



Request For Quote

**NAURU FUEL TERMINAL
API653 UPGRADE
Tank 2 & Tank 4 OOSI-R -JIG**

Tender Submission Date: 30 May 2025



TABLE OF CONTENT

1 SECTION 1 – REQUEST FOR QUOTE

1.1	Background	1
1.2	Objectives	2
1.3	Final Review And Notice Of Award	3
1.4	General Conditions Of The Contract	4
1.5	Instructions To Bidders	5
1.6	Vital Energy's Rights	6
1.7	Confidentialities	7
1.8	Conflicts Of Interest	8
1.9	Prohibitions	9
1.10	Documentation Requirements	10
1.11	Bidders To Note	11
1.12	Evaluations	12
1.13	Consultants	13
1.14	Evaluation Procedures	14
1.15	Selection Decision	15
1.16	Application Form And Declaration	16
1.17	Declarations By Bidder	17
1.18	Response Statements	18
1.19	Appendix	19

2 SECTION 2 - APPENDICES

2.1 SECTION 2.1 - CONSTRUCTION DOCUMENTS

2.1.1	<u>Appendix A</u> - Nauru Tank 2 Scope of Upgrade Works	22
2.1.2	<u>Appendix B</u> - Nauru Tank 4 Scope of Upgrade Works	23
2.1.3	<u>Appendix C</u> - Project Objective(s) and Deliverables	24
2.1.4	<u>Appendix D</u> - Tank 4 Data Table	25
2.1.5	<u>Appendix E</u> - Tank 2 Data Table	26
2.1.6	<u>Appendix F</u> - Project Architecture - Roles and Responsibilities	27
2.1.7	<u>Appendix G</u> - Tank Drawings – Issued after inspection	28
2.1.8	<u>Appendix H</u> - Nauru Terminal Layout	29
2.1.9	<u>Appendix I</u> – Tank 4 OOSI Tank Inspection Report – issued after inspection	30
2.1.10	<u>Appendix J</u> - Tank 4 OOSI Tank 4 Inspection Report – issued after inspection	31

2.2	SECTION 2.2 – HEALTH, SAFETY, SECURITY & ENVIRONMENT	32
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2.2.1	<u>Appendix K</u> - Vital HSSE Policy	33
2.2.2	<u>Appendix L</u> - Contractor Safety Administrative Requirements	34
2.2.3	<u>Appendix M</u> - Nauru Terminal Hazard Drawing Layout	35
2.2.4	<u>Appendix N</u> – FSMPC Tank Cleaning Guidelines	36
2.3	SECTION 2.3– VITAL STANDARDS & SPECIFICATIONS	37
2.3.1	<u>Appendix O</u> - Vital’s Payment Process	38
2.3.2	<u>Appendix P</u> - Vital Energy Tank Work Breakdown Structure	39
2.3.3	<u>Appendix Q</u> - FSMPC GP External and Internal Painting of Bulk Tanks	40
2.3.4	<u>Appendix R</u> - OOSI Flow Process	41
2.3.5	<u>Appendix S</u> - OOSI-R Flow Process	42
2.3.6	<u>Appendix T</u> - Inspection Test Plan – Sample	43
2.3.7	<u>Appendix U</u> - Project Reporting Forms (Daily & Monthly)	44
2.3.8	<u>Appendix V</u> - Project QC Forms for Tanks	45
2.4	SECTION 2.4 – CONTRACTING	
2.4.1	<u>Appendix W</u> - Contract Agreement	46
2.4.2	<u>Appendix X</u> - Particular Conditions of Contract	47
2.4.3	<u>Appendix Y</u> - Tender and Price Submission Forms	48
2.4.4	<u>Appendix Z</u> - Tank 2 & 4 OOSI Upgrade High Level Timeline	49

SECTION 1

REQUEST FOR QUOTE

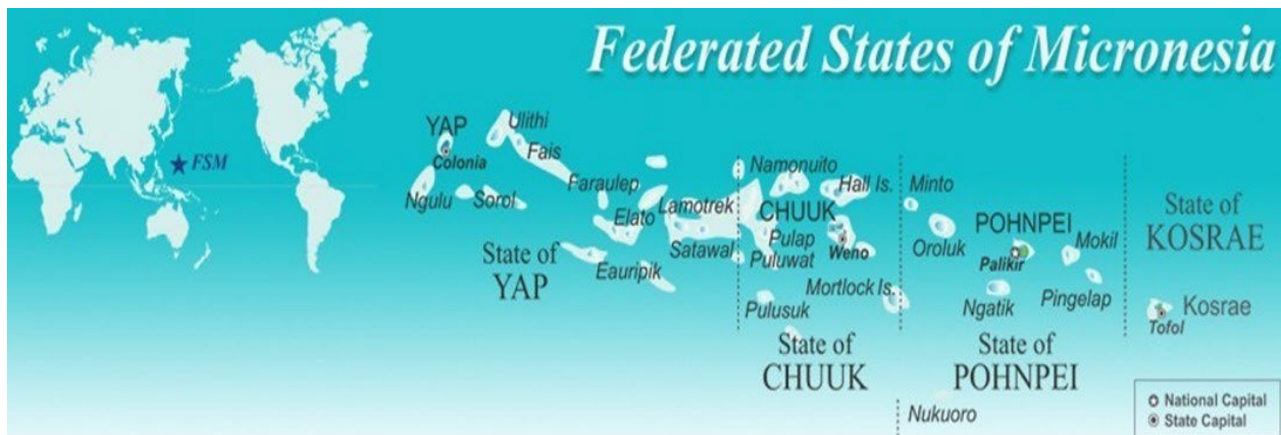
Table of Contents

1	BACKGROUND.....	0
2	OBJECTIVES.....	2
3	FINAL RFQ AND COMMERCIAL BID	3
4	GENERAL CONDITIONS OF THE CONTRACT.....	3
5	HOW TO RESPOND TO THIS INVITATION.....	
6	VITAL ENERGY’S RIGHTS	5
7	CONFIDENTIALITY	6
8	CONFLICT OF INTEREST.....	6
9	PROHIBITIONS	7
10	DOCUMENTATION REQUIREMENTS.....	7
11	BIDDERS TO NOTE	7
12	EVALUATION.....	7
13	CONSULTANTS	8
14	EVALUATION PROCEDURES	8
15	SELECTION DECISION.....	10
16	APPLICATION FORM AND DECLARATION	11
17	DECLARATION BY BIDDER.....	13
18	RESPONSE STATEMENTS	13
19	ATTACHMENTS	17

1 BACKGROUND

1.1 About Federal States of Micronesia (FSM)

FSM is an independent, sovereign island nation, made up of four states from west to east: Yap, Chuuk, Pohnpei and Kosrae. The FSM is located approximately 4,000 km southwest of the main islands of Hawaii and about 2,900 km north of eastern Australia, and east of Palau and the Philippines.



1.2 About FSM Petroleum Corporation (VITAL ENERGY)

FSM Petroleum Corporation (d/a Vital or VITAL ENERGY or the Corporation) is a state-owned energy services company with an experienced, qualified and trained workforce of over 120 people with combined petroleum and aviation fuel handling team experience exceeding 150 years. Vital is the largest energy supplier in the FSM.

In addition, Vital is an independent terminal operator who owns, operates and/or leases over seven fuel terminals, thirty-seven storage tanks and pipeline systems, and a fleet of fourteen bulk trucks and aviation fuellers across Micronesia.

Operations conducted by Vital include:

- Road tanker deliveries and drum filling services from Vital's four Bulk Terminals;
- Marine bunkering at each main port in Pohnpei, Chuuk, Yap and Kosrae;
- Plane re-fueling operations in four of the eight international airports of the region (Yap, Chuuk, Pohnpei and Kosrae); and
- Sale of a variety of lubricants and chemical solvents.
- Nauru Terminal Operations.

Vital was formed after it acquired the operations and assets of Mobil Oil Micronesia Incorporated in the Federated States of Micronesia ("FSM") in June 2008. Vital took over a business which had operations, existence and experience in Micronesia of over 50 years.

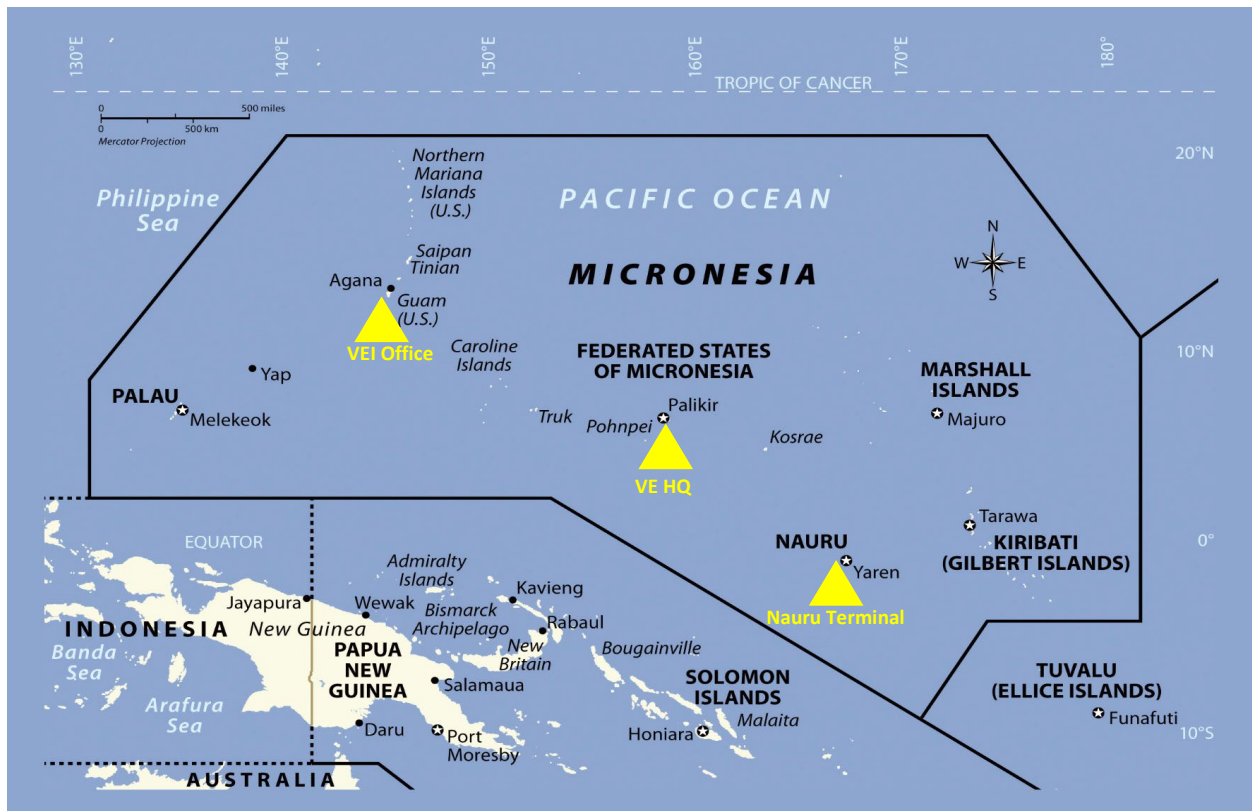
1.3 About Vital Energy Inc (Nauru)

Vital Energy Inc (VEI) is a corporation that was established in Guam for the operations and management of Nauru Fuel Terminal. The operations was formed in 2015 after the award of the fuel terminal management by Government of Nauru (GoN)

Operations consist of:

- Road Tanker delivery of fuel to gas station, utilities and other major customers.
- Plane re-fueling operations in Nauru.
- Sale of lubricants and chemical solvent.
- Bunkering of products on-shore and off-shore.
- Project Management oversight for all terminal asset's maintenance and upgrades.

