2.6 Date of evaluation of current risk assessment: \_\_\_\_\_

2.7 Were the employees consulted and informed of the status of the establishment?

<b>Yes</b>	<input type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
------------	--------------------------	-----------	--------------------------

*Attach proof*

If not, provide a reason:

---



---



---



---

**3. PUBLIC AWARENESS**

3.1 Were the neighbours and public notified?

<b>Yes</b>	<input type="checkbox"/>	<b>No</b>	<input type="checkbox"/>
------------	--------------------------	-----------	--------------------------

*Attach proof*

If not, provide a reason:

---



---



---



---

3.2 Were there any objections?

<b>Yes</b>		<b>No</b>	
------------	--	-----------	--

*Attach proof*

*If yes, provide a reason:*

---



---



---

3.3 Were the objections regarding health and safety of the public?

<b>Yes</b>		<b>No</b>	
------------	--	-----------	--

*Attach proof*

*If yes, provide a reason and resolutions:*

---



---



---

**4. INVENTORY OF SUBSTANCES**

*Provide an inventory list of all substances that will be present, their physical form and quantity.*

*Physical form includes gas, liquid, powder and solids. Quantity is the maximum which is anticipated will be present. The information as in Annexure A must be used.*

<b>Name of substance</b>	<b>Physical form</b>	<b>Maximum quantity</b>

Describe other establishments or features of environment which could lead to a major incident on your site. Describe elements of surrounding environment which could make the consequences of a major incident worse (e.g. nearby housing, other occupied buildings, farming and sewage works)	Details of the elements of the immediate environment liable to cause a major incident or aggravate the consequences thereof:
	<b>Neighbouring establishments</b>
	<b>Surrounding vulnerabilities</b>
	<b>Other</b>

**5. DETAILS OF APPROVED INSPECTION AUTHORITY (AIA)**

5.1 Name of the AIA (as relevant): \_\_\_\_\_

5.2 AIA number: \_\_\_\_\_

(Attach certificate)

5.3 SANAS certificate number: \_\_\_\_\_

(Attach certificate and schedule)

5.4 Name of assessor: \_\_\_\_\_

(Attach competency records)

5.5 Telephone number: \_\_\_\_\_

**6. SITE MAPS**

Attach proof

**7. LOCAL GOVERNMENT**

7.1 Name of local government: \_\_\_\_\_

7.2 Contact person: \_\_\_\_\_

7.3 Contact details: \_\_\_\_\_

7.4 Province: \_\_\_\_\_

Attach proof of advertisement of the status

7.5 Land use approval status

<b>Yes</b>		<b>No</b>	
------------	--	-----------	--

Attach proof

If not, state the reasons and attach proof of when the permit will be submitted:

---



---



---



---

7.6 Acknowledgement by local government

Official Stamp

Received by: \_\_\_\_\_

DESIGNATION: \_\_\_\_\_

Contact: \_\_\_\_\_

Signature: \_\_\_\_\_

**8. EMERGENCY PREPAREDNESS**

8.1 Emergency preparedness plans

(a) On-site plan

<b>Yes</b>		<b>No</b>	
------------	--	-----------	--

Attach proof

If not yet concluded, attach action plan with clear target dates of not more than six months and comment below:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(b) Off-site plan

<b>Yes</b>		<b>No</b>	
------------	--	-----------	--

Attach proof

If not yet concluded, attach action plan with clear target dates of not more than six months and comment below:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

8.2 Relevant local government responsible for activating emergency plans

Name: \_\_\_\_\_

Contact Person: \_\_\_\_\_

Designation: \_\_\_\_\_

Was there an agreement between the establishment and the local government?

<b>Yes</b>		<b>No</b>	
------------	--	-----------	--

Attach proof

If no, comment and attach certificate of designation:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

8.3 What is the upcoming revision period (maximum of three years)?

\_\_\_\_\_

8.4 *Were employees consulted?*

<b>Yes</b>		<b>No</b>	
------------	--	-----------	--

*Attach proof*

*Attach consent statement from relevant health and safety representative(s) or health and safety committee.*

8.5 *Were employees trained on emergency preparedness and procedures to follow during all types of emergencies?*

<b>Yes</b>		<b>No</b>	
------------	--	-----------	--

*Attach proof*

**9. SIGNATURES**

9.1 *Establishment Representative*

*Name and Surname:* \_\_\_\_\_ *Position:* \_\_\_\_\_

*Date:* \_\_\_\_\_

*Attach letterhead of the establishment*

9.2 *Responsible Person*

*Name and Surname:* \_\_\_\_\_ *Position:* \_\_\_\_\_

*Date:* \_\_\_\_\_

*Attach appointment letter*



**FORM B**

**APPLICATION FOR REGISTRATION AS APPROVED INSTALLATION  
INSPECTION AUTHORITY**

**DEPARTMENT OF EMPLOYMENT AND LABOUR  
OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO. 85 OF 1993)**

<p><i>The Chief Inspector Department of Employment and Labour Private Bag X117 PRETORIA, 0001</i></p>	
---	--

*The Chief Inspector*

*I hereby apply to be registered as an approved inspection authority for major hazard establishments in terms of regulation 19 of the Major Hazard Installation Regulations, 2022. I declare that the particulars given below are, to the best of my knowledge and belief, correct.*

**1. PARTICULARS OF INSPECTION BODY**

*Registered name of Inspection Body:* \_\_\_\_\_

*Trading name:* \_\_\_\_\_

*State whether you are a sole proprietor/partnership/company/close corporation (delete which is not applicable)*

*Business registration number:* \_\_\_\_\_

*Chief Executive Officer:* \_\_\_\_\_

*Partners:* \_\_\_\_\_

*Province:* \_\_\_\_\_

*Physical Address:* \_\_\_\_\_

2. SCOPE OF APPLICATION (Tick appropriate block(s))

TYPE A	3 <sup>rd</sup> party	
TYPE B	In-house	
TYPE C	Manufacturer	

3. SIGNATORIES:

3.1 \_\_\_\_\_

3.2 \_\_\_\_\_

4. SPECIMEN SIGNATURE OF THE SIGNATORIES:

1	2	3	4
3.1			
3.2			

Attach more if there are many

**SUPPORTING DOCUMENTS**

- (a) Certified copy of IDs
- (b) Certified copy of business registration
- (c) Organogram of the inspection body
- (d) Certified copy of accreditation certificate and schedule from the accreditation body

Signature of the applicant \_\_\_\_\_

Date of application: \_\_\_\_\_

FOR OFFICE USE

Application : APPROVED/NOT APPROVED

REASON FOR REFUSAL: \_\_\_\_\_

\_\_\_\_\_

COMMENTS: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Allocated Registration Number: \_\_\_\_\_

Approving Official: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

## Integrated Oversight Inspection – FFS & CTBS Port Engineering Report

### 1. Overview

An oversight inspection was completed at FFS & CTBS in the Port of Cape Town (PoCT) on the 29<sup>th</sup> of March 2023. The following report details the conditions of the various assets on the property in accordance with the *Asset Maintenance Principles and Procedures (AMPP) - Part 2*. As part safety compliance in the Terminal safety.

### 2. Site Location

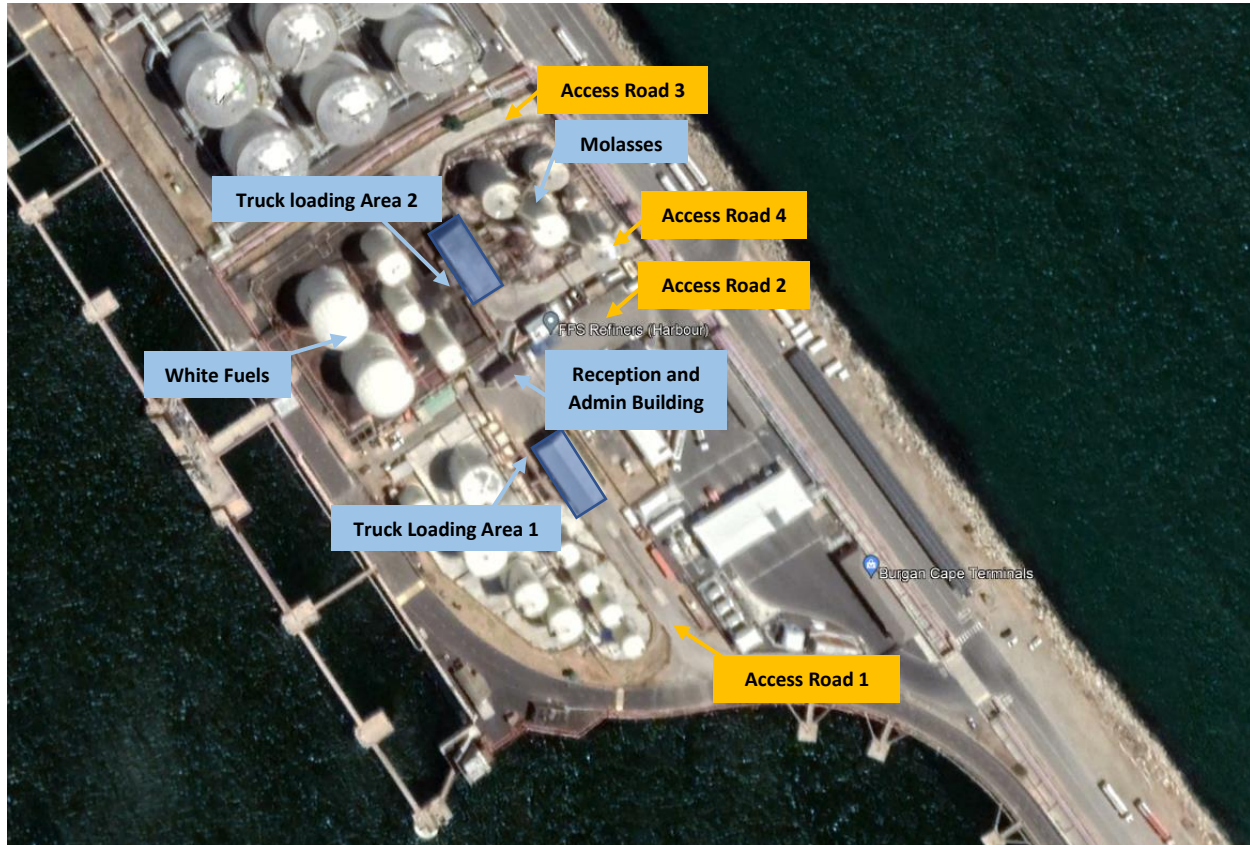
FFS & CTBS Terminals is located in the PoCT, in Duncan Dock at Eastern Mole 2. The site location is displayed in Figure 1 below:



**Figure 1:** Location of FFS & CTBS in relation to Transnet National Ports Authority (TNPA House)

### 3. Oversight Inspection Findings

The reference image below should be used in conjunction with the inspection findings:

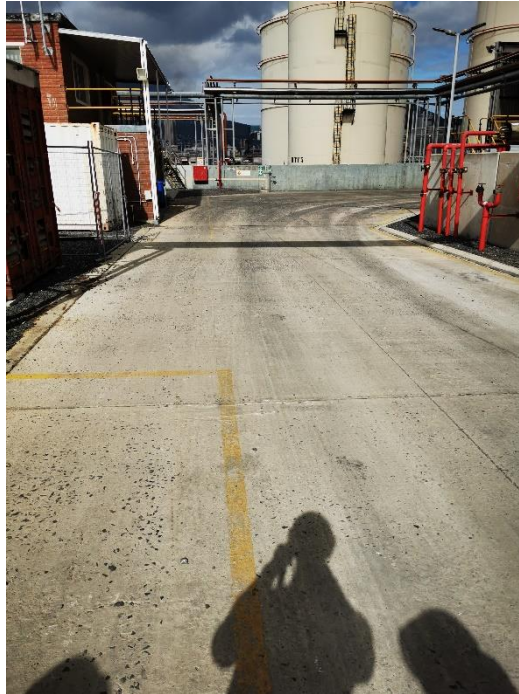


**Figure 2:** Image displaying the locations of the inspection findings

#### 3.1 Roads and Paving

The main asphalt road surrounding the site is in very good condition, these include old and new Eastern Mole Roads. Access to the site through access roads 3 and 4 shown in the above figure 1, can be gained from this road. Access to gates 1 and 2 can be obtained using these gravelled access roads. These are to be resurfaced and graded, as potholes are beginning to form. The potholes cause pooling during the wet seasons, which will exacerbate the deterioration of these roads with continuous use.

The roads inside the facility are in very good condition and well kept. The road markings need to be redone, especially those indicating areas where full PPE is required. Furthermore, there is no cracking in the surfaces and the area is clean. The Kerbs are in good condition, but possibly needs a good sweep, to remove the edging stone which can cause damage to the surface with heavy vehicle use.



**Figure 3:** Internal Concrete Road

### **3.2 Buildings**

#### Reception and Admin Building

- Exterior of the building is in a good condition. The building is clean and neat.
- The interior of this building consists of 3 offices, a kitchen and a bathroom which are all in good condition.
- New first line fire emergency equipment should be installed.

#### Control Room

- Exterior of the building is in a good condition
- The interior is clean and well kept.
- The security room is filled with storage. It should be considered to clear this room and store these items in an area where it would not be a hazard.

#### Operations Building

- The building is in an overall good condition.

- There seems to be water ingress on the staircase leading to the female mess room. This ingress is causing the delamination of the cover on the staircase, which can be seen in the image below. The waterproofing in this area needs to be addressed.



**Figure 4:** Damage to cantilevered walkway

### 3.3 Fences and Gates

The boundary fencing and access gates are in a good condition. The access gates are manned and operated by security. One of the post uprights at entrance 2 is slightly damaged, but not considered bad. The fencing around the facility is in a reasonably good condition.

### 3.4 Boundary Wall

The boundary wall on the Eastern side of the site is in fair condition. Longitudinal cracks are beginning to form which seems to be typical masonry cracking. The walls require a new coat of paint.



**Figure 5:** Cracking in boundary wall

### 3.5 Pipelines

Overall, the pipelines on site are in a good condition. No leaks were observed on site. There were some minor corrosion identified in the following areas:

- Minor corrosion of lines and flanges in the bunded area.
- Minor corrosion of pipe brackets and fixing bolt groups.

Bad leaking was sighted at Truck loading area 1, where the bunding areas were full of oil. House keeping in this area needs to be improved.





**Figure 6:** Bund area filled with oil

### **3.6 Oil Storage Tanks**

The oil storage tanks are in a good condition.


### **3.7 Stormwater Drains**


All stormwater on site is captured in the bunding areas surrounding the tanks. This water is tested as and when required and then transported and disposed of in Borchards Quarry. The bunded areas were clean, neat and there was no evidence of any spillage.


### 3.8 Housekeeping

General housekeeping on the site is very good. The facility is generally clean and well maintained. It was suggested that all scrap be removed from the perimeter of the site as this could lead to possible theft

#### SIGNATORIES:

Prepared by:   
\_\_\_\_\_  
Zahir Baker  
Civil Engineer  
Date 13/04/2023

Supported by:   
\_\_\_\_\_  
Ismail Adams  
Drawing Office Manager  
Date 13 April 2023

Approved by:   
\_\_\_\_\_  
Mishka Prinsloo  
Senior Engineer  
Date 13/04/2023

# Annexure



## Valuation Report

of

## Certain FFS Plant and Machinery



**10 May 2023**

FFS REFINERS

**CONFIDENTIAL**

**SUBJECT: REVIEW OF VALUATION REPORT OF CERTAIN PLANT AND EQUIPMENT  
BELONGING TO FFS REFINERY**

**VALUATION OBJECTIVE**

This report has been prepared in accordance with an instruction received from FFS Refinery to conduct a review of the valuation of certain plant and equipment belonging to FFS Refinery (See attached Annexure). The subject assets are situated at Table Bay Harbour Port of Cape Town Cape Town, Western Cape, South Africa. This is the final review to the Kantey & Templer consulting engineers report: FFS Refiners: CHTTF & CTBS Asset Valuation Report- Revision G dated May 2023.

**Effect date**

22 July 2022

**Date of Review**

10 May 2023



## **METHODOLOGY**

### **Basis of the valuation**

Due to the specialty of the subject assets, Primeland Properties has reviewed the evaluation report that was carried out by Kantey & Templer consulting engineers using the market value by the Cost Approach although the income approach and the sales comparison approach were also considered and found to be not suitable in this instance. The market value was adjusted according to the depreciation methodology looking at the age of the equipment, physical, functional, and economic obsolescence, etc in order to arrive at a reasonable market value for a going concern business.

Our review considered the following;

- The valuation process as well as the reasonableness of the valuation opinion of the by Kantey & Templer consulting engineers report
- Whether all forms of depreciation were appropriately considered
- The remaining useful lives considered as well as the process followed to come up with such lives
- A review of the final opinion of the valuation carried out by Kantey & Templer consulting engineers and its alignment to best practices.

## **CONDITIONS, SPECIAL CONDITIONS AND BASIC INFORMATION**

We have relied on the information provided by Kantey & Templer consulting engineers dated and the information gathered on the date of inspection, should there be any adverse factors affecting the value, we reserve the right to amend the outcome of this review.

- 1.1.** In addition, our review is subject to the schedule of conditions and limitations attached to this valuation report
- 1.2.** Primeland assumes no responsibility for incorrect valuation estimations caused by the client or their agents providing information used as the basis for the valuation review, which is incorrect or incomplete.



## **FINDINGS**

The general condition of the assets is good. Due to the nature of their operation, all equipment undergo extensive maintenance, and this positively enhances their remaining useful life. General aging, wear and tear have also been noticed and this is regarded as normal, due to day-to-day use across all various sites across Cape Town.

Upon carrying out the review, Primeland also noted the following in relation to the Kantey & Templer consulting engineers report.;

- The valuation process considered all the three methodologies of valuation and selected the Market Value by the cost approach as the ideal methodology.
- All forms of depreciation were considered, physical deterioration was deducted while functional and economic obsolescence were noted to be zero. The depreciation factors and residual values were aligned with best practices.
- The remaining useful lives of the assets were also aligned with best practice.
- The opinion of value was noted to be aligned with our opinion of value.

## **VARIANCE**

There is no variance between the Primeland assessment against the valuation by Kantey & Templer consulting engineers. This has been enhanced by progress reviews and adjustments made by the consulting engineers.



## CONCLUSION

The market values of the assets as indicated in the table below. Primeland is of the opinion that this amount is fair and reasonable.

Description	Market Value (Going concern)
All Movable assets at FFS Refiners CTHTF & CTBS Terminals	R201 590 000

Prepared by,



.....

**Edward Baleni** – MSc PropInv (Reading), FRICS

Chartered Valuation Surveyor (1251560)

Professional Valuer (4142/5)

Reviewed by,



.....