VEI and GoN representatives have developed the Capital Allocation Plan (CAP) for Terminal Remedial Upgrade Plan (TRUP) for 10yrs. As part of the Asset Management and Maintenance Plan (AMMP), there are tank out of service repairs scheduled for 2024, Tank 2 and Tank 4 works are part of the upgrade program.



2 OBJECTIVES

Vital Energy Inc (VEI) is inviting interested API650 and API653 Tank contractors to carry out the repairs for Tank 2 and 4 in Nauru Fuel Terminal. The works shall be carried out in accordance with API653 and JIG 2 Standard requirements for all inspection and repairs. The tank shall be repaired and commissioned to be able to store Diesel, Unleaded and Jet A1 as these tanks can be used as swing tanks. The contractor shall be competent and have proven experiences working on vertical fuel storage tanks. The project scope for Tank 2 and 4 attached as **Appendix A & B** respectively.

Currently Tank 2 has holding Diesel and Tank 4 has Jet A1. VEI Operations team will have the tank product transferred and empty of product. Operations team will perform as follows,

- **Tank 2** – Vital Operations team will transfer product from the tank into another ADO tank. This tank will have approx. 500liters of slops/ Sludge remaining that will need to be removed and treated. The contractor shall be responsible for cleaning to commissioning of the tank and attaining fitness for service, they will then hand over the tank to Operations team.
- **Tank 4** - Vital Operations team will transfer product from the tank into another Jet A1 tank. This tank will have approx. 500 liters of slops/ Sludge remaining that will need to be removed and treated. The contractor shall be responsible for cleaning to commissioning of the tank and attaining fitness for service, they will then hand over the tank to Operations team.

A copy of Nauru Terminal Layout is also provided in **Appendix C**. Tank details of the upgrade shall be provided after the API653 Inspection and Recommendation report. **Vital** appointed Tank Engineers shall be responsible to provide all construction, upgrading and associated drawings for the Tanks and any modifications of any pipeline connecting to the tank ensuring the tanks shall be returned in operational state after commissioning.

We have also provided a copy of Contractor Safety Admin Requirements (CASR) which establishes Vital Energy's contractual guidelines for a contractor company's management on safety (refer to **Appendix J**). Should Bidders have own CASR guidelines; Vital Energy can review and comment on its suitability with company's guidelines. Vital Energy's CASR will take precedence over the contractors HSSE plan or whichever is stringent.

In accordance with the detailed requirements set forth in this Invitation to Tender (ITT) document to bid for **Nauru Tank 2 & 4 API653 Out of Service Inspection, Repairs and to meet JIG requirements for multi grade product storage (only the current products stored in Nauru)**.

2.1 Tendering Phases

The entire tendering process will consist of three phases, all bidders shall provide complete documents as requested:

1. Expressions of Interest

2. Review and Shortlist reputable contractors
3. Final RFQ and Commercial Bid

2.2 Pre-Qualification

Pre-Qualification bid review, the Bidder's Proposals in response to the ITT will be evaluated on a technical basis, which includes the following:

- Proven records of API 650 and API653 Tank Works.
- Technical understanding of JIG Standards and requirements.
- Safety Management System (may include audit);
- Quality Management System (including forms and templates)
- Completed projects including projects of similar type;
- References;
- Last 3 years financial statements;
- Organization Structure and Management Team;
- Technical capabilities;
- Existing litigations disclosures;
- Regional presence;

3 FINAL REVIEW AND NOTICE OF AWARD

At the end of the Bid Assessment phase, VITAL ENERGY shall release a Notice of Award (NOA) in discussion with the successful Bidder.

The NOA shall be released and successful bidder to provide the following,

- 5% Performance bond – 10 Days
- Quality Management Plan – 30 working days
- Project Schedule detailed in line with the WBS Template.

4 GENERAL CONDITIONS OF THE CONTRACT

The Conditions of Contract comprise the "General Conditions", which form part of the **"Conditions of Contract for Nauru Terminal Tank 2 and 4 OOSI-R & JIG Upgrade"** AS 4920 -2003 General conditions of conduct for the provisions of asset maintenance and services.

Please refer to **Appendix T** for Sub-Clauses of the General Conditions which need to be commented by Bidders in response to the ITT as part of the submission due on as stated in the Timelines and Milestones table.

4.1 Timeline and Milestones

The contracting timeline and milestones are summarized below:

	Subject	Indicative Due Date
1	Release of Expression of Interest (Eoi)	24 March 2024
2	Closing Date for Eoi Submission	4 April 2025
3	Eoi review and shortlisting	8 April 2025
4	Release of Invitation To Tender	11 April 2025
5	Submission from Bidders on proposed Changes and Clarifications to the Technical Standards	20 May 2025
6	Submission of the Tender, and Bid Bond	30 May 2025
7	Notice of Award	12 June 2025
8	Signing of Contract Agreement	30 June 2025
9	Issue of the Performance Security	10 July 2025
10	Site Possession to contractor	15 July 2025

5 INSTRUCTION TO BIDDERS

1.1. VITAL ENERGY Contact Officer

- a. All enquiries regarding this ITT should be directed via email to:
rfp@fsmmpc.com
- b. Addressed to:
PO Box 1762, Kolonia, Pohnpei FM 96941
Email subject: **"ITT- Nauru Terminal Tank 2 and 4 OOSI-R & JIG Upgrade Works"**
- c. Any contact with any other VITAL ENERGY staff member relating to this ITT other than through the Vital Energy Contact Officer may, at the absolute discretion of the Chief Executive Officer, invalidate the ITT submission.

5.1 Documents to be Lodged

- a. Operational Philosophy and Technical Standards for each of the Sections have been prepared by Vital Energy and are included within this ITT. The final technical requirements will be distributed only to the firms that will be evaluated as qualified following the Pre-Qualification phase.

- b. All documents which form part of this ITT dossier shall be considered explanatory of each other. Potential ambiguities in the documents and/or contradictions among them can be resolved by written instructions of the VITAL ENERGY.
- c. Bidders are required to fully complete and return the following documents:
 - i. Cover sheet;
 - ii. Application form;
 - iii. Response statements;
 - iv. A commercial proposal **Appendix S (All Forms shall be completed)**;
 - v. Quality Management System processes and documentation.
 - vi. Safety management system or any other related information existing for the Bidder;
 - vii. References (relevant);
 - viii. Last 3 years financial statements;
 - ix. Organisation structure and management team;
 - x. Technical capabilities;
 - xi. Existing litigations along with current status;
 - xii. Regional presence;

5.2 Lodgement Requirements

- a. Please provide one (1) pdf electronic copy of your proposal via email as follows:
 - i. Email subject: **"ITT- Nauru Tank 2 & 4 OOS-R & JIG Upgrade"**
 - ii. Proposals are to be received by:
rfp@fsmnpc.com no later than 5:00pm, GMT +11, 30May 2025. ,
 - iii. Proposals received after the above due date and time will not be considered
- b. One set of physical responses lodged by mail will be accepted addressed as following:
 PO Box 1762, Kolonia, Pohnpei FM 96941
"ITT- Nauru Tank 2 & 4 OOS-R & JIG Upgrade"

6 VITAL ENERGY'S RIGHTS

Vital Energy may:

- a. amend this ITT;
- b. require additional information or clarification from Bidders;
- c. provide additional information or clarification to Bidders;
- d. negotiate with any one or more Bidders including terminating any negotiations being conducted from time to time;
- e. not release a RFQ;

- f. change the structure and timing of tendering process at any time, VITAL ENERGY can terminate the ITT process if:
- g. it is in the public's interest to do so;
- h. no response meets the minimum content and format requirements (e.g. Mandatory requirements about responses);
- i. no Bidders meets the conditions for participation (e.g. mandatory requirements about Bidders (such as the Bidders holding a particular license);
- j. no Bidder is fully capable of undertaking the services; or
- k. no Proposal represents value for money.

If it terminates the ITT process, VITAL ENERGY may:

- a. negotiate with any one or more of the Bidders or any other person for the supply of all, or any, of the services;
- b. call for new proposals;
- c. engage in any other selection process for the supply of the services;
- d. add to, alter, delete or exclude any services;
- e. short list Bidders;
- f. negotiate with any person who is not a Bidder and enter into a contract with that person on terms determined by VITAL ENERGY;
- g. allow or not allow a related body corporate or other entity to take over a response in substitution for the original Bidder;
- h. enter into any arrangements which will best meet VITAL ENERGY's needs;
- i. allow a Bidder to correct an unintentional error or form in a response; and
- j. suspend the ITT (on the same basis as termination).

Nothing in this ITT or arising from the ITT process shall give rise to any contractual obligations binding VITAL ENERGY (including a process contract). No proposal will be taken to have been accepted unless and until a contract is executed between the relevant vendor and VITAL ENERGY. Any conduct or statement by VITAL ENERGY whether prior to or subsequent to the issue of the ITT is not, and must not be deemed to be:

- a. An offer to enter into a contract; or
- b. A binding undertaking of any kind by VITAL ENERGY (including, without limitation, an undertaking that could give rise to quasi-contractual rights, promissory estoppels or rights with a similar legal basis).

7 CONFIDENTIALITY

All information submitted with a Bidder's submission will be treated as confidential to VITAL ENERGY and its consultants.

8 CONFLICT OF INTEREST

Bidders, at the time of lodging their proposal, must declare any conflict of interest that exists, or is likely to arise, which would affect the performance of their obligations, if the Bidder were to enter into a contract with VITAL ENERGY.

In the event of a conflict of interest being identified, VITAL ENERGY may, at its discretion, exclude the proposal from further consideration.

9 PROHIBITIONS

Bidders must not:

- a. make false or misleading statements;
- b. receive improper assistance from VITAL ENERGY employees;
- c. engage in collusive tendering or anti-competitive conduct; or
- d. attempt to improperly influence VITAL ENERGY's employees.

10 DOCUMENTATION REQUIREMENTS

Bidders are to be aware that the tender and subsequent contract documentation requirement for each project is inclusive of plans and other documents to satisfy both VITAL ENERGY and the processes of all relevant authorities.

Vital Energy requires all additional documentation from the contractor within 30 working days from the Notice of award, the following shall be submitted,

11 BIDDERS TO NOTE

The issue of this ITT, or any Proposal to it, does not commit, obligate or otherwise create a legal relationship between VITAL ENERGY and a Bidder in respect of:

- a. an obligation on VITAL ENERGY to issue an RFQ to a Bidder;
- b. VITAL ENERGY entering into a contract with a Bidder; or
- c. the process to be followed in handling any responses.

In no event will VITAL ENERGY be liable for any cost, expense, loss, claim or damage arising out of a Bidder's participation in this ITT process or any subsequent RFQ.

12 EVALUATION

The decision to approve or reject a submission for evaluation is at the absolute discretion of VITAL ENERGY, who shall not be held liable for any costs incurred or damages arising out of such discretion.

The evaluation may involve discussions with some or all Bidders to seek further clarification of their submissions, requests to some or all Bidders to provide written clarification of various aspects of their submissions and discussions with and visits to, customers of some or all Bidders and their subcontractors, whether or not those customers are listed as referees in the Bidder's submission.

The providers submitting a Proposal will be assessed against the following evaluation criteria. VITAL ENERGY may make independent enquiries about any matters that may be relevant to the evaluation of a submission.

Submissions will be evaluated against the following criteria, which are not specified in any order of importance:

- a. **Criterion 1:** Demonstrated capability and capacity to undertake these sections for VITAL ENERGY;
- b. **Criterion 2:** The suitability of the Bidder's Proposal to meet VITAL ENERGY's requirements;
- c. **Criterion 3:** Demonstrated ability to complete projects on time, on budget and to agreed quality standards; and
- d. **Criterion 4:** Demonstrated financial capacity and capability to undertake projects for the duration.

13 CONSULTANTS

To assist VITAL ENERGY with the evaluation process VITAL ENERGY may employ the services of consultants to assist in all or part of the evaluation. All information will be treated as Commercial-in-Confidence.

14 EVALUATION PROCEDURES

VITAL ENERGY will appoint an evaluation committee to evaluate the proposals received.

Each Bidder grants to VITAL ENERGY the right to:

- a. seek clarification from the Bidder in relation to any information contained in its proposal;
- b. obtain information from any referee nominated in its proposal;
- c. conduct its own inquiries in relation to the Bidder or the Bidder's past performance; and
- d. make independent enquiries about any matter that may be relevant to the evaluation of any response.

Where VITAL ENERGY requests any clarification from a Bidder, VITAL ENERGY:

- a. may nominate a time for any response by the Bidder; and shall be entitled to:
 - i. rely on the information provided in the proposal where a response is not provided within the time nominated by VITAL ENERGY; and
 - ii. reject any information.

Where VITAL ENERGY believes that more than one Bidder is able to satisfy its requirements, VITAL ENERGY may:

- a. develop a short list;
- b. seek additional information from one or more Bidders to enable it to complete its evaluation; and

- c. request one or more Bidder to make a formal presentation.

ITTs are to be assessed on the basis of Value for Money as between VITAL ENERGY and the Bidders. Value for money is a comprehensive assessment that takes into account both the representations made by Bidder against the evaluation criteria, in the context of the risk profile presented by each response.

14.1 Evaluation Matrix

The evaluation matrix below reflects the obtainable score specified for each evaluation criterion which indicates the relative significance or weight of the items in the overall evaluation process.

Evaluation criteria	Score Weight (%)	Points obtainable
Mandatory Requirements		
1. Evidence of experience with similar projects and referee contacts 2. Proposed workplan and design of the system	Mandatory requirements. Bidders will be disqualified if any of the requirements are not met	
Requirements		
<ul style="list-style-type: none">Experience- Evidence of previous work, certifications, and relevant qualifications of key staff and on-site team. Review of the contractor’s experience in successfully completing similar projects (petroleum storage and distribution asset engineering and quality control, management system design and audit, tank installations, and piping systems).	30%	300
<ul style="list-style-type: none">Technical – Evidence of good quality management system established in the organization, keep long term welder qualification records from past projects of similar nature. Having good knowledge and able to demonstrate in documentation how the team work with requirements of applicable Standards such as API 653, API650, and JIG Standards.	30%	300

<ul style="list-style-type: none"> • Project Delivery. Understanding of the project scope, challenges, and requirements. This includes the ability to identify key design risks, stakeholder management risks and provide clear mitigation strategies or experiences in addressing them. Availability of resources to be deployed to island to manage and deliver the Project through its phases. Demonstrating familiarity with local – Pacific island – limitations, poor documentation and records management systems, and regulations and best practices and approaches. 	20%	200
<ul style="list-style-type: none"> • Compliance with Environmental and Safety Standards. Evidence of contractors Evaluation of the contractor's commitment to safety and environmental practices, including risk assessments, health and safety protocols, waste management, and adherence to environmental regulations during installation 	10%	100
<ul style="list-style-type: none"> • Pricing – Evidence of contractor's good financial stability and able to successfully execute the project from start to completion, ability to finish the project within proposed budget. Has a team to successfully price and complete the project within budget. 	10%	100
Total	100%	1000

15 SELECTION DECISION

All successful Bidders will be informed in writing of the outcome of the bidding process at its conclusion and will be offered the opportunity for a presentation to VITAL ENERGY.

16 APPLICATION FORM AND DECLARATION

Bidder's Legal Name:			
Bidder's Business or Trading Name:			
Date when Business Commenced Operation:			
Legal entity of above for Registration/Contracting (Tick as applicable)			
Evidence of Legal Entity attached			
Business Address:			
Postal Address:			
Contact Person:			
Contact Number (s):	Bus:	Cell:	
Facsimile Number:			
Email Address:			
Preferred Method of Delivery of Information:	Email	Fax	Postal
Membership Details of Industry Association(s) (if applicable):			
Licence No. & Type			
Copy of License Attached			

COMPANY DETAILS (to be completed by Companies only):

Date of Registration:	
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<i>A copy of registration documents must be submitted on initial registration and if name change occurs</i>	
Is company involved in any trust relationships? <i>If yes, give full details</i>	
If a subsidiary company, state name of holding company.	
If a holding company, state names of divisions, and/or subsidiaries	
State Trading Name	

BUSINESS DETAILS (to be completed by Sole Traders and Partnerships only):

State whether a Sole Trader, or Partnership	
State names and address of all members of business.	
State Trading Names	

ADDITIONAL DETAILS

Have you, or any business you have been managing, ever failed to complete a construction contract?	Yes/No (If yes, please provide details)
Have you, or any business you have been managing, been declared bankrupt or been subject to repossession proceedings over the last 7 years?	Yes/No (If yes, please provide details)
Are there any judgment debts or court orders against the Bidder?	

17 DECLARATION BY BIDDER

I/ We have noted and accept all the conditions contained in this Request for Expressions of Interest.

I/ We hereby submit the Expression of Interest with the Federated States of Micronesia Petroleum Corporation (VITAL ENERGY) and declare that to the best of my/our knowledge the particulars shown herein are true and correct.

Date:	
Signed for the Bidder by:	
In the Officer Bearer capacity of:	
Name (<i>IN BLOCK LETTERS</i>):	

18 RESPONSE STATEMENTS

- Bidders are required to demonstrate, to VITAL ENERGY's satisfaction, that they have the capability, capacity, experience and financial standing to manage and deliver the construction services required by VITAL ENERGY.
- Bidders must provide Response Statements to the evaluation criteria that are identified in the ITT, which incorporate as a minimum the following information:

Response Statement 1: Demonstrated capability and capacity to undertake Tank upgrade projects for VITAL ENERGY

18.1 Availability of Professional Staff

- Bidders are to provide details of all senior tank construction staff, showing their qualifications and experience, including any membership of relevant professional associations, and providing details of current and anticipated project commitments.
- Bidders are to provide the details of workers that are still in the organisation from the past and some recent projects.
- All Welders on the project shall hold current ASME Boiler and Pressure Code Section 9 for qualifications with approved weld procedures.

18.2 Key Management Personnel

- Bidders should provide a list of all Directors, Partners, and Executives, and indicate any relevant cross-directorships that could potentially either support or be in conflict with a contractual relationship with VITAL ENERGY.

18.3 Use of Subcontractors

- Bidders are to nominate the work proposed to be subcontracted and provide details of the intended businesses to do this work. Only parts of the work such as protective coating and any of their internal inspection shall be contracted out.
- Details are to include the qualifications and experience of the personnel intended to undertake the VITAL ENERGY projects, including membership of relevant professional/ trade associations.

18.4 Quality Management

- Bidders are to provide details, and where possible examples, of their quality management system and the status of implementation.
- Written quality plan to be submitted 30 days after the Notice of Award.

18.5 Risk Management

- Bidders are to provide details, and where possible examples, of their risk management policies and approach to risk management, together with details and copies of current insurance coverage. Insurance policy details should include the type of policy, the name of the insurer, the amount of cover and the expiry date as a minimum.
- Successful Bidders may be required to carry current Indemnity Insurance, Public Liability and Workers Compensation with a reputable and secure insurance provider.

18.6 OH&S and Industrial Relations Policies

- Bidders are to provide details, and where possible examples, on the establishment and implementation of OH&S Plans both generally and on specific projects. Bidders are also to provide details of any of the following to which it is a party or for which it has arrangements in place:
 - a. Enterprise agreements, together with expiry dates;
 - b. Superannuation Agreements;
 - c. Redundancy Schemes; and
 - d. long Service Leave.
- Bidder are to provide HSSE Plan for the project 30 days after the Notice of Award. Within the plan, the following must be clearly outlined,
 - a. Site barricade system.
 - b. Site Access Control for authorized workers and visitors

- c. Emergency Response
- d. Medical Evacuation

Response Statement 2: Demonstrated ability to complete construction projects on time, on budget and to agreed quality standards

18.7 Current Projects

- Bidders are to provide details of all residential construction work currently in hand, providing:
 - a. project name and description;
 - b. contract sum; and
 - c. start dates and expected completion dates.

18.8 Completed Projects

- Bidders are to provide the following details of relevant Tank projects completed within the last 24 months.
 - a. the initial contract sum;
 - b. the end contract sum;
 - c. an explanation of the variation in the contract sum (eg. client-initiated variations, disputes leading to claims etc);
 - d. details of any claims (other than progress claims) over \$50,000 made by either party to the contract;
 - e. details of any issues which arose and how they were resolved; and
 - f. any added value for money achieved on those projects.

18.9 Contract Administration

- Bidders should provide details, and where possible examples, of their approach to contract administration, including quality control, risk management, cost control, programming, timely completion and standards compliance.

18.10 Defect and Warranty Performance

- Bidders should provide details, and where possible examples, of their approach to defect and warranty performance during warranty periods and contract finalization.
- There shall be 10% retention held for period of 12months for this project.

18.11 Referees

- Bidders are to nominate and provide contact details of at least three referees who can verify or provide information from a client perspective regarding previous experience, quality of work, performance and timely completion of projects.

Response Statement 3: Demonstrated financial capacity and capability to undertake housing construction projects for the duration of the Panel of Builders' arrangements

18.12 Financial Capacity & Capability

- Bidders are required to submit full and comprehensive financial information e.g. Annual Reports and Financial Statements for a formal financial assessment, which may be carried out by VITAL ENERGY's independent financial consultant. The financial information provided is to be in respect of the legal entity of the Bidder, but corporate relationships that may be relevant should be stated. When the Bidder is a subsidiary, the information provided is to be in respect of the Subsidiary and not its Holding Company.
- Note that if a Subsidiary does not have sufficient financial capability in its own right, assessment may be sought in the name of the Holding company, or in the name of Holding and Subsidiary Companies, joint and severally. It should be noted that pre-qualification of an entity or entities, if achieved, will not extend to other associated or subsidiary entities owned or controlled by the Bidder.

Response Statement 4: Additional Information

- Bidders should provide any additional information they consider relevant in support of their Tender Document.