**Gabriel Karidza Pr.Eng, ASA, MRICS** | Mobile : 0026772112452



ANNEXURE A







**KANTEY & TEMPLER**  
CONSULTING ENGINEERS

ESTABLISHED 1953

# **FFS REFINERS: CTHTF & CTBS ASSET EVALUATION REPORT**



MAY 2023

K&T PROJECT REFERENCE: 16693P

REVISION G



## KANTEY & TEMPLER

CONSULTING ENGINEERS

ESTABLISHED 1953

### Details of this report

Client Name	FFS Refiners
Document Title	FFS Refiners: CTHTF & CTBS Asset Evaluation Report
K&T Project Reference	16522P
File Name	16693P FFS Refiners CTHTF & CTBS Asset Evaluation Report
Prepared By	J Beute
Reviewed By	D James

### Report Revision Record


Revision	Date	Description
A	17/06/2022	Issued to Client for Approval
B	22/06/2022	Asset costing and depreciation methodology added
C	22/06/2022	MGO Import/Export Line from EM 1 & TB 1 removed from assets
D	06/07/2022	Fixed assets included in report
E	22/07/2022	Client project costs updated
F	12/12/2022	TNPA Comments included
g	11/05/2023	Additional Comments incorporated; Fixed assets removed from report

This report has been prepared by Kantey & Templer (Pty) Ltd, with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

### For and on behalf of Kantey & Templer (Pty) Ltd

For and on behalf of	
<b>Kantey &amp; Templer (Pty) Ltd</b>	
Approved by:	<u>Jan Beute</u>
Signed:	<u></u>
Position:	<u>Project Manager</u>
Date:	<u>11 May 2023</u>

### Copyright

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- Enjoys copyright protection and the copyright vests with Kantey & Templer (Pty) Ltd, unless otherwise agreed to in writing.
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**FFS REFINERS  
CTHTF & CTBS ASSET EVALUATION REPORT**

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13	<b>SUMMARY .....</b>	<b>25</b>
<b>Appendix A – REPLACEMENT AND MARKET VALUE - COST ESTIMATE</b>		
	• <b>Movable Asset - Cost estimate</b>	
	• <b>Owners Cost - Cost Estimate</b>	
<b>Appendix B – P&amp;ID (Sheets 1-5)</b>		

## 1 BACKGROUND

Kantey & Templer (K&T) have been appointed by FFS Refiners to prepare an asset evaluation report for their CTHTF & CTBS terminals located on the Eastern Mole within the Port of Cape Town.

**Table 1.1: Contact details of client for this report**

<b>Depot name</b>	FFS Refiners CTHTF & CTBS Terminals	
<b>Contact Person</b>	Gary Webster	
<b>Contact details</b>	+27 82 885 4247	<a href="mailto:GaryW@FFS.co.za">GaryW@FFS.co.za</a>

## 2 KEY INFORMATION FOR REPORT

<b>Physical Address</b>	FFS Refiners Portside Road Table Bay Harbour Port of Cape Town Cape Town 8000 Western Cape South Africa
<b>GPS Co-Ordinates</b>	33°54'39.76"S 18°26'22.85"E
<b>Date of Inspection</b>	10 June 2022
<b>Date of Evaluation</b>	22 July 2022
<b>Valuation Methodology</b>	Market Value
<b>Description of Movable Assets</b>	<ul style="list-style-type: none"> <li>• Product: <ul style="list-style-type: none"> <li>○ Tankage</li> <li>○ Piping</li> <li>○ Valves</li> <li>○ Equipment</li> <li>○ Pumps</li> <li>○ Electrical &amp; Instrumentation</li> </ul> </li> <li>• Firefighting: <ul style="list-style-type: none"> <li>○ Tankage</li> <li>○ Piping</li> <li>○ Valves</li> <li>○ Equipment</li> <li>○ Pumps</li> <li>○ Electrical &amp; Instrumentation</li> </ul> </li> <li>• Other <ul style="list-style-type: none"> <li>○ Temporary buildings/structures</li> </ul> </li> </ul>
<b>Market Value – Movable Assets</b>	ZAR 201 590 000

### 3 REPORT SUMMARY

#### 3.1 Purpose of Report

The purpose of this evaluation report is to determine the Replacement Value and Market Value of the assets as identified by the client on the date of evaluation.

The land is rented by FFS Refiners from Transnet National Ports Authority (TNPA), on expiry of the lease all movable assets are to be removed and the immovable assets are to be returned to TNPA. Immovable assets are considered to be affixed to the land.

#### 3.2 Method of Evaluation

The Cost Approach Valuation method has been adopted for this report, this method is commonly used for facilities that utilises specialised equipment and plant.

The Cost Approach Valuation is a valuation method that bases an assets market value off the cost it would take to construct an equivalent asset. The **cost** approach takes into account the cost of construction, less depreciation.

#### 3.3 Date of Site Inspection

10 June 2022

#### 3.4 Date of Evaluation

22 July 2022

#### 3.5 Source of information for report

- Drawings as supplied by client
- Data sheets as supplied by client
- Equipment lists as supplied by client
- Inspection lists as supplied by client
- Site inspection which included:
  - Visual inspection of the site
  - Discussions with site operational staff
  - Discussions with site engineering staff
- Recent similar projects completed
- Suppliers of specialised equipment
- Construction contractors completing similar works

#### 3.6 Assumptions

Kantey & Templer have completed a high-level asset register utilising the following information:

- Drawings as supplied by client
- Data sheets as supplied by client
- Equipment lists as supplied by client
- Inspection lists as supplied by client
- Site inspection which included - Visual inspection of the site, discussions with site operational and engineering staff

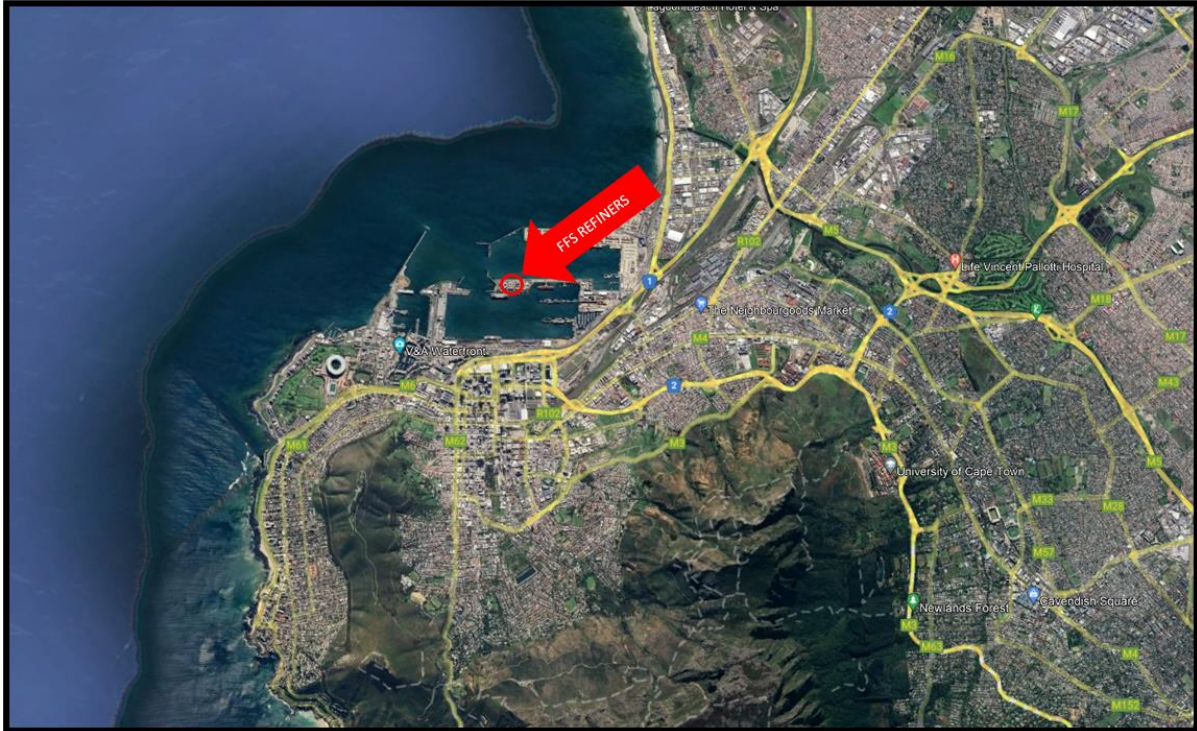
A physical inspection of the site was performed to inspect various components as far as possible. Equipment/Infrastructure that was not accessible (I.e. covered or inaccessible) have not been inspected, in this scenario Kantey & Templer have used good engineering practice assumptions for the writing of this report.

No testing/surveying of existing infrastructure/equipment was performed for this report, It has been assumed that all infrastructure/equipment in a satisfactory state of repair and condition unless otherwise stated within this report

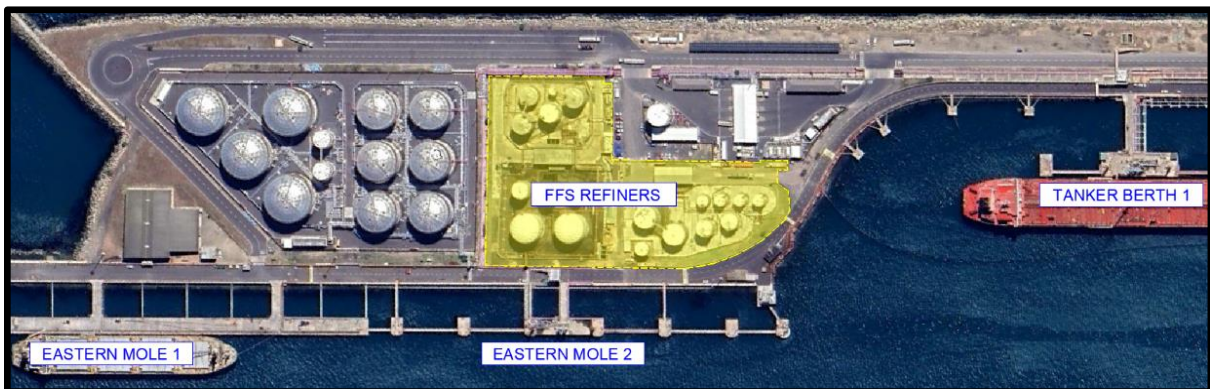
#### 4 LOCATION

FFS Refiners are located off Portside Road on the Eastern Mole, Table Bay Harbour, Port of Cape Town, Cape Town Western Cape. Burgan Cape Terminals is located next door on the North West site border

Refer to below location map of FFS Refiners in relation to the City of Cape Town:



Refer to below location map of FFS Refiners: Entrance co-ordinates 33°54'39.76"S 18°26'22.85"E



## 5 SITE DESCRIPTION

The Terminal is located on the Eastern Mole within the Port of Cape Town, products stored include Diesel, Bitumen & Fuel Oil.

Product is either imported via vessel or road tanker, stored in tankage and then exported to road tanker or vessel. The terminal has the ability to heat product, blend product, transfer between tankage and recirculate within tank. The Terminal has two road loading gantries with two loading/receipt bays per gantry, the site also has two weighbridges for stock control of import/export of product via road tanker. Each tank has a level transmitter for stock control.

The site has a stand-alone firefighting system with dedicated fire water storage, foam storage, two diesel driven fire water pumps and two diesel driven foam concentrate pumps, the system is also connected to the TNPA sea water firefighting system via a valved connection. There is a water hydrant ring main as well as a foam solution hydrant ring main which feeds the bund foam, tank foam, tank cooling rings, site fire water hydrants as well as strategically located water cannons.

The site has two Thermomat Heaters for the heating of Thermal Fluid, this heating network is used to heat selected tanks, pipes as well as a heat exchanger for the heating of product.

The site has a dirty water collection and containment system (Vacuum system) for the collection of oily water from the site separators.

Other site facilities include a site generator supplying power to strategic points, site compressors with pressure vessel, site CCTV, site lighting etc.



## 6 SITE IMPROVEMENTS

### 6.1 Tankfarm

The Eastern Mole is reclaimed land, the fill material used for the construction of the Eastern Mole was imported from different parts of the Cape Flats area and is extremely variable including builders' rubble, concrete and other materials. For any high load structures (i.e. Bulk storage tanks) ground improvements would be required (for example piling, dynamic compaction and/or excavate and fill and compact with selected material), due to lack of as-built documentation, it is unknown what form of ground improvements was used for the construction of the tanks and therefore assumptions have made for the purpose of this report.

#### 6.1.1 Tanks constructed on site are as follows:

Tank No	Product	Volume (m <sup>3</sup> )	Year Built	Design Life
HTF 1	Diesel Plant	5 400	2002	45
HTF 2	Diesel Plant	5 400	2002	45
HTF 3	Diesel Plant	1 100	2002	45
HTF 4	Diesel Plant	1 750	2002	45
HTF 5	Diesel Plant	1 250	2002	45
HTF 6	Blend Plant	500	1993	45
HTF 7	Blend Plant	500	1993	45
HTF 8	Blend Plant	500	1993	45
HTF 9	Blend Plant	1 000	1993	45
HTF 10	Blend Plant	1 400	1993	45
HTF 11	Bitumen Plant	2 500	2013	45
HTF 12	Bitumen Plant	2 500	2013	45
HTF 13	Bitumen Plant	2 500	2013	45
HTF 14	Bitumen Plant	1 330	2013	45
HTF 15	Bitumen Plant	280	2013	45
HTF 17	Blend Plant	2 456	2017	45
HTF 18	Blend Plant	2 458	2017	45
HTF 19	Blend Plant	513	2017	45
	Blend Plant	0.2	2014	25
Expansion Tank	Thermal Oil	3	2014	25
	Thermal Oil	0.2	2014	25
BURNER FUEL TANK	Thermal Oil	23	2014	25
	Vacuum Plant	9	2002	25

#### 6.1.2 Ground improvements for tankage

#### 6.1.3 Concrete Tank ring beams

#### 6.1.4 Concrete bundwalls and bund floors

#### 6.1.5 Bund drainage

#### 6.1.6 Bund access



6.1.7 High level intertank walkways

6.1.8 Low level pipe supports

6.1.9 High level pipe supports

6.1.10 Product piping, fittings, valves and equipment

6.1.11 Firefighting piping, fittings, valves and equipment

6.1.12 Electrical cabling and instrumentation

## 6.2 **Product distribution**

6.2.1 Concrete pumpslabs and structural steel canopies

6.2.2 Road loading/receipt Bay 7 & 8 Concrete spill slab with structural steel canopy

6.2.3 Road loading/receipt Bay 9 & 10 Concrete spill slab with structural steel canopy

6.2.4 Weigh Bridges and metering equipment for stock control of export and import of product by road

6.2.5 Berth pipelines for import and export of product with all associated civil/structural works, piping, valves and equipment

## 6.3 **Firefighting facilities**

6.3.1 Water reservoir

6.3.2 Foam tank

6.3.3 Fire water pumps

6.3.4 Foam water pumps

6.3.5 Fire water ringmain

6.3.6 Foam water ringmain

6.3.7 Tank cooling

6.3.8 Tank foam

6.3.9 Bund foam

6.3.10 Fire hydrants

6.3.11 Fire cannons

6.3.12 Fire extinguishers

6.3.13 Fire hoses

## 6.4 Utilities

6.4.1 Thermo Oil Heating plant with all associated civil/structural works, piping, valves and equipment

6.4.2 Compressed air system with all associated civil/structural works, piping, valves and equipment

6.4.3 Vacuum system for the control of oily water with all associated civil/structural works, piping, valves and equipment

6.4.4 Water distribution network

## 6.5 Other facilities

6.5.1 Admin office

6.5.2 Operations office

6.5.3 Temporary offices for Security, store etc

6.5.4 Site drainage system which includes oily water, storm water and foul sewer

6.5.5 Site roads and walkways

6.5.6 Site access stairs

6.5.7 Site security including perimeter fencing, gates and security cameras

## **7 ASSUMPTIONS FOR EVALUATION REPORT**

### **7.1 The evaluation report is to estimate the following:**

- Replacement Value
- Market value (Depreciated Value)
- Remaining life expectancy

### **7.2 The terminal is split into the following areas:**

- Bitumen Plant
- Blending Plant
- Diesel Plant
- Firefighting Facilities
- Shared Facilities (Terminal Facilities)

### **7.3 The evaluation report is to include for the following movable assets:**

- Tankage
- Product piping & equipment
- Firefighting piping and equipment
- Electrical and Instrumentation infrastructure
- Other movable assets

### **7.4 The evaluation report is to include for the following project related costs:**

- Land rental for duration of project
- Owners Costs
- Engineering Costs
- Surveys and specialist reports (I.e., EIA, geotechnical report, site survey etc.)

## 8 EVALUATION METHODOLOGY

A physical inspection of the site was performed to inspect various components as far as possible. Equipment/Infrastructure that was not accessible (i.e. covered or inaccessible) have not been inspected, in this scenario Kantey & Templer have used good engineering practice assumptions for the writing of this report.

The general condition of the equipment installed appears to be in good functional condition with evidence of pitting on some tankage, piping, valves and equipment, this is mainly due to the location of the facility close to the ocean with the corrosiveness of the salt air, wind etc. General wear and tear of the plant is also noted.

During the time of site inspection general maintenance was being performed on tankage piping valves and equipment which forms part of FFS Refiners maintenance plan for the plant.

There are three traditional evaluation methods that are commonly considered, Market-Based (Sales Comparison), Income-Based and Asset Based (Cost Approach)

### 8.1 Market-Based (Sales Comparison)

The market-based evaluation (Sales Comparison) method utilizes technical analysis and known transaction values to determine the value of an asset. I.e. Reviewing similar transactions to determine the Market related value of the facility.

Due to the uniqueness of the FFS Refiners facility and lack of sale data of similar facilities, the Market-Based evaluation process was not considered appropriate for this report.

### 8.2 Income-Based

The Income-Based evaluation prioritizes the earning capacity of a company to inform its fair market value. I.e. A business's past, current, and anticipated future cash flows will be analysed to determine its value and an expected return on the investment moving forward.

The Income-Based evaluation method was not considered appropriate for this report as it is only the business's movable assets that are being sold.

### 8.3 Asset-Based (Cost Approach)

An Asset-Based (Cost Approach) evaluation focusses on the net value of assets or the fair market value of the assets.

The Asset-Based (**Cost** Approach) evaluation considers the cost of construction, less depreciation. The depreciation is calculated by taking appropriate allowance for physical, functional and economic depreciation.

The Asset-Based (Cost Approach) evaluation method has been considered as the most applicable evaluation method for the FFS Refiners facility and has been used for the purpose of this report.

## 9 ASSET-BASED (COST APPROACH) EVALUATION METHODOLOGY

The Asset-Based (Cost Approach) evaluation method has been adopted for this report, this method is commonly used for facilities that utilises specialised equipment and plant. The Asset-Based (Cost Approach) evaluation is a method that bases an assets market value off the cost it would take to construct an equivalent asset less the appropriate depreciation.

### 9.1 Depreciation

Depreciation is defined as the reduction of the recorded cost of a asset in a systematic manner until the value of the asset reaches its residual value.

The three effects of depreciation that has been considered are physical, functional and economic.

- Physical deterioration:  
This is the loss in value of an asset due to wear and tear, physical stress, exposure to various elements such as weather and location (I.e. Location of the facility to the ocean resulting in salt air, wind etc causing accelerated corrosion) This is can be mitigated by a comprehensive maintenance plan which may result in an extended life expectancy for the asset. Please refer to 9.4 below for further detail regarding maintenance plan versus asset life expectancy.
- Functional Obsolescence:  
This refers to the inefficiencies of the asset, FFS refiners have confirmed that the current configuration of assets allows for in excess of one tank turnover per month, This is considered acceptable to industry standards. For the purpose of this report, Functional Obsolescence was not investigated further.
- Economic Obsolescence (sometimes called external obsolescence):  
This is loss to asset value due to external factors which are out of the control of FFS Refiners (I.e. Increase in costs of raw materials, labour, utilities, reduced demand in product and other factors) As this report is focused on the market value for movable assets only, Economic Obsolescence was not considered relevant for the purpose of this report.