DATE: _____

SIGNATURE: _____

19 ATTACHMENTS

<i>Appendix A</i>	<i>Nauru Tank 1 Scope of Upgrades Works</i>
<i>Appendix B</i>	<i>Nauru Tank 4 Scope of Upgrade Works</i>
<i>Appendix C</i>	<i>Project Objectives and Deliverable</i>
<i>Appendix D</i>	<i>Tank 4 Data Table</i>
<i>Appendix E</i>	<i>Tank 2 Data Table</i>
<i>Appendix F</i>	<i>Project Architecture – Roles and Responsibilities</i>
<i>Appendix G</i>	<i>Tank General Arrangement Drawings – Construction drawing issued after inspection</i>
<i>Appendix H</i>	<i>Nauru Terminal Layout</i>
<i>Appendix I</i>	<i>Tank 2 OOSI Report – issued after inspection</i>
<i>Appendix J</i>	<i>Tank 4 OOSI Report – issued after inspection</i>
<i>Appendix K</i>	<i>Vital HSSE Policy</i>
<i>Appendix L</i>	<i>Contractor Safety Administrative Requirements</i>
<i>Appendix M</i>	<i>Nauru Terminal Hazard Drawing Layout</i>
<i>Appendix N</i>	<i>FSMPC Tank Cleaning Guidelines</i>
<i>Appendix O</i>	<i>Vital’s Payment Process</i>
<i>Appendix P</i>	<i>Vital Energy Tank Work Breakdown Structure</i>
<i>Appendix Q</i>	<i>FSMPC GP External and Internal Painting of Bulk Tanks</i>
<i>Appendix R</i>	<i>OOSI Flow Process</i>
<i>Appendix S</i>	<i>OOSI-R Flow Process</i>
<i>Appendix T</i>	<i>Inspection Test Plan – Sample</i>
<i>Appendix U</i>	<i>Project Reporting Forms (Daily & Monthly)</i>
<i>Appendix V</i>	<i>Project QC Forms for Tanks (including all Tank and aviation forms)</i>
<i>Appendix W</i>	<i>Contract Agreement</i>
<i>Appendix X</i>	<i>Particular Conditions of Contract</i>
<i>Appendix Y</i>	<i>Tender and Price Submission Forms</i>
<i>Appendix Z</i>	<i>Tank 2 & 4 OOSI Upgrades High Level Timeline</i>

SECTION 2

ATTACHMENTS

- Section 2.1 - Construction Documents
- Section 2.2 - Health, Safety, Security & Environment
- Section 2.3 - Vital's Standards and Specifications
- Section 2.4 - Contracting

SECTION 2.1

CONSTRUCTION DOCUMENTS

- Appendix A Nauru Tank 2 Scope of Upgrade Works
- Appendix B Nauru Tank 4 Scope of Upgrade Works
- Appendix C Project Objectives & Deliverables
- Appendix D Tank 4 Data Table
- Appendix E Tank 2 Data Table
- Appendix F Project Architecture - Roles and Responsibilities
- Appendix G Tank Drawings – **Issued after inspection**
- Appendix H Nauru Terminal Layout
- Appendix I Tank 2 OOSI Report – **issued after inspection**
- Appendix J Tank 4 OOSI Report – **issued after inspection**

Appendix A

Nauru Tank 2 Scope of Works

Nauru Terminal – Scope for Nauru Tank 2 OOSIR-JIG Upgrades

Rev	Date	Description	Prepared By	Checked By	Approved
A	6 Feb 2025	Issued for Approval	AS	JCM	JCM
B	09 May 2025	Issued for Bid	AS	JCM	

1 Introduction

Vital is an independent terminal operator who owns, operates and/or leases critical oil import, storage and distribution infrastructure throughout Micronesia. The company has control over seven fuel terminals, thirty-seven storage tanks and pipeline systems, and a fleet of fourteen bulk trucks and aviation fuellers across Micronesia.

Vital is undertaking remedial and upgrade work to the Nauru Fuel Storage Terminal in accordance with Government approved *2022 Terminal Rehabilitation and Upgrade Plan (TRUP)*. The TRUP is designed to progressively reduce operational risks, improve compliance and efficiency over time.



1.1 Operations conducted by Vital include:

- Road tanker deliveries and drum filling services from Vital’s four Bulk Terminals;
- Marine bunkering at each main port in Pohnpei, Nauru, Yap and Kosrae;
- Plane re-fueling operations in four of the eight international airports of the region (Yap, Nauru, Pohnpei and Kosrae); and
- Sale of a variety of lubricants and chemical solvents.

Vital was formed after it acquired the operations and assets of Mobil Oil Micronesia Incorporated in the Federated States of Micronesia (“FSM”) in June 2008. Vital took over a business which had operations, existence and experience in Micronesia of over 50 years. The corporation operates as

Vital Energy Incorporated in Guam and Nauru

- FSM Petroleum Corporation in the FSM.
- Further information including annual reports and audit reports can be found at

[FSM National Public Auditor: Home.](#)

2 Objective

The Objectives and Deliverables for this project are included in Appendix C.

The Bidder is invited to comment or request information.

3 Tank Data

Summary tank details are included within Attachment in Section 2.1 - Appendix E – Tank Data Sheet.

4 High Level Scope & Responsibilities

The high-level scope throughout the Nauru Tank 3 project life cycle is noted with stakeholder responsibilities as follows: refer to project architecture document for more detail.

Table A – Scope Responsibility

Scope	Responsible party
HSSE & Contractor Induction & SWP	Vital HSSE Team
Contractor Site Mobilization and Work Area	Contractor
Site Safety Monitoring	Nauru Terminal OIC
Site Clearance & Work Monitoring	Vital OSS
Complete tank stripping and isolation – Completed	Vital Operations
Carry out tank cleaning and sludge disposal –	Contractor
Issue Tank gas-free and CSE certification	Vital OSS or OIC
Carry out API653 Internal/External Inspection & Report	3 rd Party Inspection Company
Carry out design & engineering within planning phase	Vital PM, or Tank Engineers
Complete tank upgrades per Scope of Work (API653 & JIG)	Tank Engineers
Completion of Tank Works ITP/ Methodology/ QAQC/ Safety Plan	Contractor
JIG and Tank Forms issuance & completion	Vital Quality Assurance Manager
Engineering and technical Support	Tank Engineers
Provide engineering construction support	Tank Engineers
Carry out API653 Post Repair Inspection coordinated by contractor	3 rd Party Inspection Company
Carry out Tank Calibration & Report coordinated by contractor	3 rd Party Inspection Company
Issue Tank Fitness for Service Certificate	3 rd Party Inspection Company
Project Management of Engineering and Design	Vital PM

5 High Level Milestones and Deliverables

The high-level milestones throughout the Tank 2 project life cycle are noted with target dates set from the Notice of Award (NOA). Scheduling is aggressive with Vital approval set at Ten working

days, and the assumption of contract finalization being a maximum of Ten working days per contract. High level costs are detailed in Section 7.1.

Table B – Milestone & Deliverable list

Milestone & Deliverables	Target Date
M1 – Contract Establishment	
D1 - Release of Proposal for Quotation	
D2 - Contractors Proposal	
D3 - Bid Review and Award	
D4 - Issue Notice of Award	
D5 - Contract Signing	
M2 – Contractor Mobilization & Site Safety	
D1 – Contractor Site Office & Work area Establishment	
D2 – Contractor Team Induction, Audit Contractors, and Permitting Approval	
D3 – Area Barricade/ Signages/ Control Access/ Visibility/ Monitor & Maintain	
M3 – Tank Cleaning & Isolation	
D1 – Product Transfer & Empty Tank to lowest level	
D2 – LOTO Process & Signages	
D3 – Tank cleaning and Sludge Disposal (to approved treatment facility)	
M4 – Tank Internal Repairs & Upgrades	
D1 – New Ring Beam Construction	
D2 - Tank Floor & Sump Replacement	
D3 – NDT Inspection on Welding	
D4 – Hydro Testing and Report	
M5 – Tank Shell Welding Repair & Upgrade Works	
D1 – Strake 1 Shell Plate Replacements	
D2 – Replacement of All Tank Shell Nozzles	
D3 – Tank Shell Repairs	
D4 – Installation Fire System support brackets	
D5 – NDT Inspection on Welding	
M6 – Tank Roof Repairs & Upgrades	
D1 – Replace all Roof Nozzles	
D2 – Installation of Stilling Well	
D3 – Installation of New Roof Hatch	
D4 – Repairs/ Replacement of Handrails	
D5 – Installation of Fire Systems support brackets	
D6 - NDT Inspection on Welding	
M7 – Post Repair Inspection	
D1 – Post Repair Inspection Report	
D2 – Highlight issues or defects rectified.	
M8 – Tank Internal Blasting & Coating	
D1 – Tank Internal Blasting	
D2 – Tank Internal Coating (Prime & Finish Coat with JIG approved coating)	
D3 – Coating Inspection and Reports	

D4 – Soak Test Report
M9 – Tank External Blasting & Coating
D1 – Tank External Blasting
D2 – Tank External Coating (Prime & Finish Coat)
D3 – Coating Inspection and Reports
M10 – Ancillary Fittings & Final Reports
D1 – Outlet Nozzle as per Aqua ¹ Standard – Annex XXX
D2 – Installation of Roof Nozzles
D3 – Quick Flash Tank Piping Installation
D4 – Installation of Ground Level Indicator
D5 – Tank Pipework connections
D6 – Tank Calibration and Reports
D7 – Tank and JIG QC Forms Completed
D8 – Fitness for Service Report
D9 – Tank Labelling
M11 – Demobilizing
D1 – Tank Handover
D2 – Site Equipment/ Materials/ Waste Removal
D3 – Documentation and Handover/ Contract Closed
D4 – Site Cleanup and Worker Demobilization

6 Milestones Definitions

6.1 Contract Establishment:

Contract establishment is a critical phase in the project lifecycle that ensures clear terms, responsibilities, and expectations between the contracting parties.

The contract negotiation process involves defining the Scope of Work, lump sum and fixed pricing components, payments, management of risks.

The contract shall incorporate the project Objectives, and the Deliverables that confirm objectives have been achieved.

6.2 Contractor Mobilization and Site Safety

Contractor mobilization and site safety are critical phases in ensuring a smooth, safe, and compliant execution of the Project.

Contractor shall efficiently deploy personnel, equipment, and resources while ensuring full compliance with project, safety, and regulatory requirements.

Refer to *Section 2.2 Appendix L - Contractor Safety Administrative Requirements*.

¹ Aqua Standard – XOM Standard document – Outlet Nozzle design shall be provided.

6.3 Tank Cleaning & Isolation

Tank Stripping. The terminal operations team are responsible for stripping the tank and the transfer of all product out of the tank. The tank will be free of free-standing product at this time.

Tank Isolation. The OIC shall establish and implement the SWP for the lockout, tagout and isolation of the tank. The terminal operations team shall determine and estimate the sludge that will remain in the tank following the tank stripping process. The tank will be opened, and where necessary wind tunnels and exhaust fans are installed to facilitate and confined space entry for tank cleaning.

Confined space entry (CSE) and tank cleaning. The Contractor shall conduct the final tank cleaning. The contractor shall have all necessary equipment for CSE entry, such as forced air breathing apparatus, rescue equipment's, sludge removal and storage equipment and necessary PPE for this activity. All tank sludge shall be removed and packed into ISO containers supplied by contractor who will take away from site for further treatment and disposal by the contractor and report submitted to project manager to confirm the disposal process.

Vent Extension during works. The contractor shall be responsible for the vent extensions and supplying of all related materials and skills required. For the arrangement of vent, refer to the sketch in Appendix N Section 3 of FSMPC Tank Cleaning Guidelines. The site work perimeter will be set between Vial OIC and Contractor's representative, the specified area shall be sufficient for erection of scaffolding and doing hot works. Vital OPS team shall have sufficient space to work on adjacent tanks for their normal operations.

Gas Free for Hot Work in a Tank Compound. Ventilation shall be approved by OIC or SAFER Manager, contractor can then proceed with works. All works in the designated area inside the tank farm and outside (Workshop Area) shall be covered with JSA prepared by contractor for review and approval for Safe Work Permit preparation. Works inside the tank shall be covered under Confine Safe Entry Permit.

6.4 Tank Internal Repairs & Upgrades

Tank internal repairs and upgrades are essential to ensure the structural integrity, safety, and compliance of aviation fuel storage tanks. These activities must follow API 653 standards and align with Joint Inspection Group (JIG) guidelines to maintain fuel quality, prevent contamination, and extend the tank's service life. Tank Shell Welding Repairs and Upgrade Works

Tank shell welding repairs and upgrades are crucial for maintaining the structural integrity, safety, and compliance of aviation fuel storage tanks. All welding procedures must adhere to API 653 (Tank Inspection, Repair, and Alteration), API 650 (Tank Construction), and JIG (Joint Inspection Group) standards to ensure safe fuel storage and prevent leaks, contamination, or failures. Tank Shell strake 1 needs replacement inspected and works confirms API653 Standard. All Welds shall

be inspected, and NDT works performed, after approval the next work activity such as coating can be proceeded. All tank nozzles shall be replaced, the position of the outlet, inlet and water drain shall align to the new pipeline that is currently been installed. The tank shall be fitted with Cooling ring brackets and raiser pipe brackets for the future Fire Suppression System. Tank Stairs require repairs in areas, and this shall be repaired to an acceptable level.

6.5 Tank Roof Repairs & Upgrades

Tank roof welding repairs and upgrades shall be done in accordance to API653 (Tank Inspection, Repair, and Alteration). This tank requires all nozzle replacements with hatches, new stilling well and hatches. Tank handrails to be replaced with new. Tank roof shall be fitted with fire system support brackets for cooling water ring for future Fire Suppression System.

6.6 Post Repair Inspection

The Post-Repair Inspection is a critical process conducted after tank repairs and upgrades to ensure structural integrity, safety, and compliance with API 653, API 650, and JIG (Joint Inspection Group) standards and this shall be arranged by Vital Project Manager with 3rd party Inspection and Verification companies. This phase involves a combination of visual inspections, non-destructive testing (NDT), hydrostatic testing, and operational checks before the tank is returned to service. Upon successful completion, the inspection company shall issue acceptance certificate.

The Contractor shall allow for internal sweep blasting of the floor and strake 1 for inspection. The surface shall be clean for better visual for the inspection team. After the blasting is completed, the contractor shall clean the internal and if any external areas have been blasted. If there are additional blasting done, the contractors' schedule of rates shall apply. During the inspection works, the tank contractor shall allow downtime or plan for other activities.

6.7 Tank Internal Blasting and Lining

Tank shall be 100% blasted and internally lined as per,

- Attachment Q - FSMPC GP External and Internal Painting of Bulk Tanks

Tank External Blasting & Coating

Tank shall be 100% blasted and coated externally as per FSMPC GP External and Internal Painting of Bulk Tanks. All stages of coating reports shall be submitted to Vital Project Manager for acceptance. All supporting structures of the tank shall be coated. Contractor to discuss with OPS team and place all Tank signages and Name Plate upon completion.

6.8 Ancillary Fittings & Final Reports

All associated tank internal pipes shall be installed and checked to ensure that they are intact with gaskets. The tank contractor shall fit out tank with Ground Level Indicator, Stilling Well, Floating Suction, QFT Connections, All Roof Hatches and Manholes, Sample Points, receiving and discharge lines. Tank pipework's are done as separate project, this tank nozzles shall be correctly oriented to match the pipeline flange. Final Inspection & Test Plan shall be submitted by the contractor with weld map and traceability matrix to confirm all welds done are by qualified welders according to API653. Vital PM to arrange for Tank calibration once all internal fittings are completed. Fitness for Service cert to be obtained by Vital PM to confirm the upgrades meet API653 acceptance. All JIG related forms shall be completed and issued to Project Manager for the creation of the Tank Master File.

6.9 Demobilizing

The final phase of a project where all temporary facilities, equipment, and personnel are systematically removed from the site, restoring it to a safe and compliant condition. This process ensures that all work areas, infrastructure, and environmental considerations meet regulatory and contractual obligations before project closure and handing over the asset to custodian.

7 Documents Submittals & Approvals

The guidelines given under API Standard 650 Annex W (Commercial and Documentation Recommendations) shall be followed.

There are several forms that shall be completed for review and approval by the Principal shall include but necessarily be limited to with the Contractor, PMO, Terminal Team, Quality Assurance Manager, and external inspectors. These are to be completed in stages at specific activity, Contractor and Vital Project Manager is responsible to have this completed before moving to the next stage and having them approved as per the table A. These forms shall be listed in the contractors Inspection Test Plan as per the sequence of works.

Table C – Documents Submittals

Document Submittals – Preparation, Review & Approval			
Form Name	Responsible	Review	Approval
Tank Data Sheet	Project Manager	SME	Tank Engineer
Out of Service Inspection Report	3 rd Party Inspector	Project Manager	Tank Engineer
Construction/ Alterations/ Repair Quality Plan	Contractor	Project Manager/ QAM/SME/OPS	Tank Engineer
General Arrangement Drawings	Tank Engineer	Project Manager/ SME/QAM/OPS	Jared Morris
Material Selection Report	Contractor	Project Manager	Tank Engineer
Tank Design Calculations	Not Required		
Tank Venting Calculations	Tank Engineer	Project Manager	Tank Engineer
Nozzle Load Computations	Not Required		
Seal Selection Materials	Contractor	Project Manager	Tank Engineer

Foundation Detail Design	Tank Engineer	Project Manager	Project Sponsor
Tank Constriction Drawings	Tank Engineer	Project Manager/ SME/QAM/OPS	Jared Morris
PWHT Requirements	Contractor	Project Manager/ SME	Tank Engineer
Weld Procedure Specifications (WPSs)	Contractor	Project Manager/ SME	Tank Engineer
Procedure Qualification Records (PQRs)	Contractor	Project Manager/ SME	Tank Engineer
Inspection Test Plan	Contractor	Project Manager/ SME	Tank Engineer
Tank Repair/ Alterations Method Statement	Contractor	Project Manager/ SME	Tank Engineer
Coating Quality Assurance Plan	Contractor	Project Manager/ SME/ QAM	Tank Engineer
Welder Testing Records	Contractor	Project Manager/ SME	Tank Engineer
Weld Map Records	Contractor	Project Manager	Tank Engineer
Post Repair Inspection Report	3 rd Party Inspector	Project Manager/ SME/ Contractor	Tank Engineer
Hydro Test Procedure	Contractor	Project Manager/ SME	Tank Engineer
EF-P903-Tank Cleaning Checklist Rev1	Project Manager	SME/OIC/QAM	Project Sponsor
EF-P907 Tank Re-Commissioning Checklist	Project Manager	SME/OIC/QAM	Project Sponsor
EF P941 Change of Service Review Checklist	Project Manager	SME/OIC/QAM	Project Sponsor
AGD-F-M100 - Fixed Tank Summary	Project Manager	SME/OIC/QAM	Project Sponsor
AGD-F-M003 - Fixed Tank Inspection and Cleaning and Internal Maintenance	Project Manager	SME/OIC/QAM	Project Sponsor
AGD-P-Z815 - Storage Tank Visual Inspection and Tank Cleanliness Assessment	Project Manager	SME/OIC/QAM	Project Sponsor
AGD-F-M100 - Inspection& Maintenance of Pipes	Project Manager	SME/OIC/QAM	Project Sponsor
AGD-P-M201 – Floating Suction Inspection	Project Manager	SME/OIC/QAM	Project Sponsor
Daily Coating Inspection Record	Contractor	OSS/ Project Manager	Tank Engineer
Coating Inspection Report	Contractor	OSS/ Project Manager	Tank Engineer
Holiday Test Report	Contractor	OSS/ Project Manager	Tank Engineer
Tank Calibration Table (Metric & Imperial)	3 rd Party Inspectors	Project Manager/ SME	Tank Engineer
Fitness for Service Certificate	3 rd Party Inspection	Project Manager	Project Sponsor
As Built Redline Drawing	Contractor	Project Manager	Tank Engineer
Final As Built Drawings – Updated	Tank Engineer	Project Manager/ SME/ OIC/ QAM	Jared Morris
Tank Master File	Project Manager	SME	Project Sponsor

8 Requirements and Scope of Services

8.1 Objective

Nauru Tank 2 is due for 10-year API653 Inspection. The tank is used for Diesel storage and all products had been transferred leaving approximately 500 litres of slops/ sludge to be cleaned and treated off island as Nauru Terminal or the Island does not have treatment and disposal facility.

Vital Energy has appointed 3rd Party Tanks inspectors for providing the services and the contractor shall be responsible for the coordination of the works once in terms of target dates for different level of inspections. Operations Team will handover the tank to the contractor for the following activities,

- **Tank Cleaning** – Secure area of work, barricaded and have access control to authorised personnel only in the designated work area. Allow tank venting and airing process for good

circulation of air, use venturi or alternative fan forced system for circulation. Re-direct vents for adjacent Tanks to take vapour away from Tank 2. Contractor is responsible for the tank cleaning, disposal and sludge treatment ensuring that the waste material is properly treated and disposed. Report of the treatment and disposal to be provided to Vital Energy.

- **Preparation for Out-Of-Service Inspection** – Sweep blast the tank floor and 1m of strake 1 for tank inspection works. Clean the tank Allow access for Tank Inspector to perform his activities on the tank. Contractor to have scaffolding setup around the tank prior to the arrival of the tank inspector for easy access to all areas of the shell plate. Contractors team shall be providing manway watch and assisting to the inspector in terms of manpower for the 5 to 6 days of inspection works.
- **Out-of-Service Inspection** – Appointed tank inspector shall be responsible to provide the full 10-year inspections on the internal and external of the tank as per their agreed scope. The inspector shall provide the draft version of the report that shall be the basis of the detail scope of works and recommended works to bring the tank back to service.
- **Evaluation of the Report** – Vital Team to review the tank report with the appointed Tank engineers and develop the detail scope works and construction drawings. Depending on the extend of the repairs, this can take some time in circumstances where tank requires major repairs such as tank floor replacement or strake replacement.
- Recommended Repairs, Alternations and Upgrades required – The contractor shall provide estimate cost for,
- **New Tank foundation construction.** To be reviewed after API653 OOSI Report
- **Tank Floor Replacement with sump.** To be reviewed after API653 OOSI Report
- **Replacement of all internal pipes.** To be reviewed after API653 OOSI Report.
- Strake 1 Replacement with all new nozzles. To be reviewed after API653 OOSI Report.
- **Quality documentation and Reporting** - The tender package has all the required forms that shall be completed and submitted, some will be done by others with the assistance from the contractor. Contractor shall be responsible for completing the daily and monthly report in the attached forms. Contractor shall complete the Inspection Test Plan for review and approval by Vital Team, the contractor is also responsible for submitting HSSE and Quality Management Plan for the Project.
- **Post Repair Inspection and Report** – After completion of all the welding repairs, the contractor shall advise the on the inspection of the repairs. Tank Inspector requires 30days notice for planning to be on site for the inspections. NO welds shall be painted and if there are surface corrosion, contractor shall be responsible to have these sweep blasted for inspection. All repairs shall be marked on the tank for inspection and contractor shall provide same on the weld map for traceability and records keeping. Inspector will mark all defects, and this will need to be re rectified at contractors' cost, if the repairs will take longer than the stay of the inspector, he shall then return at the agreed date. All weld repairs and re-inspection cost shall be taken care by the contractor. Tank internal and external shall be blasted and 100% coated using specified coating. Tank maybe subjected to soak testing to confirm that coating is not failing or reacting with the fuel.