There are three main inputs required to calculate depreciation:

- Replacement Costs:  
The cost of the asset which includes taxes, shipping, and preparation/setup expenses.
- Residual Value (Salvage Vaue):  
Post the useful life of the fixed asset, the company may consider selling the asset at a reduced value.
- Useful Life (Equipment life expectancy)  
This is the period of time which the asset is considered to be productive.

The Straight-Line depreciation method has been used in this report to determine depreciation of an asset, this involves the allocation of an even rate of depreciation every year over the useful life of the asset. The formulae for Stright-Line depreciation are as follows:

$$\text{Annual Depreciation} = (\text{Replacement Cost} - \text{Residual Value}) / \text{Useful Life}$$

### 9.2 Replacement Costs:

This is the cost to construct a new facility with the same infrastructure at time of writing this report.

This has been calculated by compiling a bill of quantities to construct a similar facility. The cost estimate also includes for the owner and projects costs over and above the construction costs (I.e. Land Rental up until commissioning, Engineering costs, specialist costs and project owners costs)

### 9.3 Residual Value

Residual value is the salvage value of an asset. It represents the amount of value that the owner of an asset can expect to obtain when the asset has reached its end of Useful-Life. The

residual value can be abbreviated into a percentage of the initial price when the item was new.

The below table indicates the estimated residual value for assets

Movable Asset Description	Estimated Residual Value
Vertical Storage Tankage	10%
Horizontal Storage Tanks	10%
Electrical Pumps	5%
Diesel Pumps	5%
Piping	10%
Valves, Strainers and Other Equipment	5%
Electrical	5%
Instrumentation	5%

#### 9.4 Useful Life (Equipment life expectancy)

Assets are designed and constructed with an expected design working life expectancy, with a comprehensive inspection and maintenance plan in place, the life expectancy of an asset can exceed its original design working life expectancy. It should also be noted that a sub-standard inspection and maintenance plan in place will reduce the life expectancy.

The following information was considered to determine the life expectancy of the equipment/facilities:

- Information from suppliers/fabricators
- Discussions with FFS Refiners technical and operational staff
- Visual inspection of the equipment
- FFS Refiners maintenance and servicing plans for the life of the equipment.

Considering the above, for the purpose of this report we have split life expectancy of equipment into the following 3 categories

- Little to no maintenance plan
- Satisfactory maintenance plan
- Enhanced maintenance plan.

The below table indicates the estimated design life expectancy of equipment for each scenario

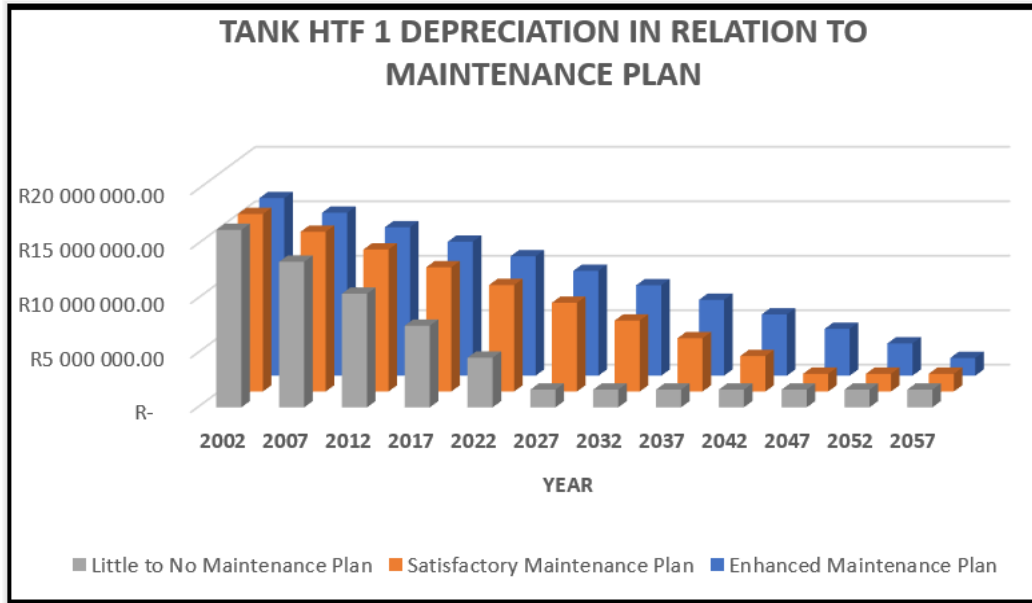
Movable Asset Description	Design Working Life (Years)		
	Little to no Maintenance Plan	Satisfactory Maintenance Plan	Enhanced Maintenance Plan
Vertical Storage Tankage	< 25	25-45	> 45
Horizontal Storage Tanks	< 15	15-25	> 25
Electrical Pumps	< 10	10-15	> 15
Diesel Pumps	< 10	10-15	> 15
Piping	< 15	15-25	> 25
Valves, Strainers and Other Equipment	< 10	10-15	> 15
Electrical	< 10	10-15	> 15
Instrumentation	< 10	10-15	> 15

FFS Refiners have indicated that their estimated budget for maintenance plan would be in the region of ZAR 10 million per annum. It is expected that this annual maintenance budget places

FFS Refiners into the upper portion of the Satisfactory Maintenance Plan category.

For the purpose of this report, we have assumed the useful life of equipment to be in the upper portion of the Satisfactory Maintenance Plan category.

The below graph indicates the typical depreciation of an asset over its useful life compared to the maintenance plan adopted.



## 10 REPLACEMENT COST METHODOLOGY

### 10.1 Replacement cost of assets:

The replacement value of assets was determined by using one of the following:

- Where possible supplier quotation
- Recent tenders/quotations received for similar works
- Discussions with suppliers/contractors for recent supply and installation rates

Movable Asset	Source of Estimated Replacement Value
Tank Construction	Estimated tonnage of steel per tank, contractor supplied estimated cost per ton for supply and construct
Tank Painting	Area of paint work calculated, contractor supplied estimated cost per sq.m for corrosion protection
Tank insulation	Area of insulation calculated, contractor supplied estimated cost per sq.m for supply and installation
Piping	Rates used from recent tenders received, rates include for supply, install and protect. Some rates escalated if required
Pipe insulation	Rates used from recent tenders received, rates include for supply, install and protect. Some rates escalated if required
Pumps	Replacement rates received from supplier. Cost for delivery, installation and protection added to base rates
Valves, Strainers and Other Equipment	Rates used from recent tenders received, rates include for supply, install and protect. Some rates escalated if required
Electrical and Instrumentation	Rates used from recent tenders received, rates include for supply, install and protect. Some rates escalated if required

### 10.2 Other Project Related Costs:

Other project related costs are assumed as follows:

Other Costs	Source of Estimated Replacement Value
Project duration	8 Months for engineering, tendering and award + 24 months construction
Land rental costs	Current rental costs, excluding rates, electricity, water and sewerage
Engineering costs	ECSA fee scale + 8% of engineering fees for reimbursables
Surveys and specialist reports	Rates used from recent projects. Some rates escalated if required
Owners Costs	10% of project costs

All "Other Project Related Costs" have been allocated pro rata within the cost estimated rates



## 11 ASSET DESCRIPTIONS

### 11.1 Import / Export Pipelines:

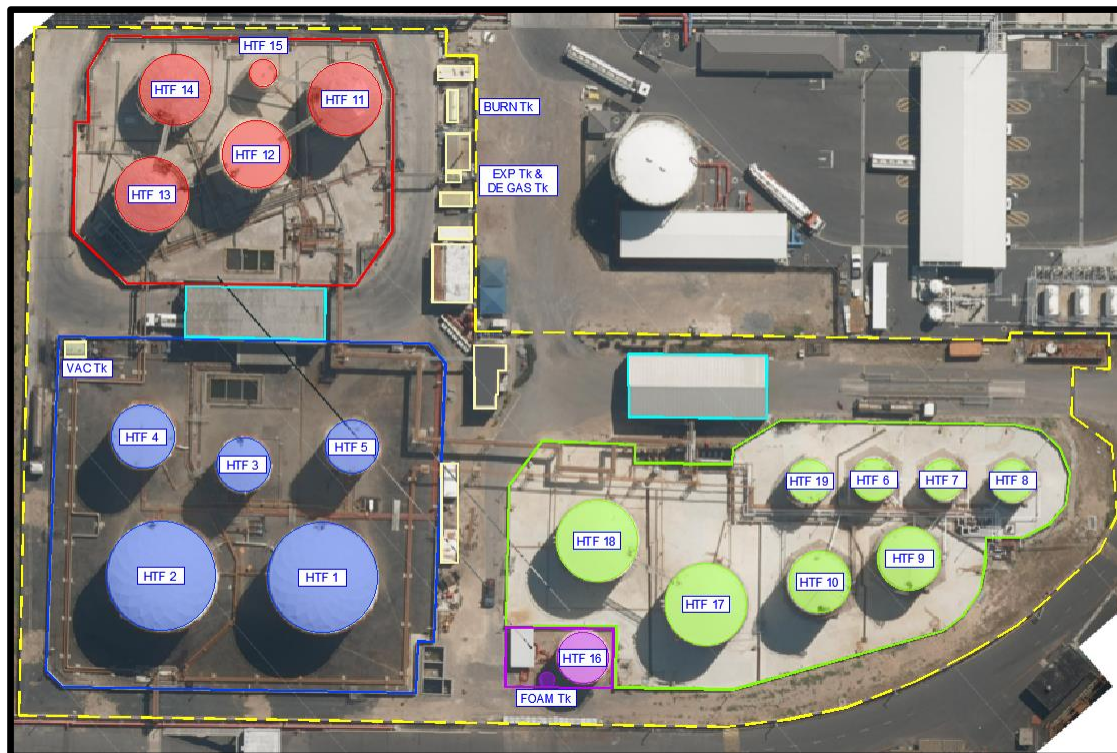
EASTERN MOLE 1			
	Line 1	Line 2	Line 3
Product Handled	MGO	HFO	
Pipe Size	200	200	
Approximate Length	250m	250m	
Pipe Material	CS	CS	
Heat Tracing	No	No	
Year Installed	2019	2019	
Remain Life	22 years	22 years	
EASTERN MOLE 2			
	Line 1	Line 2	Line 3
Product Handled	Diesel	HFO	Bitumen
Pipe Size	200	200	250
Approximate Length	90m	90m	90m
Pipe Material	CS	CS	CS
Heat Tracing	No	No	Yes
Year Installed	2002	2014	2014
Remain Life	5 years	17 years	17 years

### 11.2 Tankage:

The site has a total of 21 bulk storage tanks:

Tank	Gross Volume	Insulated	Cooling Ring	Foam Pourer	Location	Year Const.	Remaining Life
HTF 1	5 400	No	Yes	No	Diesel Plant	2002	25 Years
HTF 2	5 400	No	Yes	No	Diesel Plant	2002	25 Years
HTF 3	1 100	No	Yes	No	Diesel Plant	2002	25 Years
HTF 4	1 750	No	Yes	No	Diesel Plant	2002	25 Years
HTF 5	1 250	No	Yes	No	Diesel Plant	2002	25 Years
HTF 6	500	No	No	Yes	Blend Plant	1993	16 Years
HTF 7	500	No	No	Yes	Blend Plant	1993	16 Years
HTF 8	500	No	No	Yes	Blend Plant	1993	16 Years
HTF 9	1 000	No	No	Yes	Blend Plant	1993	16 Years
HTF 10	1 400	No	No	Yes	Blend Plant	1993	16 Years
HTF 11	2 500	Yes	No	Yes	Bitumen Plant	2013	36 Years
HTF 12	2 500	No	Yes	Yes	Bitumen Plant	2013	36 Years
HTF 13	2 500	Yes	No	Yes	Bitumen Plant	2013	36 Years
HTF 14	1 330	Yes	No	Yes	Bitumen Plant	2013	36 Years
HTF 15	280	No	Yes	Yes	Bitumen Plant	2013	36 Years
HTF 16	750	No	No	No	Fire System	2017	40 Years
HTF 17	2 500	Yes	No	Yes	Blend Plant	2017	40 Years
HTF 18	2 500	Yes	No	Yes	Blend Plant	2017	40 Years
HTF 19	513	Yes	No	Yes	Blend Plant	2017	40 Years
Burn Tk	23	No	No	No	Thermal Oil	2014	17 Years
Vac Tk	9	No	No	No	Diesel Plant	2002	5 Years

The gross bulk liquid storage for the Blend Plant is 9 300m<sup>3</sup>, for the Bitumen Plant is 9 100m<sup>3</sup> and then 14 900m<sup>3</sup> for the Diesel Plant. Total gross liquid storage capacity for CTHTF and CTBS sites is 33 300m<sup>3</sup>.



### 11.3 Pumps:

The site has a total of 50 product pumps and 4 firefighting pumps. The year of installation for certain pumps was unknown at time of writing report and had to be estimated.

The estimated life expectancy of electrical pumps is 15 years..

The estimated life expectancy of firefighting pumps is 15 years.

#### Bitumen Plant Pumps:

Pump	Type	Area	Description	Remaining Life
P 4206	Gear Pump	Bitumen Plant	HFO Bunker Pump 1	7 Years
P 4207	Gear Pump	Bitumen Plant	HFO Bunker Pump 2	7 Years
P 4208	Gear Pump	Bitumen Plant	Vessel Export	7 Years
P 4217	Mono	Bitumen Plant	Tk 15 Loading pump	7 Years
P 4231	Centrifugal	Bitumen Plant	Tk 13 Circulation pump	7 Years
P 4232	Centrifugal	Bitumen Plant	Tk 14 Circulation pump	7 Years

Blend Plant Pumps:

Pump	Type	Area	Description	Remaining Life
02P 309	Centrifugal	Blend Plant	Tk 6 Offloading pump	7 Years
02P 315	Centrifugal	Blend Plant	Tk 6 Loading pump	7 Years
02P 115	Centrifugal	Blend Plant	Tk 7 Loading pump	7 Years
02P 215	Centrifugal	Blend Plant	Tk 8 Loading pump	7 Years
02P 009	Centrifugal	Blend Plant	Tk 9 Offloading pump	10 Years
02P 020	Mono	Blend Plant	Tk 9 Offloading pump	10 Years
02P 015	Centrifugal	Blend Plant	Tk 9 Loading pump	7 Years
01P 009	Centrifugal	Blend Plant	Tk 10 Offloading pump 1	7 Years
02P 109		Blend Plant	Tk 10 Offloading pump 2	7 Years
01P 018	Centrifugal	Blend Plant	Tk 10 Loading pump	7 Years
P 4202	Gear Pump	Blend Plant	Tk 11 Loading pump	7 Years
P 4205	PD Pump	Blend Plant	Tk 12/13/14 Loading pump	10 Years
P 4201	Gear Pump	Blend Plant	Tk 13 Loading pump	10 Years
P 01?	PD Pump	Blend Plant	Tk 17 & 18 PD pump	7 Years
P 02?	PD Pump	Blend Plant	Tk 19 PD pump	7 Years
02P 11?	Centrifugal	Blend Plant	Loading/Circulation/Transfer	10 Years
P 4203	Gear Pump	Blend Plant	Bitumen Offloading pump 1	10 Years
P 4204	Gear Pump	Blend Plant	Bitumen Offloading pump 2	10 Years
P 4226		Blend Plant	Mer-Dosing Tk Filling pump	10 Years
P 4227		Blend Plant	Mer-Dosing Tk Dosing pump	10 Years
P 4228	Centrifugal	Blend Plant	Tk 19 Loading pump	10 Years
P 4229	Centrifugal	Blend Plant	Tk 18 Loading pump	10 Years
P 4230	Centrifugal	Blend Plant	Tk 17 Loading pump	10 Years

Diesel Plant Pumps:

Pump	Type	Area	Description	Remaining Life
01P018	Centrifugal	Diesel Plant	Filter Pump	7 Years
DBP	Centrifugal	Diesel Plant	Bunker Pump	1 Years
DLP 01	Centrifugal	Diesel Plant	Diesel Loading Pump 1	10 Years
DLP 02	Centrifugal	Diesel Plant	Diesel Loading Pump 2	10 Years
DOP 01	Centrifugal	Diesel Plant	Diesel Offloading Pump 1	10 Years
DPB 01	Centrifugal	Diesel Plant	Diesel Bunker Pump	1 Years
DPS 01	Mono	Diesel Plant	Mono Offloading Pump	1 Years
P 03?	Centrifugal	Diesel Plant	Centrifugal Offloading Pump	1 Years

Thermal Oil Plant Pumps:

Pump	Type	Area	Description	Remaining Life
P 4209	Centrifugal	Thermal Oil	Thermomat 1 Circ. Pump	7 Years
P 4211	Centrifugal	Thermal Oil	Thermomat 2 Circ. Pump	7 Years
P 4214	Calpeda	Thermal Oil	Thermal Circ. Fuel Pump 1	7 Years
P 4215	Calpeda	Thermal Oil	Thermal Circ. Fuel Pump 2	7 Years
P 4218	Gear Pump	Thermal Oil	Truck Loading Pump 1	7 Years
P 4219	Gear Pump	Thermal Oil	Truck Loading Pump 2	7 Years
P 4220	Gear Pump	Thermal Oil	Truck Offloading Pump 2	7 Years
P 4221	Gear Pump	Thermal Oil	Top of Tank Booster Pump	7 Years
P 4222	Gear Pump	Thermal Oil	T13 Suction Line Pump	7 Years
P 4223	Gear Pump	Thermal Oil	Ship Loading Top of Tanks	7 Years
P 4224	Gear Pump	Thermal Oil	Ship Loading Wharf	7 Years
P 4225	PD Pump	Thermal Oil	Thermal Oil Heat Exchanger	10 Years

Firefighting Pumps:

Pump	Type	Area	Description	Remaining Life
	Centrifugal	Firefighting	Fire Water Pump	10 Years
	Centrifugal	Firefighting	Fire Water Pump	10 Years
	Gear Pump	Firefighting	Foam Concentrate Pump	10 Years
	Gear Pump	Firefighting	Foam Concentrate Pump	10 Years

Other Pumps:

Pump	Type	Area	Description	Remaining Life
Site		Terminal	Diaphragm Pump	7 Years

11.4 Valves and Equipment:

The year of installation for certain valves and equipment was unknown at time of writing report and had to be estimated.