- **Fitness for Service (FFS) Assessment** – After successful repairs and coating, the appointed tank inspector will provide tank fitness for service certificate. If there are concerns that will need to be fixed in order to attain the fitness for service. If works done by the contractor fails in any way that shall be directly affecting the certification than the contractor shall be responsible for fixing the issues and correcting so the certification can be issued.
- **Tank Calibration** – 3rd party tank inspection company shall be responsible to calibrate the tank and provide chart. Contractor shall allow access and assist in the 2-day activity.
- **Return to Service** – Contractor shall connect all fittings and pipes to reinstate the service of the tank to Diesel.

The aim is to get the tank back in service, attaining API653 Fitness for Service Certificate, JIG requirements met, and future Fire System and Instrumentation provisions given so tank does not need to be empty. If any parts of the scope that the contractor feels is not suitable and will be deficit in the requirements shall be identified in the pricing template as additional item or recommendations.

8.2 Tank 2 Inspection and Assessment

- a. Appointed Inspector to Conduct API 653 out-of-service inspection (visual, ultrasonic thickness (UT), magnetic particle, radiographic, etc.).
- b. Evaluate tank integrity, including shell, bottom, roof, and nozzles.
- c. Perform floor scanning to assess corrosion and thinning.
- d. Assess settlement and foundation conditions.
- e. Verify compliance with JIG Guidelines, including water detection, contamination risks, and quality assurance.
- f. Conduct fitness-for-service (FFS) assessment to determine repair or replacement needs.
- g. Tank Calibration and Report (This report shall be in Metric and Imperial)

8.3 Reconstruction Drawing Package – Issued after Inspection

After the tank inspection report is issued, Vital Tank Engineers will provide the detail scope of works with all the relevant drawings. If there are details missing, Vital appointed Tank Engineers will provide clarification and additional details as required.

8.4 General Requirements – Scope to be finalized after the API653 OOSI Report

This scope covers the inspection, repairs, and upgrades of aviation fuel storage tanks to comply with API650, (Oil Tank Storage), **API 653 (Tank Inspection, Repair, Alteration, and Reconstruction)** and **Joint Inspection Group (JIG) Standards** for aviation fuel storage facilities.

- a. The Scope is written as amendments and supplements to API Standard 650, Twelfth Edition, March 2013, API Standard 653, and JIG 2 Standard. Wherever reference is made to API Standard 650, it shall be understood to mean API Standard 650 as amended/supplemented by this scope document.

- b. Clauses in API Standard 650, which are not mentioned in this Scope Document, shall remain valid as written.
- c. If a discrepancy is noted between this Scope document and API Standard 650, the discrepancy shall be brought to the attention of the Principal, who shall initiate a review by the Principal's appointed Tank Engineers for resolution.
- d. Review and approval by the Principal of any project documentation shall not relieve the Contractor of its obligation to fully comply with local legislative requirements, relevant design codes and project specifications.
- e. Contractor shall be responsible to providing inspection date and direct engagement with the appointed 3rd party inspection company and keeping Vital Project Manager in the communication.
- f. Where requirements for engineering authentication and sign offs are not locally regulated, good engineering practices shall be followed.

It is the responsibility of the contractor to ensure that all aspects of Tank 3 are designed to fulfil the intended range of operating and service conditions.

8.4.1 Tank 2 Upgrade Scope – General Scope Information

8.4.1.1 Products

This Tank is intended to for the storage of Diesel product. The Tank shall meet API650, API653, and JIG 2 Standard. All relevant Tank and JIG requirements forms shall be completed. In future the tank can be used as swing tank and store USLD or ULP.

8.4.1.2 Foundations –

- a. No works required.

8.4.1.3 Release Prevention Barrier/ Leak Detection System –

- a. Not required

8.4.1.4 New Floor Plate and Sump – Provide PC Sum

- a. All cost for Tank floor replacement, all joints shall be prepared as per API653 Section 9.10 and shall meet all requirements of API650 Section 5.1.5.4.
- b. Supply and install new 600mm diameter dished sump, place and weld to all plates sloping towards the sump. Contractor to confirm the foundation slop is sufficient.
- c. Contractor shall plan sequence of welding to minimize distortions, plates with excessive distortions shall be removed and replaced at contractors' cost.
- d. Contractor to ensure there are no arc strikes on the new floor plates, if any arc strikes are visible, the contractor shall repair as per weld procedure and perform NDE to confirm there are no cracks. The spot is to be marked for Tank Inspector to perform further inspection and confirm this meets API650 requirements.
- e. NDE to be performed on 100% of the floor welds to confirm quality of the weld. Vacuum test shall be performed to confirm that there are no leaks on any weld.

8.4.1.5 Strake 1 Replacement – Provide PC Sum

- a. Tank strake needs to be replaced with a new 6mm plate. All plates shall be supplied by the contractor.
- b. Contractor to cut 50mm above the horizontal weld, prepare the edge for welding.
- c. Preset and roll all required shell plates. The contractor shall check and plan this work during the site visit.
- d. After welding the shell plates in place, the tank can be lowered using the jacks on site.
- e. Perform Shell to Floor weld, ensure the joint is prepared as per API650 Section 5.1.5.7.
- f. All Shell removal and shell replacements shall be done in accordance to Section 9 of API653 Tank Inspection, Repairs, Alterations and Reconstruction.
- g. NDE to be performed on 100% of the welds to confirm no cracks or pin holes. Vacuum test to be done all around the annular to shell weld.

8.4.1.6 Fire Protection System

- a. Fire protection systems for aboveground storage tanks shall comply with AS1940:2017 Flammable Liquids Storage and Handling Standard.
- b. This Tank shall be fitted with all support brackets for future cooling ring and raiser pipes.
- c. The Principle shall be accountable for design and contractor responsible for installation of attachments, pipe risers, foam pourers, pipe support brackets, and splash plates as required for the specified fire protection system, up to the grade level flange on the vertical riser. All detailed drawing is provided in the drawing package,
- d. Beyond the grade level flange on the vertical riser, connections and tie-ins to the facility fire water hydrant system and foam supply, including commissioning of the fire protection system, shall be the responsibility of the Principal (unless this is specifically included in the tank contractors' scope of work).

8.4.1.7 Coatings

- a. Where external coating or internal lining of the storage tank is specified, all aspects of coating selection, product testing, surface preparation, application, inspection, testing and quality assurance shall be in accordance with the relevant provisions under the FSMPC GP External and Internal Painting of Bulk Tanks Annexed Q.
- b. Coating and lining selection and testing data for each individual tank shall be reviewed and approved by the Principals Technical Authority – Protective Coatings.
- c. All Tank internal lining shall be coated with Amercoat 240, refer to Appendix Q – FSMPC GP External and Internal Painting of Bulk Tanks.
- d. In the sections that will be internally lined, preparation of all internal welds shall conform to the applicable NACE Specifications.
- e. Coating or lining application shall not commence unless all welding, grinding, post repair inspection, repairs (if required) and hydrostatic testing of the tank is complete.

8.4.1.8 Tank Appurtenances

8.4.1.8.1 Inlet Nozzle - PC Sum

- a. Install the new 150NB Class 150 nozzle to be welded in line with the tank receiving line with reinforcement plate as per API653 Section 9.5. This shall meet the API650 compliance.
- b. Internal nozzle shall be installed on the inlet as per the General Arrangement drawing with a diffuser, this shall be designed to ensure an exit flow velocity of less than or equal to 1m/s (3ft/s).
- c. Supply and install the Tank Valve with sealing gasket.
- d. Connect the inlet line after hydro test or prior to commissioning.

8.4.1.8.2 Outlet Nozzles – PC Sum

- a. Install the new 150NB Class 150 nozzle to be welded to match the outlet line of the tank with new reinforcing plate as per API653 Section 9.5. This shall meet the API650 compliance.
- b. Internal pipe connection on the outlet shall be installed as per General Arrangement Drawings; the nozzle drawing is provided in the drawing package. This design shall meet the JIG requirements.

8.4.1.8.3 Tank Isolation Valves

- a. Contractor shall supply all tank valves.

8.4.1.8.4 Thermal Relief Bypass

- a. Flanged nozzles for thermal relief bypass connections shall be installed on the bottom shell course at or near the associated isolation valve or piping connection. Inlet and Outlet Nozzle shall be welded with 25NB (1 in) weldolet and flange connection that will need to be aligned with the pipelines. Refer to the general arrangement drawings for the thermal relief bypass.
- b. All pipes for the thermal bypass shall be of carbon steel 25mm (1in) Sch 80.
- c. All valves shall be of Class 800 and flange type.

8.4.1.8.5 Floating Suction – **Not Required**

- ~~a. This tank shall not be installed with any floating suction.~~
- ~~b. The tank will be installed with Aqua Standard.~~

8.4.1.8.6 Tank Bottom Sumps – PC Sum

- a. Tanks with a cone down bottom shall be provided with a minimum of one (1) bottom sump. Contractor to supply and install one piece dished down sump.

8.4.1.8.7 Water Draw Off – PC Sum

- a. Install new 100NB nozzle for stripping line as per drawing.
- b. Install new line as per drawing inside the tank.
- c. Fabricate new supports for the internal pipe.

8.4.1.8.8 Stilling Well

- a. A new Stilling well shall be installed on the roof as per the drawing package. This will need to be blind flanged for future use.
- b. Stilling well pipe shall have equally spaced holes to prevent product stratification inside the well. Clean all drill burs and smooth edges.
- c. Welding of internal support brackets to be as per the Stilling well drawing.
- d. Connection area to be determined on site.

8.4.1.8.9 Shell Manways – PC Sum

- a. This tank is fitted with only one manway; this will need to be changed since Strake 1 is replaced with new. Install with new 610mm (24 in) Shell Manway as per drawing meeting API60 Compliance.
- b. Shell Manway to be located close to the water draw off sump as this will assist in the future tank cleaning operations.

8.4.1.8.10 Roof Nozzles – PC Sum

- a. The number of nozzles on the roof is provided in the general arrangement drawing with schedule of all Tank Nozzles.
- b. The tank shall be fitted with the following roof nozzles.
 - **150NB Center Gauge Nozzle** – remove existing and install new gauge hatch that will be provided. Contractor to allow for installation including bolts and nuts, gaskets, and tools.
 - **150NB Corner Gauge Hatch nozzle** – remove existing and install new gauge hatch that will be provided. Contractor to allow for installation including bolts and nuts, gaskets, and tools.
 - **200NB P&V** – Remove existing P&V Vent. Supply and install new Vent as per recommendation by Vital appointed Tank Engineers.
 - **500mm Roof Manhole** – cut and remove existing then fabricate and install new roof manway as per drawing. Install at the existing positing.
 - **150NB Spare Nozzle** – install new nozzle for future ATG system.

8.4.1.8.11 Ground Lugs

- a. Grounding lugs shall be seal welded to the bottom shell course at a height of 300 mm (12 in) above the floor plate projection.
- b. Each lug shall be provided with a 20 mm (3/4 in) diameter pre-drilled hole for the grounding cable connection.
- c. A minimum of two (2) grounding lugs per storage tank shall be provided.
- d. Provide grounding cable from the tank to earth rod.

8.4.1.8.12 Product Sample Point

- a. The tank shall be fitted with 3 x 80NB nozzle for draw off sample point system with valve manifold for high, midway, and low connected to 20NB draw off valve.
- b. The system shall be set up with manifold type with two valves, one each at the tank nozzle and 20NB.