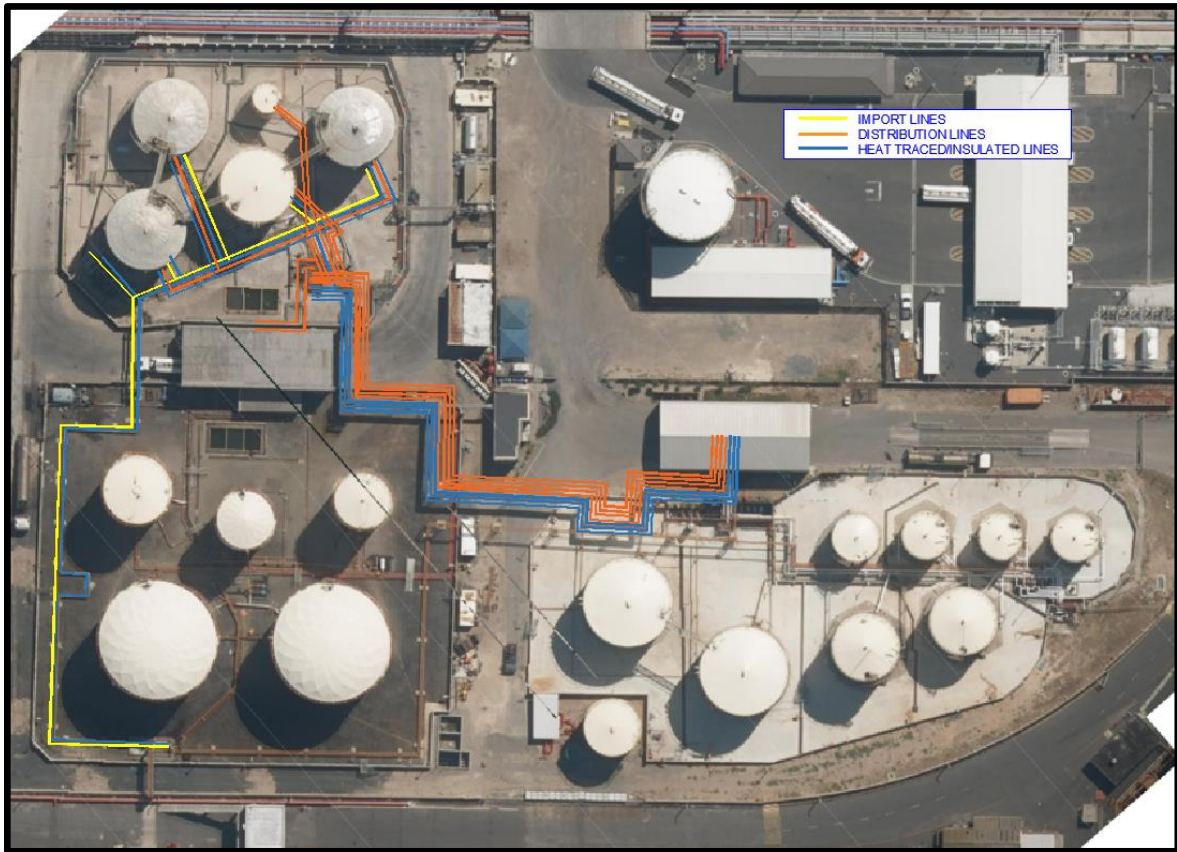
Type	Remaining Life
Valves	7 - 15 Years
Control Valves	7 -15 Years
Meters	7 Years
Weigh Bridges	12 Years
Filters	10 Years
Strainer	10 Years
PRV Assembly	7 - 15 Years
Road Loading arms	10 Years
Road Loading hoses	3 Years
Bunker hose	3 Years
Generators	10 Years
Compressors	10 Years
Air Receiver Tank	10 Years
Tank Level Transmitters	5 Years
Tank Temperature Transmitters	5 Years
Tank Level Switch	5 Years
MCC	5 Years
Auto Sampler	10 Years
Thermomat Heater	10 Years
Bund Foam Pourer	10 Years
Tank Foam Pourer	10 Years
Tank Cooling Ring	10 Years
Water Cannon	10 Years
Balance Pressure Proportioner	10 Years
Fire Hydrants	10 Years
Fire Hoses	5 Years
Foam Stocks	5 Years

11.5 Pipelines:

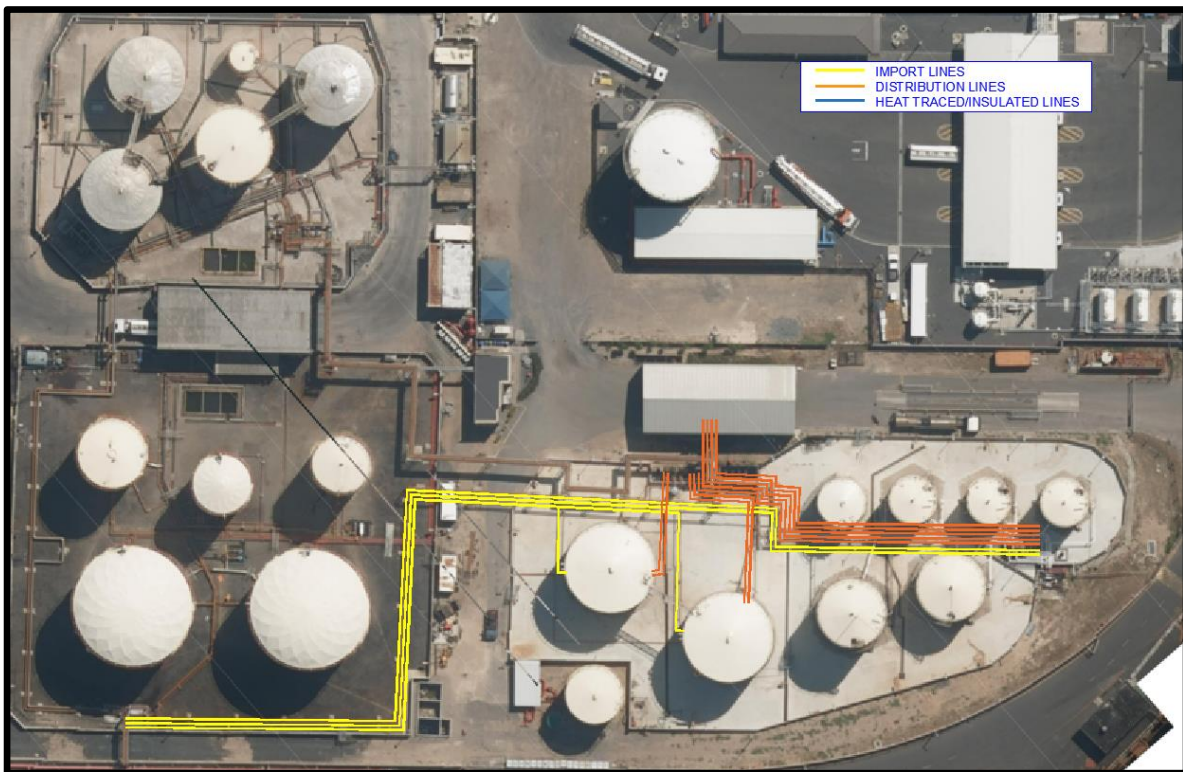
The year of installation for certain pipe runs was unknown at time of writing report and had to be estimated. The remainder life expectancy of piping is between 7 - 19 years depending on location and year of installation

Type	Approximate Total Pipe Length (Uninsulated)	Approximate Total Pipe Length (Insulated & Heat Traced)
Bitumen Plant	1 600m	1 200m
Blend Plant	1 800m	
Diesel Plant	650m	
Thermal Oil		500m
Compressed Air	500m	
Vacuum Plant	150m	
Fire Water	1 800m	
Foam Solution	1 600m	

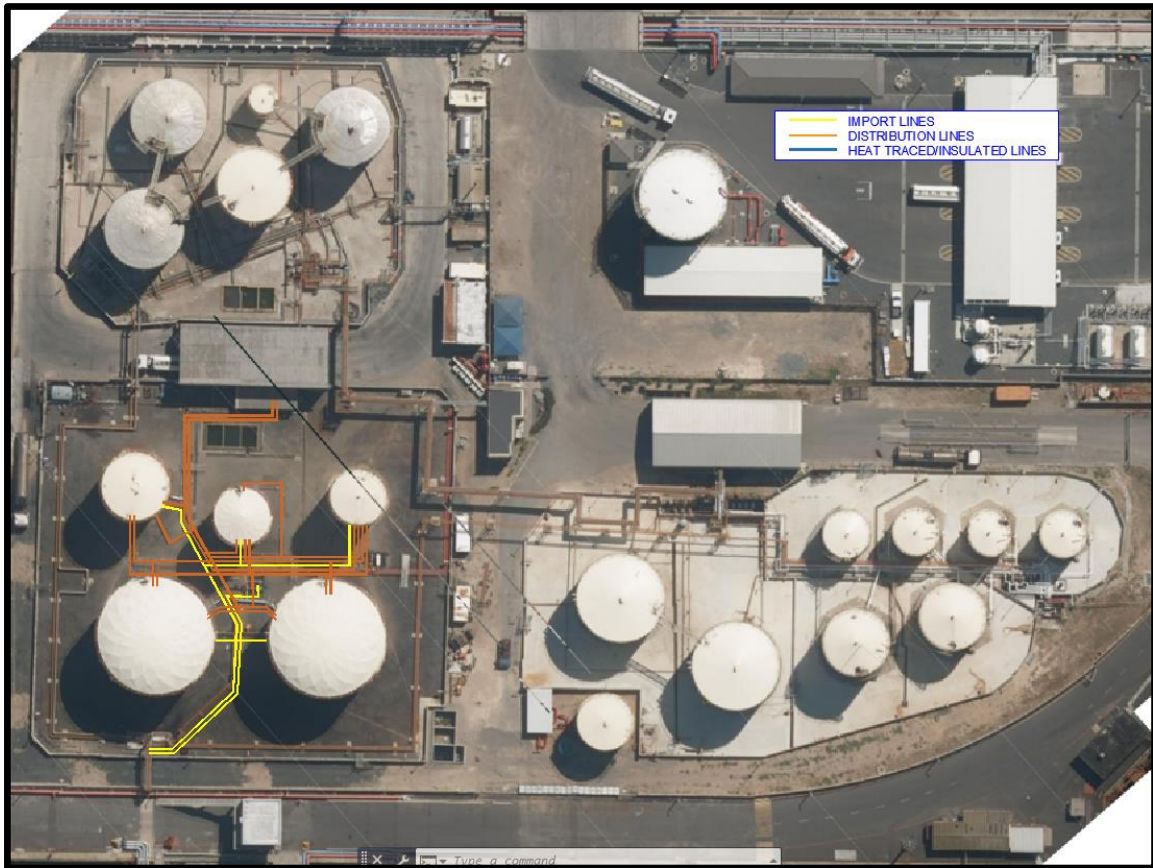
Bitumen pipeline network:



Blend pipeline network:



Diesel pipeline network:



Thermal Oil pipeline network:



Vacuum pipeline network:

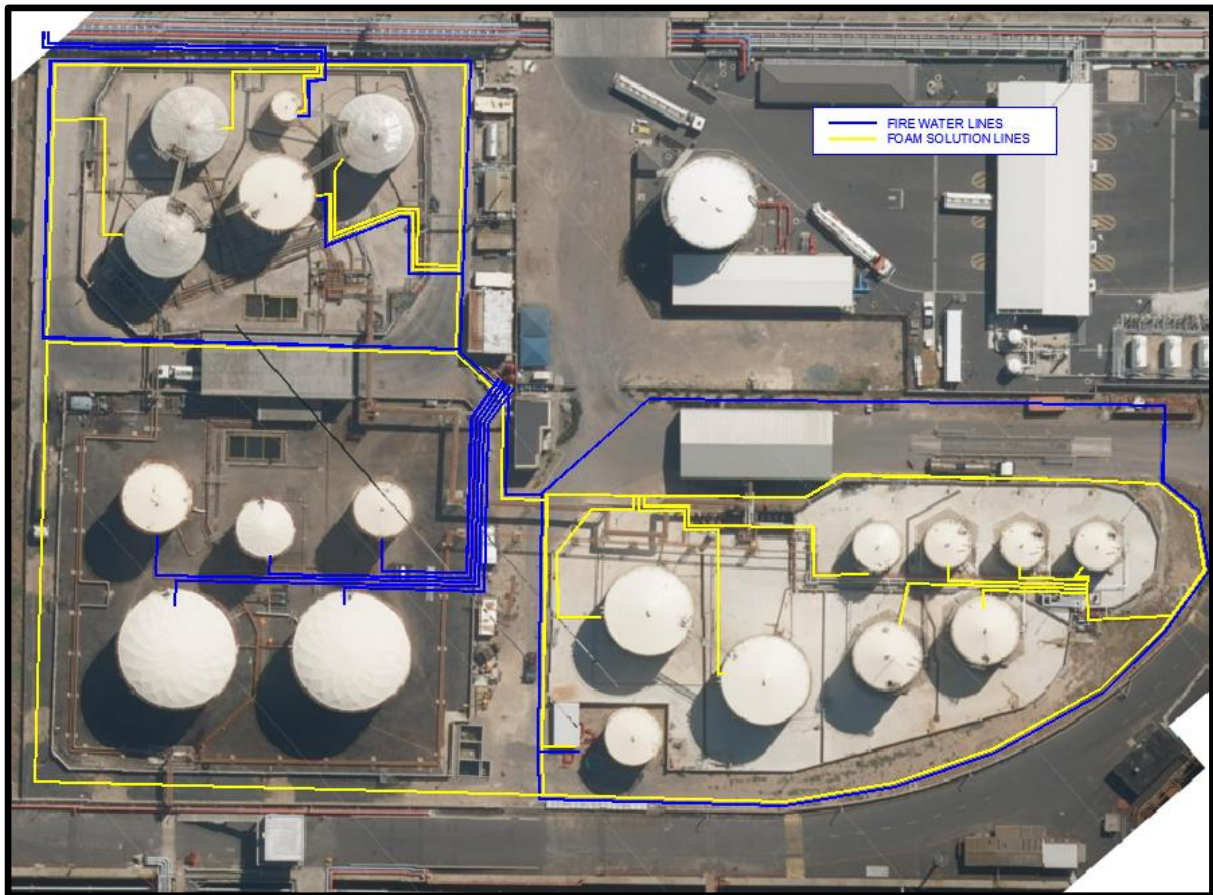


Compressed Air pipeline network:





Firefighting pipeline network:



#### 11.6 Electrical and Instrumentation:

Electrical and instrumentation rates include for the following:

- Equipment costs
- Cabling costs
- Cable trays and conduits costs

#### 11.7 Buildings:

Building rates used include for electrical, potable water, foul water, air conditioning etc

- Temporary structures for:
  - i. Security at entrance and exit
  - ii. Stores
  - iii. Workshop
  - iv. Canteen
  - v. Change rooms

## 12 ASSET VALUATION

Refer to Appendix A for breakdown of cost estimate. (The below summaries are inclusive of owner's costs)

### 12.1 Bitumen Plant

Description	Replacement Cost	Market Value	Depreciated
<b>Product: (Movable)</b>	<b>R81 760 000</b>	R61 270 000	25%
Tankage	R54 890 000	R44 990 000	18%
Piping	R19 250 000	R13 110 000	32%
Valves	R3 570 000	R1 440 000	60%
Equipment	R1 000 000	R530 000	48%
Pumps	R1 020 000	R470 000	54%
Electrical & Instrumentation	R2 030 000	R730 000	64%
<b>Fire: (Movable)</b>	<b>R2 170 000</b>	R1 570 000	28%
Piping	R1 090 000	R850 000	22%
Valves	R130 000	R80 000	40%
Equipment	R950 000	R640 000	33%
<b>TOTAL MOVABLE ASSETS</b>	<b>R83 930 000</b>	<b>R62 840 000</b>	<b>25%</b>

### 12.2 Blend Plant

Description	Replacement Cost	Market Value	Depreciated
<b>Product: (Movable)</b>	<b>R88 100 000</b>	R58 740 000	33%
Tankage	R63 550 000	R43 520 000	32%
Piping	R9 290 000	R6 240 000	33%
Valves	R7 420 000	R4 890 000	34%
Equipment	R2 090 000	R1 280 000	39%
Pumps	R3 430 000	R1 980 000	42%
Electrical & Instrumentation	R2 320 000	R830 000	64%
<b>Fire: (Movable)</b>	<b>R1 680 000</b>	R1 200 000	28%
Piping	R770 000	R600 000	22%
Valves	R100 000	R60 000	38%
Equipment	R810 000	R540 000	33%
<b>TOTAL MOVABLE ASSETS</b>	<b>R89 780 000</b>	<b>R59 940 000</b>	<b>33%</b>

### 12.3 Diesel Plant

Description	Replacement Cost	Market Value	Depreciated
<b>Product: (Movable)</b>	<b>R84 580 000</b>	R46 260 000	45%
Tankage	R73 830 000	R44 350 000	40%
Piping	R3 520 000	R700 000	80%
Valves	R3 090 000	R160 000	95%
Equipment	R2 220 000	R480 000	78%
Pumps	R1 200 000	R310 000	74%
Electrical & Instrumentation	R720 000	R260 000	64%
<b>Fire: (Movable)</b>	<b>R2 540 000</b>	R1 860 000	27%
Piping	R1 530 000	R1 190 000	22%
Valves	R140 000	R90 000	36%
Equipment	R870 000	R580 000	33%
<b>TOTAL MOVABLE ASSETS</b>	<b>R87 120 000</b>	<b>R48 120 000</b>	<b>45%</b>

12.4 Thermal Oil

Description	Replacement Cost	Market Value	Depreciated
<b>Product: (Movable)</b>	R9 110 000	R6 090 000	33%
Tankage	R220 000	R160 000	28%
Piping	R3 370 000	R2 310 000	32%
Valves	R520 000	R240 000	53%
Equipment	R3 710 000	R2 760 000	26%
Pumps	R990 000	R510 000	48%
Electrical & Instrumentation	R300 000	R110 000	64%
<b>TOTAL MOVABLE ASSETS</b>	R9 110 000	R6 090 000	33%

12.5 Vacuum System

Description	Replacement Cost	Market Value	Depreciated
<b>Product: (Movable)</b>	R770 000	R130 000	83%
Tankage	R90 000	R30 000	71%
Piping	R400 000	R90 000	77%
Valves	R230 000	R10 000	94%
Equipment	R50 000	R-	100%
<b>TOTAL MOVABLE ASSETS</b>	R770 000	R130 000	83%

12.6 Remaining Terminal Infrastructure:

Description	Replacement Cost	Market Value	Depreciated
<b>Product: (Movable)</b>	R13 550 000	R6 800 000	50%
Piping	R540 000	R100 000	81%
Equipment	R5 040 000	R3 890 000	23%
Pumps	R40 000	R30 000	33%
Electrical & Instrumentation	R7 930 000	R2 780 000	65%
<b>Fire: (Movable)</b>	R21 410 000	R15 760 000	26%
Piping	R5 460 000	R3 490 000	36%
Valves	R11 000 000	R8 780 000	20%
Equipment	R720 000	R480 000	33%
Electrical & Instrumentation	R4 230 000	R3 010 000	29%
<b>Other Assets:</b>	R720 000	R480 000	33%
Temporary buildings	R720 000	R480 000	33%
<b>TOTAL MOVABLE ASSETS</b>	R35 680 000	R23 040 000	35%

12.7 Summary:

Description	Replacement Cost	Market Value	Depreciated
<b>Product: (Movable)</b>	R281 990 000	R182 450 000	35%
Tankage	R196 150 000	R135 740 000	31%
Piping	R37 440 000	R23 290 000	38%
Valves	R15 140 000	R6 890 000	55%
Equipment	R13 880 000	R8 720 000	37%
Pumps	R6 830 000	R3 370 000	51%
Electrical & Instrumentation	R12 550 000	R4 440 000	65%
<b>Fire: (Movable)</b>	R25 490 000	R18 710 000	27%
Piping	R4 840 000	R3 100 000	36%
Valves	R13 200 000	R10 480 000	21%
Equipment	R1 020 000	R670 000	35%
Electrical & Instrumentation	R6 430 000	R4 460 000	31%
<b>Other Assets:</b>	<b>R99 200 000</b>	<b>R98 990 000</b>	<b>0%</b>
Temporary buildings	R640 000	R430 000	33%
<b>TOTAL MOVABLE ASSETS</b>	<b>R308 120 000</b>	<b>R201 590 000</b>	<b>35%</b>

13 **SUMMARY**

The estimated replacement cost of movable assets is **R308 120 000** and **R201 560 000** for market value,

**DISCLAIMER**

Although care has been taken to ensure the accuracy and completeness of the information contained in this report, K&T is not responsible for any loss or damage resulting from reliance on any inaccurate information contained in this document.

# Appendix A

## **Movable Assets**

PRODUCT TANKAGE (Excluding Owner Costs)									
Asset No	Description	Volume (m³)	Location	Design Life	Year Constructed	Replacement Cost	Market Value	Depreciation	
HTF 1	Bulk Storage Tank	5400	Diesel Plant	45	2002	R 16 300 000.00	R 9 400 000.00	42%	
HTF 2	Bulk Storage Tank	5400	Diesel Plant	45	2002	R 16 300 000.00	R 9 400 000.00	42%	
HTF 3	Bulk Storage Tank	1100	Diesel Plant	45	2002	R 7 300 000.00	R 4 200 000.00	42%	
HTF 4	Bulk Storage Tank	1750	Diesel Plant	45	2002	R 10 000 000.00	R 5 800 000.00	42%	
HTF 5	Bulk Storage Tank	1250	Diesel Plant	45	2002	R 7 200 000.00	R 4 200 000.00	42%	
HTF 6	Bulk Storage Tank	500	Blend Plant	45	1993	R 3 800 000.00	R 1 500 000.00	61%	
HTF 7	Bulk Storage Tank	500	Blend Plant	45	1993	R 3 800 000.00	R 1 500 000.00	61%	
HTF 8	Bulk Storage Tank	500	Blend Plant	45	1993	R 3 800 000.00	R 1 500 000.00	61%	
HTF 9	Bulk Storage Tank	1000	Blend Plant	45	1993	R 5 600 000.00	R 2 200 000.00	61%	
HTF 10	Bulk Storage Tank	1400	Blend Plant	45	1993	R 5 600 000.00	R 2 200 000.00	61%	
HTF 11	Bulk Storage Tank	2500	Bitumen Plant	45	2013	R 12 100 000.00	R 9 800 000.00	19%	
HTF 12	Bulk Storage Tank	2500	Bitumen Plant	45	2013	R 10 100 000.00	R 8 200 000.00	19%	
HTF 13	Bulk Storage Tank	2500	Bitumen Plant	45	2013	R 12 100 000.00	R 9 800 000.00	19%	
HTF 14	Bulk Storage Tank	1330	Bitumen Plant	45	2013	R 7 200 000.00	R 5 800 000.00	19%	
HTF 15	Bulk Storage Tank	280	Bitumen Plant	45	2013	R 2 300 000.00	R 1 900 000.00	17%	
HTF 17	Bulk Storage Tank	2456	Blend Plant	45	2017	R 11 300 000.00	R 10 100 000.00	11%	
HTF 18	Bulk Storage Tank	2458	Blend Plant	45	2017	R 11 300 000.00	R 10 100 000.00	11%	
HTF 19	Bulk Storage Tank	513	Blend Plant	45	2017	R 4 300 000.00	R 3 800 000.00	12%	
	Mergi-Dosing Tank	0.2	Blend Plant	25	2014	R 25 000.00	R 17 000.00	32%	
	Expansion Tank	3	Thermal Oil	25	2014	R 30 000.00	R 21 000.00	30%	
	Deaerator Tank	0.2	Thermal Oil	25	2014	R 25 000.00	R 17 000.00	32%	
BURNER FUEL TANK	Thermomate Fuel Tank	23	Thermal Oil	25	2014	R 125 000.00	R 87 000.00	30%	
	Vacuum Tank		Vacuum Plant	25	2002	R 70 000.00	R 17 000.00	76%	
<b>SUB-TOTAL</b>						<b>R 150 675 000.00</b>	<b>R 101 559 000.00</b>	<b>33%</b>	

PRODUCT PRESSURE VESSELS (Excluding Owner Costs)									
Asset No	Description	Type	Location	Design Life	Year Constructed	Replacement Cost	Market Value	Depreciation	
FILT0001	Filter	Pressure Vessel	Blend Plant	15	2017	R 559 000.00	R 373 000.00	33%	
FILT0002	Filter	Pressure Vessel	Blend Plant	15	2017	R 559 000.00	R 373 000.00	33%	
FILT-01	Filter	Pressure Vessel	Bitumen Plant	15	2014	R 559 000.00	R 261 000.00	53%	
AIR-02	Air Receiver Tank	Pressure Vessel	Utilities	15	2014	R 127 000.00	R 59 000.00	54%	
FILT-02	Bokkie Wedge Wire Filter	Pressure Vessel	Blend Plant	15	2014	R 39 000.00	R 18 000.00	54%	
DFPM/F	Filter/Separator	Pressure Vessel	Diesel Plant	15	2002	R 559 000.00	R 28 000.00	95%	
F5242	Filter/Separator	Pressure Vessel	Diesel Plant	15	2002	R 559 000.00	R 28 000.00	95%	
VAC-01	Vacuum Tank	Pressure Vessel	Vacuum Plant	15	2002	R 39 000.00	R 2 000.00	95%	
FILT-03	Bokkie Wedge Wire Filter	Pressure Vessel	Bitumen Plant	15	2014	R 39 000.00	R 18 000.00	54%	
FILT-04	Bokkie Wedge Wire Filter	Pressure Vessel	Bitumen Plant	15	2014	R 39 000.00	R 18 000.00	54%	
<b>SUB-TOTAL</b>						<b>R 3 078 000.00</b>	<b>R 1 178 000.00</b>	<b>62%</b>	

PRODUCT PUMPS (Excluding Owner Costs)									
Asset No	Description	Type	Location	Design Life	Year Constructed	Replacement Cost	Market Value	Depreciation	
01P018	Filter Pump	Centrifugal	Diesel Plant	25	2014	R 100 000.00	R 48 000.00	52%	
01P 009	Blend Plant Offloading Pump 1 - HTF10 Tank	Centrifugal	Diesel Plant	25	2014	R 100 000.00	R 44 000.00	56%	
01P 018	Blend Plant Loading Pump - HTF10 Tank	Centrifugal	Diesel Plant	25	2014	R 130 000.00	R 62 000.00	52%	
02P 009	Blend Plant Offloading Pump 1 - HTF9 Tank	Centrifugal	Diesel Plant	25	2014	R 100 000.00	R 48 000.00	52%	
02P 015	Blend Plant Loading pump - HTF9 Tank	Centrifugal	Diesel Plant	25	2014	R 130 000.00	R 62 000.00	52%	
02P 020	Blend Plant Offloading Pump 2 - HTF9 Tank	Mono	Diesel Plant	25	2017	R 140 000.00	R 92 000.00	34%	
02P 109	Blend Plant Offloading Pump 2 - HTF10 Tank		Diesel Plant	25	2017	R 140 000.00	R 92 000.00	34%	
02P 115?	Road loading / Circulation / Transfer	Centrifugal	Diesel Plant	25	2014	R 110 000.00	R 49 000.00	55%	
02P 115	Blend Plant Loading pump - HTF7 Tank	Centrifugal	Diesel Plant	25	2014	R 110 000.00	R 49 000.00	55%	
02P 215	Blend Plant Loading pump - HTF8 Tank	Centrifugal	Diesel Plant	25	2014	R 110 000.00	R 49 000.00	55%	
02P 309	Blend Plant Offloading Pump - HTF6 Tank	Centrifugal	Diesel Plant	25	2014	R 60 000.00	R 28 000.00	53%	
02P 315	Blend Plant Loading pump - HTF6 Tank	Centrifugal	Bitumen Plant	25	2014	R 110 000.00	R 49 000.00	55%	
DBP	Bunker Pump	Centrifugal	Bitumen Plant	25	2002	R 200 000.00	R 10 000.00	95%	
DLP 01	Diesel Loading Pump 1	Centrifugal	Bitumen Plant	25	2017	R 80 000.00	R 55 000.00	31%	
DLP 02	Diesel Loading Pump 2	Centrifugal	Bitumen Plant	25	2017	R 80 000.00	R 55 000.00	31%	
DOP 01	Diesel Offloading Pump 1	Centrifugal	Bitumen Plant	25	2017	R 80 000.00	R 55 000.00	31%	
DPB 01	Diesel Bunker Pump	Centrifugal	Bitumen Plant	25	2002	R 160 000.00	R 8 000.00	95%	
DPS 01	B9601 Mono Offloading Pump	Mono	Bitumen Plant	25	2002	R 140 000.00	R 7 000.00	95%	
P 01?	Tank 17 and 18 PD Pump	Positive Displacement	Bitumen Plant	25	2017	R 150 000.00	R 102 000.00	32%	
P 02?	Tank 19 PD Pump Motor	Positive Displacement	Bitumen Plant	25	2017	R 150 000.00	R 102 000.00	32%	
P 03?	Centrifugal Offloading Pump	Centrifugal	Bitumen Plant	25	2002	R 90 000.00	R 5 000.00	94%	
P 4201	Bitumen Loading Pump HTF13	Gear Pump	Bitumen Plant	25	2014	R 150 000.00	R 71 000.00	53%	
P 4202	Bitumen Loading Pump HTF11	Gear Pump	Bitumen Plant	25	2014	R 150 000.00	R 71 000.00	53%	
P 4203	Blend Plant Bitumen Offloading Pump 1	Gear Pump	Bitumen Plant	25	2017	R 150 000.00	R 102 000.00	32%	
P 4204	Blend Plant Bitumen Offloading Pump 2	Gear Pump	Bitumen Plant	25	2017	R 150 000.00	R 102 000.00	32%	
P 4205	HTF 12/13/14 Loading VSD Pump	Positive Displacement	Bitumen Plant	25	2017	R 150 000.00	R 102 000.00	32%	
P 4206	HFO Bunker Pump 1	Gear Pump	Bitumen Plant	25	2014	R 150 000.00	R 71 000.00	53%	
P 4207	HFO Bunker Pump 2	Gear Pump	Bitumen Plant	25	2014	R 150 000.00	R 71 000.00	53%	
P 4208	Vessel Export	Gear Pump	Bitumen Plant	25	2014	R 150 000.00	R 71 000.00	53%	
P 4209	Thermomate 1 Circ. Pump	Centrifugal	Bitumen Plant	25	2014	R 90 000.00	R 41 000.00	54%	
P 4211	Thermomate 2 Circ. Pump	Centrifugal	Bitumen Plant	25	2014	R 90 000.00	R 41 000.00	54%	
P 4214	Thermo Circ. Fuel Pump 1	Calpeda	Bitumen Plant	25	2014	R 30 000.00	R 14 000.00	53%	
P 4215	Thermo Circ. Fuel Pump 2	Calpeda	Bitumen Plant	25	2014	R 30 000.00	R 14 000.00	53%	
P 4217	HTF 15 Loading Pump	Mono	Bitumen Plant	25	2014	R 160 000.00	R 73 000.00	54%	
P 4218	Truck Loading Pump 1	Gear Pump	Bitumen Plant	25	2014	R 60 000.00	R 29 000.00	52%	
P 4219	Truck Loading Pump 2	Gear Pump	Bitumen Plant	25	2014	R 60 000.00	R 29 000.00	52%	
P 4220	Truck Offloading Pump 2	Gear Pump	Bitumen Plant	25	2014	R 60 000.00	R 29 000.00	52%	
P 4221	Top of Tank Booster Pump	Gear Pump	Bitumen Plant	25	2014	R 60 000.00	R 29 000.00	52%	
P 4 222	T13 Suction Line Pump	Gear Pump	Bitumen Plant	25	2014	R 60 000.00	R 29 000.00	52%	
P 4223	Ship Loading Top of Tanks	Gear Pump	Bitumen Plant	25	2014	R 60 000.00	R 29 000.00	52%	
P 4224	Ship Loading Wharf	Gear Pump	Bitumen Plant	25	2014	R 60 000.00	R 29 000.00	52%	
P 4225	Thermal Oil Heat Exchanger	Positive Displacement	Bitumen Plant	25	2017	R 150 000.00	R 102 000.00	32%	
P 4226	Mergi-Dosing Tank Filling Pump		Bitumen Plant	25	2017	R 40 000.00	R 30 000.00	25%	
P 4227	Mergi-Dosing Tank Dosing Pump		Bitumen Plant	25	2017	R 40 000.00	R 30 000.00	25%	
P 4228	Blend Plant Loading Pump - HTF19 Tank	Centrifugal	Bitumen Plant	25	2017	R 100 000.00	R 67 000.00	33%	
P 4229	Blend Plant Loading Pump - HTF18 Tank	Centrifugal	Bitumen Plant	25	2017	R 100 000.00	R 67 000.00	33%	
P 4230	Blend Plant Loading Pump - HTF17 Tank	Centrifugal	Bitumen Plant	25	2017	R 100 000.00	R 67 000.00	33%	
P 4231	Tank 13 Circulation Pump	Centrifugal	Bitumen Plant	25	2014	R 100 000.00	R 44 000.00	56%	
P 4232	Tank 14 Circulation Pump	Centrifugal	Blend Plant	25	2014	R 100 000.00	R 44 000.00	56%	
DIAPH-PUMP	Diaphragm Pump		Blend Plant	25		R 25 000.00	R 20 000.00	20%	
<b>SUB-TOTAL</b>						<b>R 5 245 000.00</b>	<b>R 2 589 000.00</b>	<b>51%</b>	

PRODUCT VALVES (Excluding Owner Costs)									
Asset No	Description	Size	Location	Design Life	Year Constructed	Replacement Cost	Market Value	Depreciation	
BL 01	Gate Valve	150	Blend Plant	15	2002	R 15 100.00	R 800.00	95%	
BL 02	Gate Valve	150	Blend Plant	15	2002	R 15 100.00	R 800.00	95%	
BL 03	Gate Valve	150	Blend Plant	15	2002	R 15 100.00	R 800.00	95%	
BL 04	Gate Valve	150	Blend Plant	15	2002	R 15 100.00	R 800.00	95%	
BL 05	Gate Valve	200	Blend Plant	15	2019	R 20 800.00	R 16 600.00	20%	
BL 06	Gate Valve	200	Blend Plant	15	2019	R 20 800.00	R 16 600.00	20%	
BL 07	Gate Valve	200	Diesel Plant	15	2002	R 20 800.00	R 1 000.00	95%	
BL 08	Check Valve	200	Diesel Plant	15	2002	R 20 800.00	R 1 000.00	95%	
BL 09	Gate Valve	200	Diesel Plant	15	2002	R 20 800.00	R 1 000.00	95%	
BL 10	Gate Valve	200	Diesel Plant	15	2002	R 20 800.00	R 1 000.00	95%	
BL 11	Gate Valve	200	Blend Plant	15	2019	R 20 800.00	R 16 600.00	20%	
BL 12	Gate Valve	250	Bitumen Plant	15	2014	R 30 300.00	R 14 100.00	53%	
BL 13	Gate Valve	250	Blend Plant	15	2002	R 30 300.00	R 1 500.00	95%	
BL 14	Gate Valve	250	Blend Plant	15	2014	R 30 300.00	R 14 100.00	53%	
BL 15	Gate Valve	250	Blend Plant	15	2014	R 30 300.00	R 14 100.00	53%	
CV-DP2	Control Valve	100	Diesel Plant	15	2002	R 190 500.00	R 9 500.00	95%	
CV-DP4	Control Valve	100	Diesel Plant	15	2002	R 190 500.00	R 9 500.00	95%	
DB 02	Gate Valve	200	Blend Plant	15	2019	R 20 800.00	R 16 600.00	20%	
DB 03	Gate Valve	200	Diesel Plant	15	2002	R 20 800.00	R 1 000.00	95%	
DB 04	Gate Valve	200	Blend Plant	15	2019	R 20 800.00	R 16 600.00	20%	
DB 05	Gate Valve	200	Blend Plant	15	2019	R 20 800.00	R 16 600.00	20%	
DB 06	Gate Valve	250	Bitumen Plant	15	2019	R 30 300.00	R 24 200.00	20%	
DB 07	Gate Valve	200	Blend Plant	15	2019	R 20 800.00	R 16 600.00	20%	
DB 17	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DB 19	Ball Valve	200	Diesel Plant	15	2002	R 45 400.00	R 2 300.00	95%	
DB 35	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DP 01	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DP 03	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DP 06	Ball Valve	100	Diesel Plant	15	2002	R 12 100.00	R 600.00	95%	
DP 10	Ball Valve	100	Diesel Plant	15	2002	R 12 100.00	R 600.00	95%	
DP 11	Ball Valve	100	Diesel Plant	15	2002	R 12 100.00	R 600.00	95%	
DP 12	Ball Valve	100	Diesel Plant	15	2002	R 12 100.00	R 600.00	95%	
DP 14	Gate Valve	250	Diesel Plant	15	2002	R 30 300.00	R 1 500.00	95%	
DP 15	Gate Valve	250	Diesel Plant	15	2002	R 30 300.00	R 1 500.00	95%	
DP 18	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DP 21	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DP 22	Ball Valve	200	Diesel Plant	15	2002	R 45 400.00	R 2 300.00	95%	
DP 23	Gate Valve	200	Diesel Plant	15	2002	R 20 800.00	R 1 000.00	95%	
DP 23	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DP 24	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DP 25	Ball Valve	200	Diesel Plant	15	2002	R 45 400.00	R 2 300.00	95%	
DP 26	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DP 27	Gate Valve	200	Diesel Plant	15	2002	R 20 800.00	R 1 000.00	95%	
DP 28	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DP 29	Ball Valve	200	Diesel Plant	15	2002	R 45 400.00	R 2 300.00	95%	
DP 30	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DP 31	Gate Valve	200	Diesel Plant	15	2002	R 20 800.00	R 1 000.00	95%	
DP 32	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DP 33	Ball Valve	200	Diesel Plant	15	2002	R 45 400.00	R 2 300.00	95%	
DP 34	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DP 36	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DP 37	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DP 38	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DP 39	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DP 39	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DP 40	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DP 41	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DP 42	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DP 43	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DP 44	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DP 45	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DP 46	Gate Valve	100	Diesel Plant	15	2002	R 11 300.00	R 600.00	95%	
DP 47	Ball Valve	100	Diesel Plant	15	2002	R 12 100.00	R 600.00	95%	
DS 01	Gate Valve	200	Diesel Plant	15	2002	R 20 800.00	R 1 000.00	95%	
DS 02	Gate Valve	250	Diesel Plant	15	2002	R 30 300.00	R 1 500.00	95%	
DS 03	Gate Valve	300	Diesel Plant	15	2002	R 35 000.00	R 1 800.00	95%	
DS 04	Gate Valve	200	Diesel Plant	15	2002	R 20 800.00	R 1 000.00	95%	
DS 05	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DS 06	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DS 07	Ball Valve	100	Diesel Plant	15	2002	R 12 100.00	R 600.00	95%	
DS 08	Ball Valve	100	Diesel Plant	15	2002	R 12 100.00	R 600.00	95%	
DS 09	Ball Valve	100	Diesel Plant	15	2002	R 12 100.00	R 600.00	95%	
DS 10	Ball Valve	100	Diesel Plant	15	2002	R 12 100.00	R 600.00	95%	
DS 11	Ball Valve	100	Diesel Plant	15	2002	R 12 100.00	R 600.00	95%	
DS 12	Ball Valve	100	Diesel Plant	15	2002	R 12 100.00	R 600.00	95%	
DS 13	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DS 14	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DS 15	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DS 16	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DS 17	Gate Valve	150	Diesel Plant	15	2002	R 15 100.00	R 800.00	95%	
DS 18	Ball Valve	100	Diesel Plant	15	2002	R 12 100.00	R 600.00	95%	
IM 01	Gate Valve	200	Diesel Plant	15	2002	R 20 800.00	R 1 000.00	95%	
IM 02	Gate Valve	200	Diesel Plant	15	2002	R 20 800.00	R 1 000.00	95%	
IM 03	Gate Valve	200	Diesel Plant	15	2002	R 20 800.00	R 1 000.00	95%	
IM 04	Gate Valve	200	Diesel Plant	15	2002	R 20 800.00	R 1 000.00	95%	
IM 05	Gate Valve	200	Blend Plant	15	2019	R 20 800.00	R 16 600.00	20%	
IM 06	Gate Valve	200	Blend Plant	15	2019	R 20 800.00	R 16 600.00	20%	
IM 07	Gate Valve	200	Blend Plant	15	2019	R 20 800.00	R 16 600.00	20%	
IM 08	Gate Valve	200	Diesel Plant	15	2002	R 20 800.00	R 1 000.00	95%	
BP 103	Ball Valve	100	Blend Plant	15	2017	R 12 100.00	R 8 100.00	33%	
BP 92	Gate Valve	100	Blend Plant	15	2017	R 11 300.00	R 7 500.00	34%	
BP 93	Gate Valve	200	Blend Plant	15	2017	R 20 800.00	R 13 900.00	33%	
01XV 016	Control Valve	100	Blend Plant	15	2017	R 190 500.00	R 127 000.00	33%	
01XV 017	Control Valve	100	Blend Plant	15	2017	R 190 500.00	R 127 000.00	33%	
02XV 016	Control Valve	100	Blend Plant	15	2017	R 190 500.00	R 127 000.00	33%	