- c. Nozzle size pipe shall be installed inside the tank as per drawing for mid and high-level point.
- d. Refer to the drawing for the details.

8.4.1.8.13 Stairways, Platforms and Handrails

- a. Stairways, platform, and railings shall be designed in conformance with the requirements under the local jurisdictional occupational health and safety regulations.
- b. Repair Stairways and landing in area. These areas can be verified during the site inspection by the contractor.
- c. All rungs and post of the handrails shall be finished with Golden Yellow.

8.4.1.8.14 Brackets and Supports

- a. Brackets and supports that are attached to the tank as permanent attachments shall be installed with wear pads that are sealed welded to the tank.
- b. Wear pads shall not be welded over vertical or horizontal weld seams.

8.4.1.8.15 Foam Pourer

- Install new Foam Pourer as per drawing.

8.5 Materials

- a. All materials shall be suitable for the minimum design metal temperature specified for the storage tank.
- b. Materials specifications that have been accepted for the project shall not be substituted without the prior written approval of the Principal.
- c. All plates thickness greater than 12.5mm ($\frac{1}{2}$ in) shall not be used for the shell, shell reinforcement or tank bottom annular plates.
- d. All bolt heads and nuts shall be of heavy hex pattern.
- e. Gaskets shall be of spiral wound for flanges and compressed Non-Asbestos Fibre.

Component	Material Specification	Standard
Tank Shell and Floor Materials		
Tank Shell	Carbon Steel (e.g., ASTM A36, A516 Gr. 70)	API 650, API653, ASME Sec. VIII
Tank Floor	Carbon Steel (ASTM A36, A283 Gr. C)	API 650, API 653
Tank Roof	Carbon Steel (ASTM A36, A516 Gr. 70)	API 650, API 653
Piping & Nozzles		
Inlet/Outlet Piping	Carbon Steel (ASTM A106 Gr. B, ASTM A53)	ASME B31.3, API 570
Nozzles & Flanges	Carbon Steel (ASTM A105, A350 LF2)	ASME B16.5
Gaskets	Spiral Wound (SS 316 + Graphite/PTFE)	ASME B16.20
Internal Lining & Coating		
Coating Type	Application	Standard
Epoxy Lining - Internal	Amercoat 240 Buff & White	API652, NACE RP0178, MIL-PRF-23236
Epoxy Lining – External	Amercoat 240 Buff/ White Sigama Guard series finish coat – white Sigama Guard – Golden Yellow – handrails	API652, NACE RP0178
Roof & Structural Components		
Support Structures	Carbon Steel (ASTM A36, A992)	API 650
Handrails and Ladders	Carbon Steel (ASTM A36)	API 650
Additional Components		

Bolts and Fasteners	ASTM A193 B7	ASME B18.2.1
Seals	Compressed Non-Asbestos Fibre	API650

8.6 Fabrication

- a. All plate cutting shall be cut using plasma cutter or oxy-acetylene.
- b. Edge preparation for proper welding, slags shall be removed.
- c. All cutting shall be uniform and consistent for root weld, uneven edges shall be corrected before assembly.
- d. Rolling, bending, and forming of plates to required dimensions.
- e. All authorised and accepted welders to perform welding.
- f. Using of correct welding electrodes (Low Hydrogen) for all welding.
- g. All assembly shall be checked by appointed person on site prior to welding.
- h. All defects' welds shall be properly repaired.
- i. There shall be no arc strikes on the tank surface; welders are to keep the striking plate. If there are strike marks, they shall be grounded off and repaired. NDT to be performed on all repaired welds and new welds.

8.7 Hydro Testing Requirements

- a. Contractor shall make allowance for Hydrostatic testing of the tank will be required if any works are done on the critical welds or major repairs are carried out. Vital Team to carryout the hydro testing works and contractor shall allow 3 days of his team to provide support and be on site.
- a. Hydrostatic testing of the tank shall not commence unless all the works are completed by the contractor.

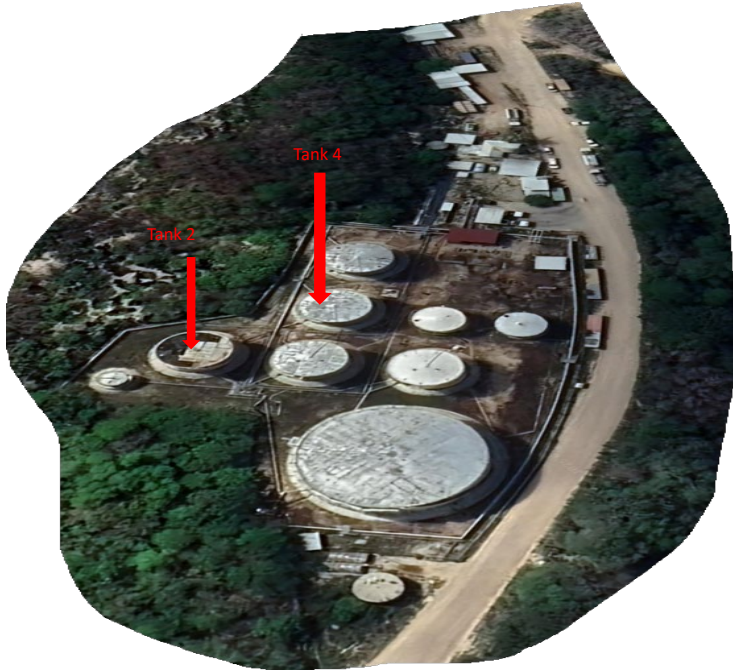
8.8 Welding Procedures and Welder Qualification

- a. All WPS and PQR shall be submitted to the Principal for approval for each welder.
- b. Ideally each welder must have 6G qualification that will allow him/her to weld in any areas of the tank.
- c. All procedures shall be on the contractors' company name only that will be accepted.
- d. All qualifications shall be done to ASME IX BPV Standard.

8.9 Tank Marking & Labels

- a. Tank Nameplate shall be provided.
- b. Attach all tank labels.
- c. Tank Number shall be painted with Signal Red colour.

9 Tank Photos



Nauru Fuel Facility Overview

Tank is ready for contractors' possession.

Works around the terminal are in progress such as new office construction and road access around the back of the terminal.

All Equipment's are to be placed outside the bund area.

Contractor site will need to be closed and access authorized people under the safe work permit.



Tank 2 – Spiral Stairs

Repairs required on the stairs.

External Tank blasting and coating required.



Tank 2 View

Other side of the Tank. The surface has corrosion.



Tank Manway & Internal

Tank has approximately 500Litres of sludge/slops that requires cleaning, treatment and disposal.

Internal will need to be abrasive blasted and coated.

Replace Ground Level Indicator
– Vital Energy Supplied

Replace cooling water pipe



Tank Inlet & TRV

Tank to be isolated

Flange condition will be inspected and recommendation provided if it requires replacement.

Valves shall be replaced.

Installation of new Thermal Bypass connections.



Spare Nozzle

Replace valve with new.

Nozzle Flanged status to be determined after the inspection.



Outlet and Water Drain

Tan Isolation to be done by contractor.

All Valves to be replaced

Installation of new Thermal Bypass connections.

Nozzle flange status to be determined after inspection.



Tank Earth

Remove and reinstate the connections after works completed.



Tank Roof

Replace Varec pipes and cable connectors – Vital Energy supplied Varec gauge and pipe only.



Roof Manway

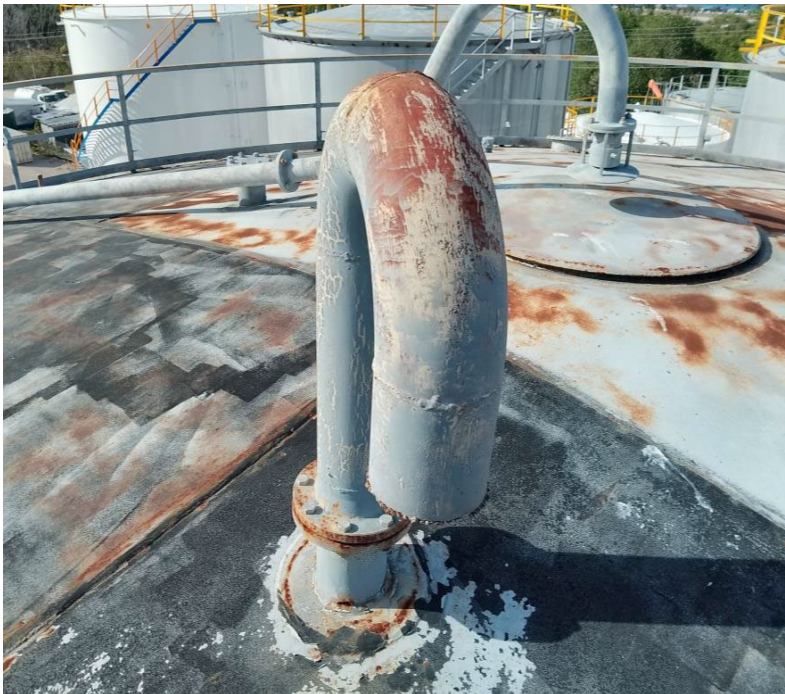
Recommendation shall be provided after the inspection

Replace gasket



Cooling Water Pipe

Replace pipe



Tank Vent

Vital appointed engineers shall provide the Vent sizing calculation. This to be replaced to free vent or P&V vent.



Spare Nozzle

Recommendation shall be provided after the inspection



Hatch

To be replaced with Sample Hatch.



Tank Gauge

This to be removed and replace with 6" nozzle only for future tank gauge.



Dip Hatch

Replace with new hatch.



Spare Nozzle

Recommendation shall be provided after the inspection

Appendix B

Nauru Tank 4 Scope of Works

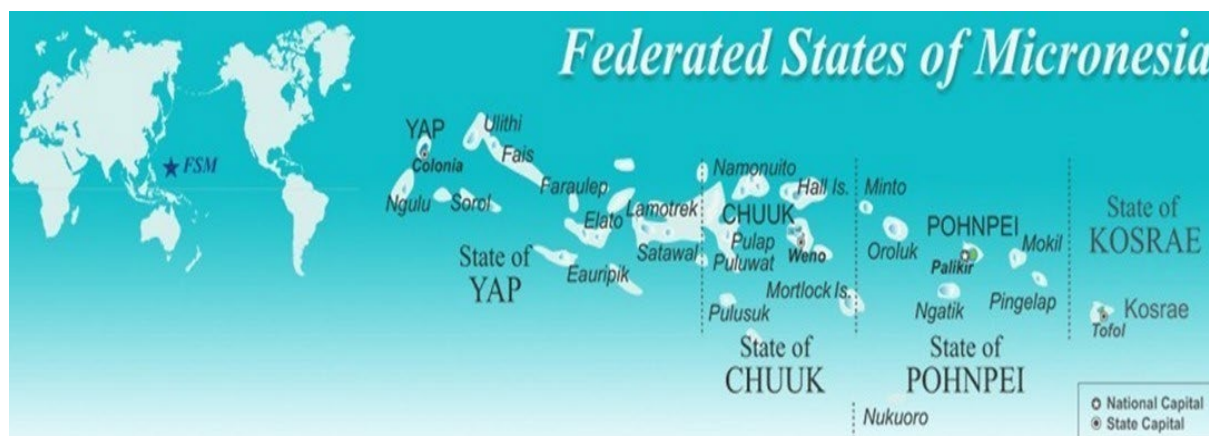
Nauru Terminal – Scope for Nauru Tank 4 OOSIR-JIG Upgrades

Rev	Date	Description	Prepared By	Checked By	Approved
A	6 Feb 2025	Issued for Approval	AS	JCM	JCM
B	09 May 2025	Issued For Bid	AS	JCM	

1 Introduction

Vital is an independent terminal operator who owns, operates and/or leases critical oil import, storage and distribution infrastructure throughout Micronesia. The company has control over seven fuel terminals, thirty-seven storage tanks and pipeline systems, and a fleet of fourteen bulk trucks and aviation fuellers across Micronesia.