PRODUCT PIPING (Excluding Owner Costs)									
Total Length	Description	Size	Location	Design Life	Year Constructed	Replacement Cost	Market Value	Depreciation	
100	EM 2 to Import Manifold	200	Diesel Plant	25	2002	R 320 000.00	R 60 000.00	81%	
230	Import Manifold to Tankage	200	Diesel Plant	25	2002	R 736 000.00	R 138 000.00	81%	
110	Tankage to Filtration/Circulation pump	150	Diesel Plant	25	2002	R 308 000.00	R 66 000.00	79%	
110	Filtration/Circulation pump to Tankage	150	Diesel Plant	25	2002	R 308 000.00	R 66 000.00	79%	
100	Tankage to Transfer Pump	250	Diesel Plant	25	2002	R 420 000.00	R 80 000.00	81%	
70	Transfer Pump to Import Manifold	250	Diesel Plant	25	2002	R 294 000.00	R 56 000.00	81%	
50	Tankage to Road Loading Pumps	150	Diesel Plant	25	2002	R 140 000.00	R 30 000.00	79%	
30	Road Loading Suction Lines	150	Diesel Plant	25	2002	R 84 000.00	R 18 000.00	79%	
30	Road loading Delivery Lines	100	Diesel Plant	25	2002	R 54 000.00	R 12 000.00	78%	
10	Road Receipt Suction Lines	100	Diesel Plant	25	2002	R 18 000.00	R 4 000.00	78%	
20	Road Receipt Delivery Lines	100	Diesel Plant	25	2002	R 36 000.00	R 8 000.00	78%	
100	EM 2 to Import Manifold	250	Bitumen Plant	25	2014	R 1 040 000.00	R 710 000.00	32%	
100	EM 2 to Import Manifold	200	Bitumen Plant	25	2014	R 320 000.00	R 220 000.00	31%	
360	Import Manifold to Tankage	250	Bitumen Plant	25	2014	R 3 744 000.00	R 2 556 000.00	32%	
20	Import Line to Transfer Pumps	250	Bitumen Plant	25	2014	R 208 000.00	R 142 000.00	32%	
20	Transfer Pump to Import Line	250	Bitumen Plant	25	2014	R 208 000.00	R 142 000.00	32%	
310	Import Line to Transfer Pumps	200	Bitumen Plant	25	2014	R 992 000.00	R 682 000.00	31%	
20	Transfer Pump to Import Line	200	Bitumen Plant	25	2014	R 64 000.00	R 44 000.00	31%	
50	Road Receipt Bay to Pumpbay	100	Bitumen Plant	25	2014	R 90 000.00	R 60 000.00	33%	
50	Pumpbay to Tank 15	100	Bitumen Plant	25	2014	R 90 000.00	R 60 000.00	33%	
210	Road Receipt Bay to Pumpbay	100	Bitumen Plant	25	2014	R 1 134 000.00	R 777 000.00	31%	
190	Pumpbay to Tankage	100	Bitumen Plant	25	2014	R 1 026 000.00	R 703 000.00	31%	
130	Tankage to Pumpbay	150	Bitumen Plant	25	2014	R 936 000.00	R 637 000.00	32%	
390	Pumpbay to Road Loading (Top Loading)	100	Bitumen Plant	25	2014	R 2 106 000.00	R 1 443 000.00	31%	
240	Tank 15 to Road Loading Bay	100	Bitumen Plant	25	2014	R 432 000.00	R 288 000.00	33%	
30	Tank 12 to Pumpbay	150	Bitumen Plant	25	2014	R 84 000.00	R 57 000.00	32%	
30	Pumpbay to Tank 12	150	Bitumen Plant	25	2014	R 84 000.00	R 57 000.00	32%	
30	Pumpbay to Loading Bay 7	100	Bitumen Plant	25	2014	R 54 000.00	R 36 000.00	33%	
200	Pumpbay to Blending Plant Pumpbay	100	Bitumen Plant	25	2014	R 360 000.00	R 240 000.00	33%	
200	Pumpbay to Loading Bay 9	100	Bitumen Plant	25	2014	R 360 000.00	R 240 000.00	33%	
200	Heat Exchanger to Blending Plant Pumpbay	100	Bitumen Plant	25	2014	R 360 000.00	R 240 000.00	33%	
10	Tank 13 to Tank 13 Recirculation pump	150	Bitumen Plant	25	2014	R 28 000.00	R 19 000.00	32%	
10	Tank 13 Recirculation pump to Tank 13	100	Bitumen Plant	25	2014	R 18 000.00	R 12 000.00	33%	
10	Tank 14 to Tank 14 Recirculation pump	150	Bitumen Plant	25	2014	R 28 000.00	R 19 000.00	32%	
10	Tank 14 Recirculation pump to Tank 14	100	Bitumen Plant	25	2014	R 18 000.00	R 12 000.00	33%	
10	Tank 15 to Tank 15 Recirculation pump	150	Bitumen Plant	25	2014	R 28 000.00	R 19 000.00	32%	
10	Tank 15 Recirculation pump to Tank 15	100	Bitumen Plant	25	2014	R 18 000.00	R 12 000.00	33%	
50	HFO Filtration Lines	100	Bitumen Plant	25	2014	R 90 000.00	R 60 000.00	33%	
150	Receipt Bay to Tanks 6 & 8	100	Bitumen Plant	25	2014	R 270 000.00	R 180 000.00	33%	
90	Receipt Bay to Tank 9	100	Bitumen Plant	25	2014	R 162 000.00	R 108 000.00	33%	
110	Receipt Bay to Tank 10	100	Bitumen Plant	25	2014	R 198 000.00	R 132 000.00	33%	
40	Import Line to Tank 17	200	Bitumen Plant	25	2014	R 128 000.00	R 88 000.00	31%	
30	Import Line to Tank 18	200	Bitumen Plant	25	2014	R 96 000.00	R 66 000.00	31%	
60	Tank 17 to Pumpbay	150	Bitumen Plant	25	2014	R 168 000.00	R 114 000.00	32%	
60	Pumpbay to Tank 17	100	Bitumen Plant	25	2014	R 108 000.00	R 72 000.00	33%	
40	Tank 18 to Pumpbay	150	Bitumen Plant	25	2014	R 112 000.00	R 76 000.00	32%	
40	Pumbay to Tank 18	100	Bitumen Plant	25	2014	R 72 000.00	R 48 000.00	33%	
70	Pumpbay to Road Gantry	100	Bitumen Plant	25	2014	R 126 000.00	R 84 000.00	33%	
350	EM 1 to Import Manifold	200	Blend Plant	25	2019	R 1 120 000.00	R 980 000.00	13%	
350	EM 1 to Import Manifold	200	Blend Plant	25	2019	R 1 120 000.00	R 980 000.00	13%	
210	Import Manifold to Blending Plant	200	Blend Plant	25	2019	R 672 000.00	R 588 000.00	13%	
300	Import Manifold to Blending Plant	200	Blend Plant	25	2019	R 960 000.00	R 840 000.00	13%	
300	Import Manifold to Blending Plant	200	Blend Plant	25	2019	R 960 000.00	R 840 000.00	13%	
210	Tankage to Pumpbay	200	Blend Plant	25	2002	R 672 000.00	R 126 000.00	81%	
210	Pumpbay to Tankage	200	Blend Plant	25	2002	R 672 000.00	R 126 000.00	81%	
140	Pumpbay to road receipt	150	Blend Plant	25	2002	R 392 000.00	R 84 000.00	79%	
140	Pumpbay to road receipt	150	Blend Plant	25	2002	R 392 000.00	R 84 000.00	79%	
60	Tank 19 to Road pumpbay	100	Blend Plant	25	2017	R 108 000.00	R 84 000.00	22%	
60	Road pumpbay to Tank 19	150	Blend Plant	25	2017	R 168 000.00	R 132 000.00	21%	
210	Delivery Line	100	Thermo Oil	25	2014	R 1 134 000.00	R 777 000.00	31%	
210	Return Line	50	Thermo Oil	25	2014	R 798 000.00	R 546 000.00	32%	
90	Delivery Line	100	Thermo Oil	25	2014	R 486 000.00	R 333 000.00	31%	
90	Return Line	50	Thermo Oil	25	2014	R 342 000.00	R 234 000.00	32%	
240	Main Feeder Line	50	Utilities	25	2014	R 192 000.00	R 120 000.00	38%	
360	Sub-Lines	25	Utilities	25	2014	R 180 000.00	R 108 000.00	40%	
50	Piping at Tankage	100	Vacuum Plant	25	2002	R 90 000.00	R 20 000.00	78%	
110	Piping from Separators	100	Vacuum Plant	25	2002	R 198 000.00	R 44 000.00	78%	
10	Piping to Road Loading	100	Vacuum Plant	25	2002	R 18 000.00	R 4 000.00	78%	
<b>SUB-TOTAL</b>						<b>R 28 752 000.00</b>	<b>R 18 043 000.00</b>	<b>37%</b>	

ELECTRICAL & INSTRUMENTATION (Excluding Owner Costs)									
Asset No	Description	Location 1	Location 2	Design Life	Year Constructed	Replacement Cost	Market Value	Depreciation	
LT 4001	Level Transmitter	Tank HTF 1	Diesel Plant	15	Unknown	R 110 000.00	R 39 000.00	65%	
LT 4002	Level Transmitter	Tank HTF 2	Diesel Plant	15	Unknown	R 110 000.00	R 39 000.00	65%	
LT 4003	Level Transmitter	Tank HTF 3	Diesel Plant	15	Unknown	R 110 000.00	R 39 000.00	65%	
LT 4004	Level Transmitter	Tank HTF 4	Diesel Plant	15	Unknown	R 110 000.00	R 39 000.00	65%	
LT 4005	Level Transmitter	Tank HTF 5	Diesel Plant	15	Unknown	R 110 000.00	R 39 000.00	65%	
02-LT 0319	Level Transmitter	Tank HTF 6	Blend Plant	15	Unknown	R 110 000.00	R 39 000.00	65%	
02-LT 0119	Level Transmitter	Tank HTF 7	Blend Plant	15	Unknown	R 110 000.00	R 39 000.00	65%	
02-LT 0219	Level Transmitter	Tank HTF 8	Blend Plant	15	Unknown	R 110 000.00	R 39 000.00	65%	
02-LT 0019	Level Transmitter	Tank HTF 9	Blend Plant	15	Unknown	R 110 000.00	R 39 000.00	65%	
01-LT 0019	Level Transmitter	Tank HTF 10	Blend Plant	15	Unknown	R 110 000.00	R 39 000.00	65%	
LT 4006	Level Transmitter	Tank HTF 11	Bitumen Plant	15	Unknown	R 110 000.00	R 39 000.00	65%	
LT 4007	Level Transmitter	Tank HTF 12	Bitumen Plant	15	Unknown	R 110 000.00	R 39 000.00	65%	
LT 4008	Level Transmitter	Tank HTF 13	Bitumen Plant	15	Unknown	R 110 000.00	R 39 000.00	65%	
LT 4009	Level Transmitter	Tank HTF 14	Bitumen Plant	15	Unknown	R 110 000.00	R 39 000.00	65%	
LT 4010	Level Transmitter	Tank HTF 15	Bitumen Plant	15	Unknown	R 110 000.00	R 39 000.00	65%	
LT 4022	Level Transmitter	Thermomate Fuel Tank	Thermal Oil	15	Unknown	R 110 000.00	R 39 000.00	65%	
LT 4023	Level Transmitter	Mergi-Dosing Tank	Blend Plant	15	Unknown	R 110 000.00	R 39 000.00	65%	
LT 4027	Level Transmitter	Tank HTF 17	Blend Plant	15	Unknown	R 110 000.00	R 39 000.00	65%	
LT 4026	Level Transmitter	Tank HTF 18	Blend Plant	15	Unknown	R 110 000.00	R 39 000.00	65%	
LT 4025	Level Transmitter	Tank HTF 19	Blend Plant	15	Unknown	R 110 000.00	R 39 000.00	65%	
02TT 319	Temperature Transmitter	Tank HTF 6	Blend Plant	15	Unknown	R 68 000.00	R 24 000.00	65%	
02TT 119	Temperature Transmitter	Tank HTF 7	Blend Plant	15	Unknown	R 68 000.00	R 24 000.00	65%	
02TT 219	Temperature Transmitter	Tank HTF 8	Blend Plant	15	Unknown	R 68 000.00	R 24 000.00	65%	
02TT 019	Temperature Transmitter	Tank HTF 9	Blend Plant	15	Unknown	R 68 000.00	R 24 000.00	65%	
01TT 019	Temperature Transmitter	Tank HTF 10	Blend Plant	15	Unknown	R 68 000.00	R 24 000.00	65%	
TT 1020	Temperature Transmitter	Thermal Oil Supply Line	Thermal Oil	15	Unknown	R 68 000.00	R 24 000.00	65%	
TT 1021	Temperature Transmitter	Thermal Oil Return Line	Thermal Oil	15	Unknown	R 68 000.00	R 24 000.00	65%	
TT 4011	Temperature Transmitter	Tank HTF 11	Bitumen Plant	15	Unknown	R 68 000.00	R 24 000.00	65%	
TT 4012	Temperature Transmitter	Tank HTF 11	Bitumen Plant	15	Unknown	R 68 000.00	R 24 000.00	65%	
TT 4013	Temperature Transmitter	Tank HTF 11	Bitumen Plant	15	Unknown	R 68 000.00	R 24 000.00	65%	
TT 4014	Temperature Transmitter	Tank HTF 13	Bitumen Plant	15	Unknown	R 68 000.00	R 24 000.00	65%	
TT 4015	Temperature Transmitter	Tank HTF 13	Bitumen Plant	15	Unknown	R 68 000.00	R 24 000.00	65%	
TT 4016	Temperature Transmitter	Tank HTF 13	Bitumen Plant	15	Unknown	R 68 000.00	R 24 000.00	65%	
TT 4017	Temperature Transmitter	Tank HTF 14	Bitumen Plant	15	Unknown	R 68 000.00	R 24 000.00	65%	
TT 4018	Temperature Transmitter	Tank HTF 14	Bitumen Plant	15	Unknown	R 68 000.00	R 24 000.00	65%	
TT 4019	Temperature Transmitter	Tank HTF 14	Bitumen Plant	15	Unknown	R 68 000.00	R 24 000.00	65%	
TT 4027	Temperature Transmitter	Tank HTF 17	Blend Plant	15	Unknown	R 68 000.00	R 24 000.00	65%	
TT 4026	Temperature Transmitter	Tank HTF 18	Blend Plant	15	Unknown	R 68 000.00	R 24 000.00	65%	
TT 4025	Temperature Transmitter	Tank HTF 19	Blend Plant	15	Unknown	R 68 000.00	R 24 000.00	65%	
LSH 4027	Level Switch High	Tank HTF 17	Blend Plant	15	Unknown	R 86 000.00	R 30 000.00	65%	
LSH 4026	Level Switch High	Tank HTF 18	Blend Plant	15	Unknown	R 86 000.00	R 30 000.00	65%	
LSH 4025	Level Switch High	Tank HTF 19	Blend Plant	15	Unknown	R 86 000.00	R 30 000.00	65%	
LSHH 4300	Level Switch High High	Tank HTF 11	Bitumen Plant	15	Unknown	R 86 000.00	R 30 000.00	65%	
LSHH 4301	Level Switch High High	Tank HTF 12	Bitumen Plant	15	Unknown	R 86 000.00	R 30 000.00	65%	
LSHH 4302	Level Switch High High	Tank HTF 13	Bitumen Plant	15	Unknown	R 86 000.00	R 30 000.00	65%	
LSHH 4303	Level Switch High High	Tank HTF 14	Bitumen Plant	15	Unknown	R 86 000.00	R 30 000.00	65%	
LSHH 4304	Level Switch High High	Tank HTF 15	Bitumen Plant	15	Unknown	R 86 000.00	R 30 000.00	65%	
PI 01?	Pressure Indicator	Pump DLP 01 Discharge line	Diesel Plant	15	Unknown	R 3 000.00	R 2 000.00	33%	
PI 02?	Pressure Indicator	Pump DLP 02 Discharge line	Diesel Plant	15	Unknown	R 3 000.00	R 2 000.00	33%	
PI 03?	Pressure Indicator	Filter DP Suction	Diesel Plant	15	Unknown	R 3 000.00	R 2 000.00	33%	
PI 04?	Pressure Indicator	Filter DP Discharge	Diesel Plant	15	Unknown	R 3 000.00	R 2 000.00	33%	
PI 05?	Pressure Indicator	Pump P 01? Discharge line	Blend Plant	15	Unknown	R 3 000.00	R 2 000.00	33%	
PI 06?	Pressure Indicator	Pump P 02? Discharge line	Blend Plant	15	Unknown	R 3 000.00	R 2 000.00	33%	
PI 07?	Pressure Indicator	Pump 02P 020 Discharge line	Blend Plant	15	Unknown	R 3 000.00	R 2 000.00	33%	
PI 08?	Pressure Indicator	Pump 01P 018 Discharge line	Blend Plant	15	Unknown	R 3 000.00	R 2 000.00	33%	
PI 09?	Pressure Indicator	Pump 02P-115 Discharge line	Blend Plant	15	Unknown	R 3 000.00	R 2 000.00	33%	
PI 10?	Pressure Indicator	Pump 02P 115 Discharge line	Blend Plant	15	Unknown	R 3 000.00	R 2 000.00	33%	
PI 11?	Pressure Indicator	Pump 02P 215 Discharge line	Blend Plant	15	Unknown	R 3 000.00	R 2 000.00	33%	
PI 12?	Pressure Indicator	Pump P 4207 Discharge line	Bitumen Plant	15	Unknown	R 3 000.00	R 2 000.00	33%	
PI 13?	Pressure Indicator	Pump P 4206 Discharge line	Bitumen Plant	15	Unknown	R 3 000.00	R 2 000.00	33%	
PI 14?	Pressure Indicator	Pump P 4203 Discharge line	Bitumen Plant	15	Unknown	R 3 000.00	R 2 000.00	33%	
PI 15?	Pressure Indicator	Pump P 4204 Discharge line	Bitumen Plant	15	Unknown	R 3 000.00	R 2 000.00	33%	
PI 16?	Pressure Indicator	Pump P 4231 Discharge line	Bitumen Plant	15	Unknown	R 3 000.00	R 2 000.00	33%	
PI 17?	Pressure Indicator	Pump P 4232 Discharge line	Bitumen Plant	15	Unknown	R 3 000.00	R 2 000.00	33%	
PI 18?	Pressure Indicator	Pump P 4201 Discharge line	Bitumen Plant	15	Unknown	R 3 000.00	R 2 000.00	33%	
PI 19?	Pressure Indicator	Pump P 4202 Discharge line	Bitumen Plant	15	Unknown	R 3 000.00	R 2 000.00	33%	
PI 20?	Pressure Indicator	Pump P 4205 Discharge line	Bitumen Plant	15	Unknown	R 3 000.00	R 2 000.00	33%	
PI 21?	Pressure Indicator	Pump P 4225 Discharge line	Bitumen Plant	15	Unknown	R 3 000.00	R 2 000.00	33%	
	Surveillance	Site Surveillance System - CCTV	Terminal	15	Unknown	R 2 760 000.00	R 970 000.00	65%	
	SCADA	Site Instrumentation		15	Unknown	R 500 000.00	R 175 000.00	65%	
	Fuel Management System	Fuel Management System		15	Unknown	R 400 000.00	R 140 000.00	65%	
MCC 1	MCC	Cape Tank Farm MCC	Terminal	15	Unknown	R 1 320 000.00	R 460 000.00	65%	
MCC 2	MCC	Control room MCC	Terminal	15	Unknown	R 1 320 000.00	R 460 000.00	65%	
	Site Lighting	Site Lighting	Terminal	15	Unknown	R 360 000.00	R 126 000.00	65%	
<b>SUB-TOTAL</b>						<b>R 10 903 000.00</b>	<b>R 3 849 000.00</b>	<b>65%</b>	

PRODUCT MEASUREMENT (Excluding Owner Costs)									
Asset No	Description	Size	Location	Design Life	Year Constructed	Replacement Cost	Market Value	Depreciation	
02XV325	Flowmeter	100	Blend Plant	15		R 180 000.00	R 90 000.00	50%	
02VX326	Flowmeter	100	Blend Plant	15		R 180 000.00	R 90 000.00	50%	
18GM51617	Flowmeter	100	Diesel Plant	15		R 180 000.00	R 90 000.00	50%	
1144	Flowmeter	100	Diesel Plant	15		R 180 000.00	R 90 000.00	50%	
W/BR-001	Weighbridge		Terminal	15		R 860 000.00	R 690 000.00	20%	
W/BR-002BLE	Weighbridge		Terminal	15		R 860 000.00	R 690 000.00	20%	
<b>SUB-TOTAL</b>						<b>R 2 440 000.00</b>	<b>R 1 740 000.00</b>	<b>29%</b>	

OTHER EQUIPMENT (Excluding Owner Costs)								
Asset No	Description	Size	Location	Design Life	Year Constructed	Replacement Cost	Market Value	Depreciation
	Auto Sampler		Diesel Plant	15		R 127 000.00	R 76 000.00	40%
5312	Heat Exchanger		Thermal Oil	15		R 127 000.00	R 76 000.00	40%
HEATER 1	Thermomate Heater		Thermal Oil	15		R 439 000.00	R 329 000.00	25%
HEATER 2	Thermomate Heater		Thermal Oil	15		R 439 000.00	R 329 000.00	25%
	Thermo Oil		Thermal Oil	15		R 2 000 000.00	R 1 500 000.00	25%
	Strainer		Thermal Oil	15		R 18 000.00	R 14 000.00	22%
	Strainer		Thermal Oil	15		R 18 000.00	R 14 000.00	22%
GEN001	Generator		Terminal	15		R 569 000.00	R 455 000.00	20%
AIR-01	Compressor	0.8 Mpa max pressure, 11 kW	Terminal	15		R 102 000.00	R 71 000.00	30%
	Compressor	2.2 kW	Terminal	15		R 20 000.00	R 14 000.00	30%
	Compressor	4 kW	Terminal	15		R 30 000.00	R 21 000.00	30%
	Compressor		Terminal	15		R 20 000.00	R 14 000.00	30%
	Compressor	CompAir	Terminal	15		R 25 000.00	R 19 000.00	24%
	Bunker Hose	150mm x 10m Long Run Flat	Terminal	5		R 82 000.00	R 62 000.00	24%
	Bunker Hose	150mm x 10m Long Run Flat	Terminal	5		R 82 000.00	R 62 000.00	24%
	Bunker Hose	150mm x 10m Long Run Flat	Terminal	5		R 82 000.00	R 62 000.00	24%
	Bunker Hose	150mm x 10m Long Run Flat	Terminal	5		R 82 000.00	R 62 000.00	24%
	Bunker Hose	150mm x 10m Long Run Flat	Terminal	5		R 82 000.00	R 62 000.00	24%
	Bunker Hose	150mm x 10m Long Run Flat	Terminal	5		R 82 000.00	R 62 000.00	24%
	Bunker Hose	150mm x 10m Long Run Flat	Terminal	5		R 82 000.00	R 62 000.00	24%
	Bunker Hose	150mm x 10m Long Run Flat	Terminal	5		R 82 000.00	R 62 000.00	24%
	Bunker Hose	150mm x 10m Long Run Flat	Terminal	5		R 82 000.00	R 62 000.00	24%
	Bunker Hose	100mm x 10m Long Composite	Terminal	5		R 82 000.00	R 62 000.00	24%
	Bunker Hose	100mm x 10m Long Composite	Terminal	5		R 82 000.00	R 62 000.00	24%
	Bitumen Top Loading Arm - 1	100mm	Bitumen Plant	15		R 81 000.00	R 61 000.00	25%
	Bitumen Top Loading Arm - 2	100mm	Bitumen Plant	15		R 81 000.00	R 61 000.00	25%
	Road Loading Hose	100mm x 5m	Diesel Plant	5		R 37 000.00	R 19 000.00	49%
	Road Loading Hose	100mm x 5m	Diesel Plant	5		R 37 000.00	R 19 000.00	49%
	Road Loading Hose	100mm x 5m	Diesel Plant	5		R 37 000.00	R 19 000.00	49%
	Road Loading Hose	100mm x 5m	Blend Plant	5		R 37 000.00	R 19 000.00	49%
	Road Loading Hose	100mm x 5m	Blend Plant	5		R 37 000.00	R 19 000.00	49%
	Road Loading Hose	100mm x 5m	Blend Plant	5		R 37 000.00	R 19 000.00	49%
<b>SUB-TOTAL</b>						<b>R 5 138 000.00</b>	<b>R 3 788 000.00</b>	<b>26%</b>

FIREFIGHTING TANKAGE (Excluding Owner Costs)								
Asset No	Description	Volume (m³)	Location	Design Life	Year Constructed	Replacement Cost	Market Value	Depreciation
HTF 16	Fire Water Tank	750	Fire System	25 Years		R 3 600 000.00	R 2 300 000.00	36%
	Foam Concentrate Tank	3	Fire System	25 Years		R 120 000.00	R 80 000.00	33%
<b>SUB-TOTAL</b>						<b>R 3 720 000.00</b>	<b>R 2 380 000.00</b>	<b>36%</b>

FIREFIGHTING PUMPS (Excluding Owner Costs)								
Asset No	Description	Type	Location	Design Life	Year Constructed	Replacement Cost	Market Value	Depreciation
	Fire Water Pump	125-500A	Terminal	15	2017	R 600 000.00	R 500 000.00	17%
	Fire Water Pump	125-500A	Terminal	15	2017	R 600 000.00	R 500 000.00	17%
	Foam Concentrate Pump	HD61EF-1U22B	Terminal	15	2017	R 150 000.00	R 125 000.00	17%
	Foam Concentrate Pump	HD61EF-1U22B	Terminal	15	2017	R 150 000.00	R 125 000.00	17%
<b>SUB-TOTAL</b>						<b>R 1 500 000.00</b>	<b>R 1 250 000.00</b>	<b>17%</b>





	Butterfly Valve	80	Bitumen Plant	15	2017	R	4 800.00	R	3 200.00	33%	
	Butterfly Valve	80	Bitumen Plant	15	2017	R	4 800.00	R	3 200.00	33%	
	Butterfly Valve	80	Bitumen Plant	15	2017	R	4 800.00	R	3 200.00	33%	
	Butterfly Valve	80	Diesel Plant	15	2017	R	4 800.00	R	3 200.00	33%	
	Butterfly Valve	80	Diesel Plant	15	2017	R	4 800.00	R	3 200.00	33%	
	Butterfly Valve	80	Diesel Plant	15	2017	R	4 800.00	R	3 200.00	33%	
	Butterfly Valve	80	Diesel Plant	15	2017	R	4 800.00	R	3 200.00	33%	
	Butterfly Valve	80	Diesel Plant	15	2017	R	4 800.00	R	3 200.00	33%	
	Butterfly Valve	80	Diesel Plant	15	2017	R	4 800.00	R	3 200.00	33%	
	Butterfly Valve	80	Bitumen Plant	15	2017	R	4 800.00	R	3 200.00	33%	
	Butterfly Valve	250	Terminal	15	2017	R	17 600.00	R	11 700.00	34%	
<b>SUB-TOTAL</b>							<b>R</b>	<b>772 200.00</b>	<b>R</b>	<b>515 400.00</b>	<b>33%</b>

<b>FIREFIGHTING PIPING (Excluding Owner Costs)</b>											
<b>Total Length</b>	<b>Description</b>	<b>Size</b>	<b>Location</b>	<b>Design Life</b>	<b>Year Constructed</b>	<b>Replacement Cost</b>	<b>Market Value</b>	<b>Depreciation</b>			
850	Fire Hydrant Ringmain	150	Terminal	25	2017	R 2 380 000.00	R 1 870 000.00	21%			
1070	Fire Hydrant Ringmain	250	Terminal	25	2017	R 4 494 000.00	R 3 638 000.00	19%			
110	Tank 1 Cooling line	80	Diesel Plant	25	2017	R 154 000.00	R 121 000.00	21%			
150	Tank 2 Cooling line	80	Diesel Plant	25	2017	R 210 000.00	R 165 000.00	21%			
130	Tank 3 Cooling line	80	Diesel Plant	25	2017	R 182 000.00	R 143 000.00	21%			
160	Tank 4 Cooling line	80	Diesel Plant	25	2017	R 224 000.00	R 176 000.00	21%			
100	Tank 5 Cooling line	80	Diesel Plant	25	2017	R 140 000.00	R 110 000.00	21%			
60	Tank 6 Foam Solution line	80	Blending Plant	25	2017	R 84 000.00	R 66 000.00	21%			
50	Tank 7 Foam Solution line	80	Blending Plant	25	2017	R 70 000.00	R 55 000.00	21%			
30	Tank 8 Foam Solution line	80	Blending Plant	25	2017	R 42 000.00	R 33 000.00	21%			
50	Tank 9 Foam Solution line	80	Blending Plant	25	2017	R 70 000.00	R 55 000.00	21%			
80	Tank 10 Foam Solution line	80	Blending Plant	25	2017	R 112 000.00	R 88 000.00	21%			
90	Tank 11 Foam Solution line	80	Bitumen Plant	25	2017	R 126 000.00	R 99 000.00	21%			
90	Tank 12 Cooling line	80	Bitumen Plant	25	2017	R 126 000.00	R 99 000.00	21%			
90	Tank 12 Foam Solution line	80	Bitumen Plant	25	2017	R 126 000.00	R 99 000.00	21%			
70	Tank 13 Foam Solution line	80	Bitumen Plant	25	2017	R 98 000.00	R 77 000.00	21%			
60	Tank 14 Foam Solution line	80	Bitumen Plant	25	2017	R 84 000.00	R 66 000.00	21%			
50	Tank 15 Cooling line	80	Bitumen Plant	25	2017	R 70 000.00	R 55 000.00	21%			
50	Tank 15 Foam Solution line	80	Bitumen Plant	25	2017	R 70 000.00	R 55 000.00	21%			
180	Booster Connection	100	Terminal	25	2017	R 324 000.00	R 252 000.00	22%			
90	Bund Foam Pourer feeder Lines	80	Bitumen Plant	25	2017	R 126 000.00	R 99 000.00	21%			
120	Bund Foam Pourer feeder Lines	80	Diesel Plant	25	2017	R 168 000.00	R 132 000.00	21%			
160	Bund Foam Pourer feeder Lines	80	Blending Plant	25	2017	R 224 000.00	R 176 000.00	21%			
30	Water Cannon feer line	80	Bitumen Plant	25	2017	R 42 000.00	R 33 000.00	21%			
70	Water Cannon feer line	80	Diesel Plant	25	2017	R 98 000.00	R 77 000.00	21%			
160	Fire Hydrant	100	Terminal	25	2017	R 288 000.00	R 224 000.00	22%			
<b>SUB-TOTAL</b>							<b>R</b>	<b>10 132 000.00</b>	<b>R</b>	<b>8 063 000.00</b>	<b>20%</b>



	Fire Hydrant Hose & Enclosure		Terminal	10	2017	R	9 000.00	R	5 000.00	44%	
	Fire Hydrant Hose & Enclosure		Terminal	10	2017	R	9 000.00	R	5 000.00	44%	
	Fire Hydrant Hose & Enclosure		Terminal	10	2017	R	9 000.00	R	5 000.00	44%	
	Fire Hydrant Hose & Enclosure		Terminal	10	2017	R	9 000.00	R	5 000.00	44%	
	Fire Hydrant Hose & Enclosure		Terminal	10	2017	R	9 000.00	R	5 000.00	44%	
	Fire Hydrant Hose & Enclosure		Terminal	10	2017	R	9 000.00	R	5 000.00	44%	
	Foam Stocks		Terminal	10	2017	R	540 000.00	R	270 000.00	50%	
<b>SUB-TOTAL</b>							<b>R</b>	<b>3 444 100.00</b>	<b>R</b>	<b>2 179 800.00</b>	<b>37%</b>

<b>TEMPORARY CONTAINER STRUCTURES (Excluding Owner Costs)</b>											
<b>Asset No</b>	<b>Description</b>	<b>Size</b>	<b>Location</b>	<b>Design Life</b>	<b>Year Constructed</b>		<b>Replacement Cost</b>		<b>Market Value</b>	<b>Depreciation</b>	
Container	Security container at entrance		Terminal	15		R	40 000.00	R	30 000.00	25%	
Container	Stores container		Terminal	15		R	50 000.00	R	30 000.00	40%	
Container	Workshop container		Terminal	15		R	90 000.00	R	60 000.00	33%	
Container	Canteen Container		Terminal	15		R	120 000.00	R	80 000.00	33%	
Container	Changeroom Container		Terminal	15		R	120 000.00	R	80 000.00	33%	
Container	Storage Container		Terminal	15		R	70 000.00	R	50 000.00	29%	
<b>SUB-TOTAL</b>							<b>R</b>	<b>490 000.00</b>	<b>R</b>	<b>330 000.00</b>	<b>32%</b>

<b>TOTAL</b>							<b>R</b>	<b>237 918 400.00</b>	<b>R</b>	<b>152 753 000.00</b>	<b>36%</b>
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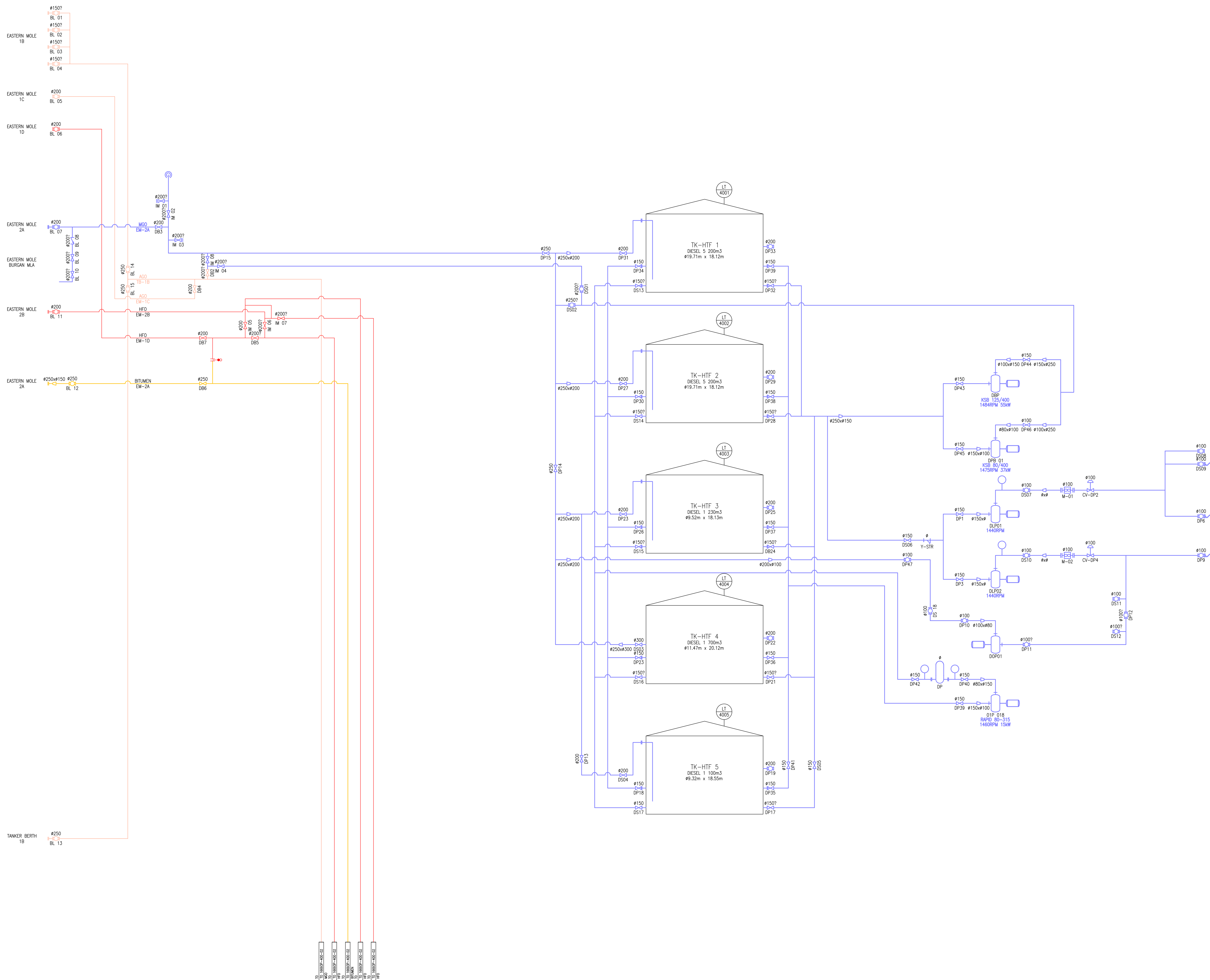
## Owners Costs

<b>OWNERS COSTS</b>	
<b>Description</b>	<b>Total Cost</b>
Land Rental for duration of project	R 28 880 000.00
Owners Costs for duration of project	R 36 970 000.00
Engineering Costs	R 25 410 000.00
Site Survey	R 120 000.00
Geotechnical Report	R 300 000.00
EIA	R 2 600 000.00
<b>TOTAL</b>	<b>R 94 280 000.00</b>

## Appendix B

REFERENCE DRAWINGS:

LEGEND:



REV	ISSUED FOR REVIEW	DESIGNER	DATE

	INITIALS	SKN	DATE
DESIGNED	JB		
DRAWN	JB		
CHECKED	DJ		
PROJECT ENG.	JB		
APPROVED	GT		



CLIENT  
PROJECT  
FFS REFINERS CHTF & CTBS  
SITE EVALUATION

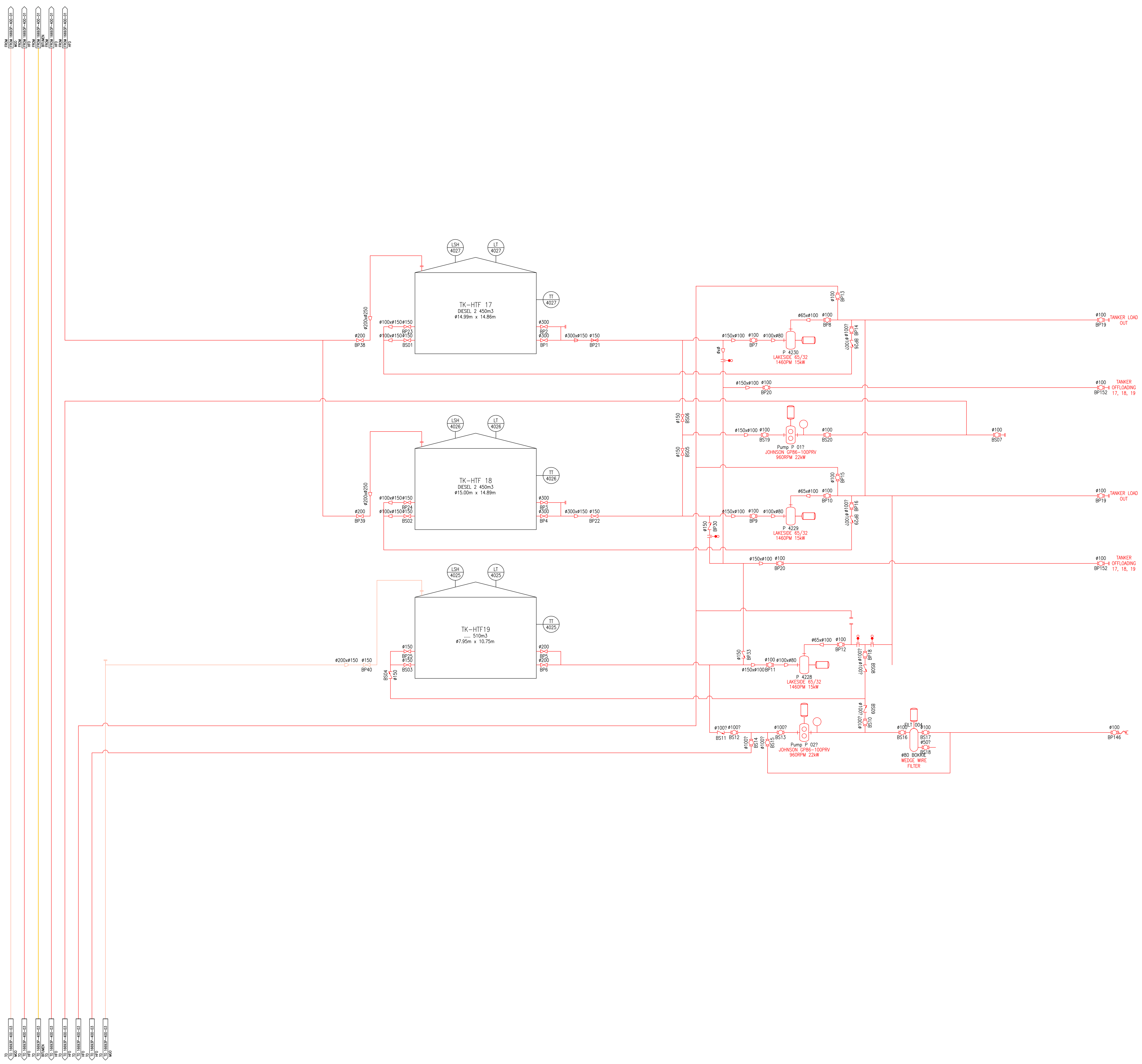
TITLE  
EXISTING P&ID  
SHEET 1 OF 5

SCALE : NOT TO SCALE  
DRAWING No. 16693P-400-01

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REFERENCE DRAWINGS:

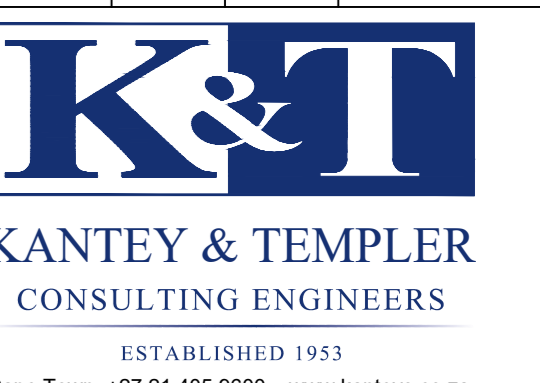
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REV	DESCRIPTION	DR	CHKD	APP.	DATE

	INITIALS	SKN	DATE
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DRAWN	JB		
CHECKED	DJ		
PROJECT ENG.	JB		
APPROVED	GT		



CLIENT  
 PROJECT  
 FFS REFINERS CHTF & CTBS  
 SITE EVALUATION

TITLE  
 EXISTING P&ID  
 SHEET 2 OF 5

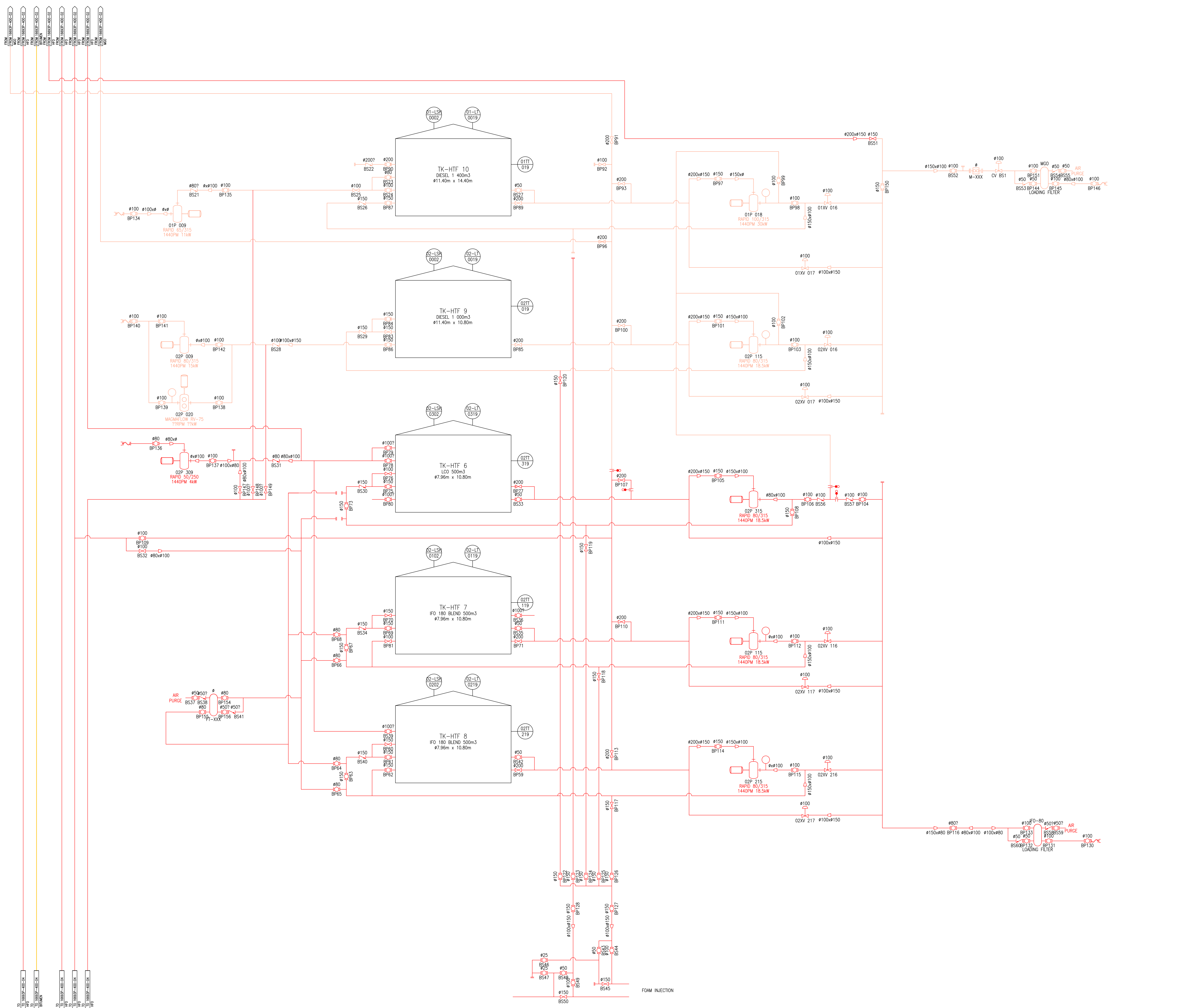
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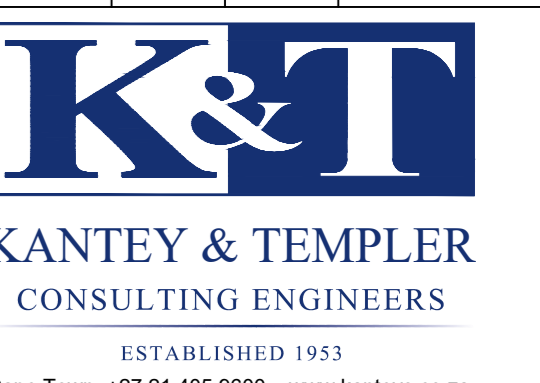
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REFERENCE DRAWINGS:

LEGEND:



A	ISSUED FOR REVIEW	JB	DJ	GT
REV	DESCRIPTION	DR	CHKD	APP. DATE
		INITIALS	SKN	DATE
DESIGNED	JB			
DRAWN	JB			
CHECKED	DJ			
PROJECT ENG.	JB			
APPROVED	GT			



PROJECT  
 FFS REFINERS CHTF & CTBS  
 SITE EVALUATION

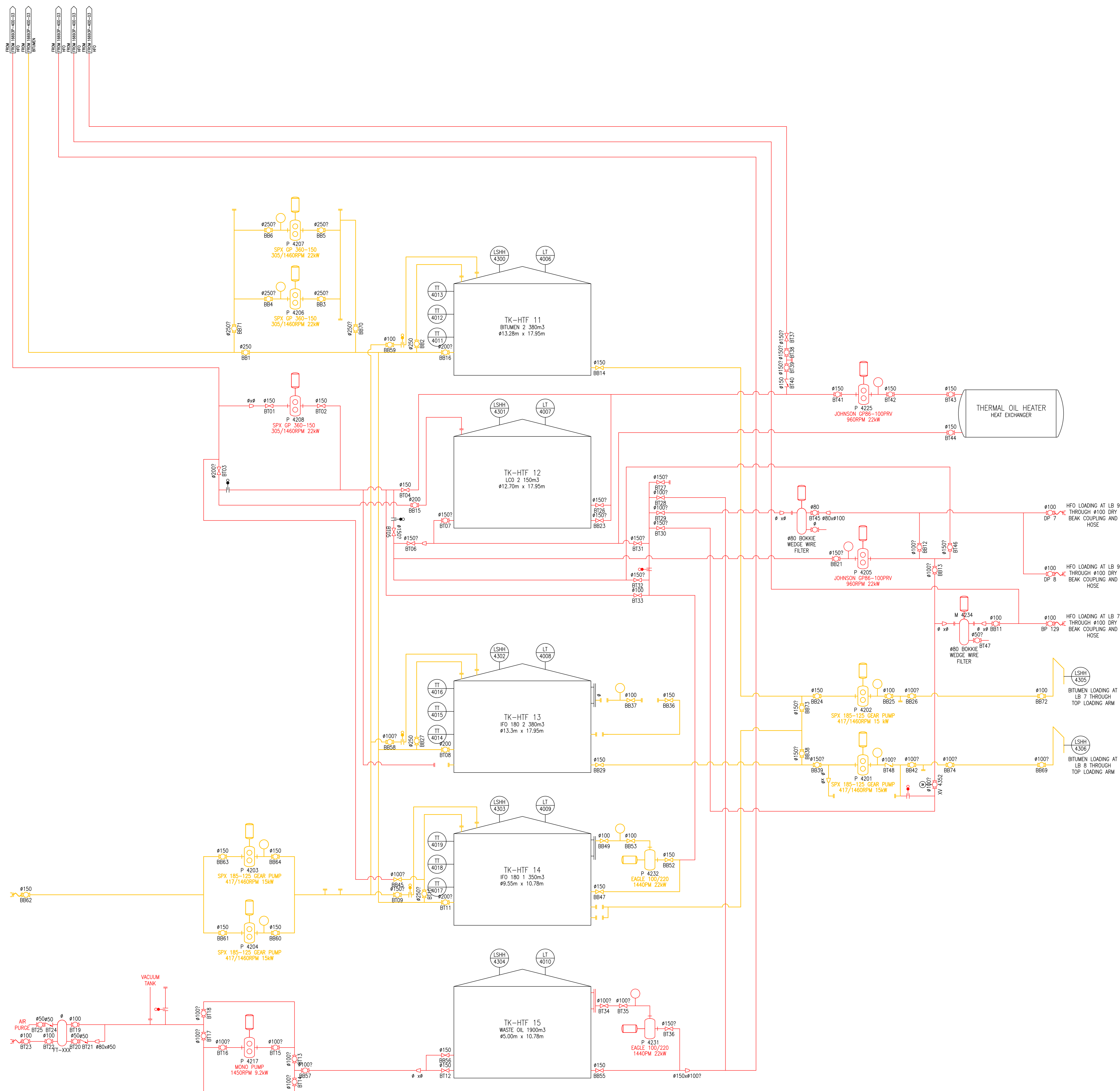
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 SHEET 3 OF 5

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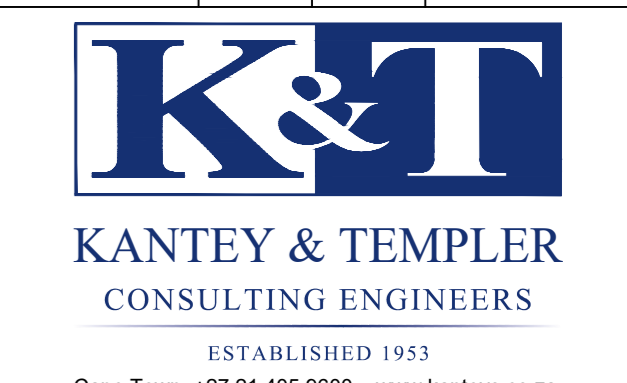
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REFERENCE DRAWINGS:

LEGEND:



A	ISSUED FOR REVIEW	JB	DJ	GT	
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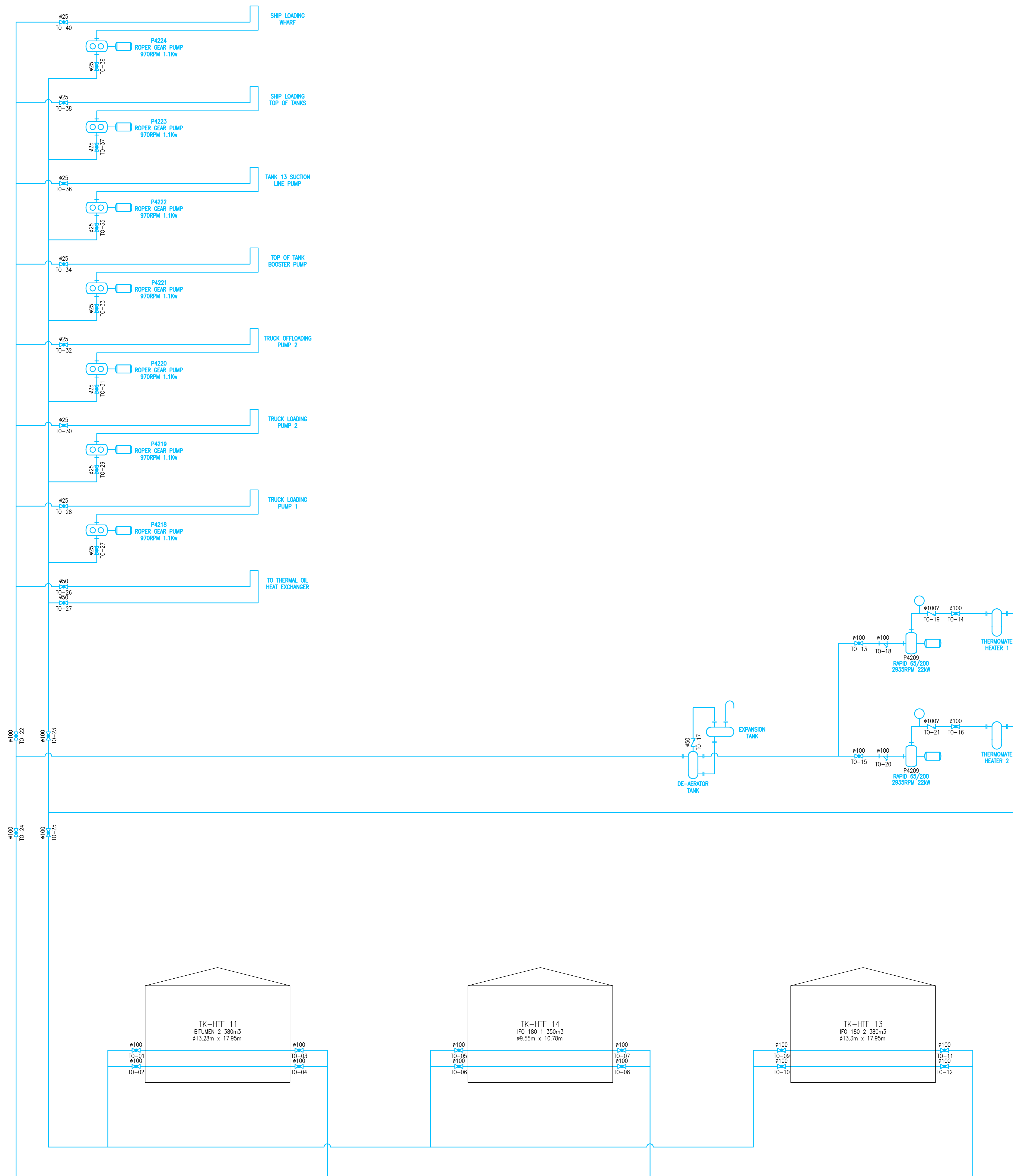
PROJECT  
FFS REFINERS CHTF & CTBS  
SITE EVALUATION

TITLE  
EXISTING P&ID  
SHEET 4 OF 5

SCALE : NOT TO SCALE AO  
DRAWING No. 16693P-400-04 A

REFERENCE DRAWINGS:

LEGEND:



A	ISSUED FOR REVIEW	JB	DJ	GT
REV	DESCRIPTION	DR	CHKD/APP.	DATE
		INITIALS	SKN	DATE
DESIGNED		JB		
DRAWN		DJ		
CHECKED		DJ		
PROJECT ENG.		JB		
APPROVED		GT		



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