Vital is undertaking remedial and upgrade work to the Nauru Fuel Storage Terminal in accordance with Government approved *2022 Terminal Rehabilitation and Upgrade Plan (TRUP)*. The TRUP is designed to progressively reduce operational risks, improve compliance and efficiency over time.



1.1 Operations conducted by Vital include:

- Road tanker deliveries and drum filling services from Vital's four Bulk Terminals;
- Marine bunkering at each main port in Pohnpei, Nauru, Yap and Kosrae;
- Plane re-fueling operations in four of the eight international airports of the region (Yap, Nauru, Pohnpei and Kosrae); and
- Sale of a variety of lubricants and chemical solvents.

Vital was formed after it acquired the operations and assets of Mobil Oil Micronesia Incorporated in the Federated States of Micronesia ("FSM") in June 2008. Vital took over a business which had operations, existence and experience in Micronesia of over 50 years. The corporation operates as

Vital Energy Incorporated in Guam and Nauru

- FSM Petroleum Corporation in the FSM.
- Further information including annual reports and audit reports can be found at

[FSM National Public Auditor: Home.](#)

2 Project Objective(s) and Deliverables.

The Objectives and Deliverables for this project are included in Appendix C.

The Bidder is invited to comment or request information.

3 Tank Data

Summary tank details are included within Attachment in Section 2.1 - Appendix D – Tank Data Sheet.

4 High Level Scope & Responsibilities

The high-level scope throughout the project life cycle is noted with stakeholder responsibilities as follows: refer to project architecture document for more detail.

Table A – Scope Responsibility

Scope	Responsible party
HSSE & Contractor Induction & SWP	Vital HSSE Team
Contractor Site Mobilization and Work Area	Contractor
Site Safety Monitoring	Vital OIC, OSS and Terminal Staff
Site Clearance & Work Monitoring	Vital OIC
Complete tank stripping and isolation	Vital OIC
Carry out tank cleaning and sludge disposal	Contractor
Issue Tank gas-free and CSE certification	Vital OIC and SPO's
Confirm Tank Gas-Free and CSE Readiness	Contractor
Carry out API653 Internal/External Inspection & Report	3 rd Party Inspection Company
Carry out design & engineering within planning phase	Tank Engineers
Complete tank upgrades per Scope of Work (API653 & JIG)	Tank Engineers
Completion of Tank Works ITP/ Methodology/ QAQC/ Safety Plan	Contractor
JIG and Tank Forms issuance & completion	Program Manager (Compliance and Audit)
Engineering and technical Support	Tank Engineers
Provide engineering construction support	Tank Engineers
Carry out API653 Post Repair Inspection coordinated by contractor	3 rd Party Inspection Company
Carry out Tank Calibration & Report coordinated by contractor	3 rd Party Inspection Company
Issue Tank Fitness for Service Certificate	3 rd Party Inspection Company
Project Document Reviews and Approval	Vital PMO
Project Management	Vital PM

5 High Level Milestones and Deliverables

The high-level milestones throughout the Project life cycle are noted with target dates set from the Notice of Award (NOA). Scheduling is aggressive with Vital approval set at Ten working days,

and the assumption of contract finalization being a maximum of Ten working days per contract. High level costs are detailed in Section 7.1.

Table B – Milestone & Deliverable list

Milestone & Deliverables	Target Date
M1 – Contract Establishment	
D1 - Release of Proposal for Quotation	
D2 - Contractors Proposal	
D3 - Bid Review and Award	
D4 - Issue Notice of Award	
D5 - Contract Signing	
M2 - Contractor Mobilization & Site Safety	
D1 – Contractor Site Office & Work area Establishment	
D2 – Contractor Team Induction, Audit Contractors, and Permitting Approval	
D3 – Area Barricade/ Signages/ Control Access/ Visibility/ Monitor & Maintain	
M3 – Tank Cleaning & Isolation	
D1 – Product Transfer & Empty Tank to lowest level	
D2 – LOTO Process & Signages	
D3 – Tank cleaning and Sludge Disposal (to approved treatment facility)	
M4 – Tank Internal Repairs & Upgrades	
D1 – New Ring Beam Construction	
D2 - Tank Floor & Sump Replacement	
D3 – NDT Inspection on Welding	
D4 – Hydro Testing and Report	
M5 – Tank Shell Welding Repair & Upgrade Works	
D1 – Strake 1 Shell Plate Replacements	
D2 – Replacement of All Tank Shell Nozzles	
D3 – Tank Shell Repairs	
D4 – Installation Fire System support brackets	
D5 – NDT Inspection on Welding	
M6 – Tank Roof Repairs & Upgrades	
D1 – Replace all Roof Nozzles	
D2 – Installation of Stilling Well	
D3 – Installation of New Roof Hatch	
D4 – Repairs/ Replacement of Handrails	
D5 – Installation of Fire Systems support brackets	
D6 - NDT Inspection on Welding	
M7 – Post Repair Inspection	
D1 – Post Repair Inspection Report	
D2 – Highlight issues or defects rectified.	
M8 – Tank Internal Blasting & Coating	
D1 – Tank Internal Blasting	
D2 – Tank Internal Coating (Prime & Finish Coat with JIG approved coating)	

D3 – Coating Inspection and Reports
D4 – Soak Test Report
M9 – Tank External Blasting & Coating
D1 – Tank External Blasting
D2 – Tank External Coating (Prime & Finish Coat)
D3 – Coating Inspection and Reports
M10 – Ancillary Fittings & Final Reports
D1 – Outlet Nozzle as per Aqua ¹ Standard – Annex XXX
D2 – Installation of Roof Nozzles
D3 – Quick Flash Tank Piping Installation
D4 – Installation of Ground Level Indicator
D5 – Tank Pipework connections
D6 – Tank Calibration and Reports
D7 – Tank and JIG QC Forms Completed
D8 – Fitness for Service Report
D9 – Tank Labelling
M11 – Demobilizing
D1 – Tank Handover
D2 – Site Equipment/ Materials/ Waste Removal
D3 – Documentation and Handover/ Contract Closed
D4 – Site Cleanup and Worker Demobilization

6 Milestones Definitions

6.1 Contract Establishment:

Contract establishment is a critical phase in the project lifecycle that ensures clear terms, responsibilities, and expectations between the contracting parties.

The contract negotiation process involves defining the Scope of Work, lump sum and fixed pricing components, payments, management of risks.

The contract shall incorporate the project Objectives, and the Deliverables that confirm objectives have been achieved.

6.2 Contractor Mobilization and Site Safety

Contractor mobilization and site safety are critical phases in ensuring a smooth, safe, and compliant execution of the Project.

Contractor shall efficiently deploy personnel, equipment, and resources while ensuring full compliance with project, safety, and regulatory requirements.

¹ Aqua Standard – XOM Standard document – Outlet Nozzle design shall be provided.

Refer to *Section 2.2 Appendix L - Contractor Safety Administrative Requirements*.

6.3 Tank Cleaning & Isolation

Tank Stripping. The terminal operations team are responsible for stripping the tank and the transfer of all product out of the tank. The tank will be free of free-standing product at this time.

Tank Isolation. The OIC shall establish and implement the SWP for the lockout, tagout and isolation of the tank. The terminal operations team shall determine and estimate the sludge that will remain in the tank following the tank stripping process. The tank will be opened, and where necessary wind tunnels and exhaust fans are installed to facilitate and confined space entry for tank cleaning.

Confined space entry (CSE) and tank cleaning. The Contractor shall conduct the final tank cleaning. The contractor shall have all necessary equipment for CSE entry, such as forced air breathing apparatus, rescue equipment's, sludge removal and storage equipment and necessary PPE for this activity. All tank sludge shall be removed and packed into ISO containers or appropriate drums supplied by contractor who will take away from site for further treatment and disposal by the contractor and report submitted to project manager to confirm the disposal process.

Vent Extension during works. The contractor shall be responsible for the vent extensions and supplying of all related materials and skills required. For the arrangement of vent, refer to the sketch in Appendix N Section 3 of FSMPC Tank Cleaning Guidelines. The site work perimeter will be set between Vial OIC and Contractor's representative, the specified area shall be sufficient for erection of scaffolding and doing hot works. Vital OPS team shall have sufficient space to work on adjacent tanks for their normal operations.

Gas Free for Hot Work in a Tank Compound. Ventilation shall be approved by OIC or SAFER Manager, contractor can then proceed with works. All works in the designated area inside the tank farm and outside (Workshop Area) shall be covered with JSA prepared by contractor for review and approval for Safe Work Permit preparation. Works inside the tank shall be covered under Confine Safe Entry Permit.

6.4 Tank Internal Repairs & Upgrades

Tank internal repairs and upgrades are essential to ensure the structural integrity, safety, and compliance of aviation fuel storage tanks. These activities must follow API 653 standards and align with Joint Inspection Group (JIG) guidelines to maintain fuel quality, prevent contamination, and extend the tank's service life. Tank Shell Welding Repairs and Upgrade Works

Tank shell welding repairs and upgrades are crucial for maintaining the structural integrity, safety, and compliance of aviation fuel storage tanks. All welding procedures must adhere to API 653 (Tank Inspection, Repair, and Alteration), API 650 (Tank Construction), and JIG (Joint Inspection

Group) standards to ensure safe fuel storage and prevent leaks, contamination, or failures. Tank Shell strake 1 needs replacement inspected and works confirms API653 Standard. All Welds shall be inspected, and NDT works performed, after approval the next work activity such as coating can be proceeded. All tank nozzles shall be replaced, the position of the outlet, inlet and water drain shall align to the new pipeline that is currently been installed. The tank shall be fitted with Cooling ring brackets and raiser pipe brackets for the future Fire Suppression System. Tank Stairs require repairs in areas, and this shall be repaired to an acceptable level.

6.5 Tank Roof Repairs & Upgrades

Tank roof welding repairs and upgrades shall be done in accordance to API653 (Tank Inspection, Repair, and Alteration). This tank requires all nozzle replacements with hatches, new stilling well and hatches. Tank handrails to be replaced with new. Tank roof shall be fitted with fire system support brackets for cooling water ring for future Fire Suppression System.

6.6 Post Repair Inspection

The Post-Repair Inspection is a critical process conducted after tank repairs and upgrades to ensure structural integrity, safety, and compliance with API 653, API 650, and JIG (Joint Inspection Group) standards and this shall be arranged by Vital Project Manager with 3rd party Inspection and Verification companies. This phase involves a combination of visual inspections, non-destructive testing (NDT), hydrostatic testing, and operational checks before the tank is returned to service. Upon successful completion, the inspection company shall issue acceptance certificate.

The Contractor shall allow for internal sweep blasting of the floor and strake 1 for inspection. The surface shall be clean for better visual for the inspection team. After the blasting is completed, the contractor shall clean the internal and if any external areas have been blasted. If there are additional blasting done, the contractors' schedule of rates shall apply. During the inspection works, the tank contractor shall allow downtime or plan for other activities.

6.7 Tank Internal Blasting and Lining

Tank shall be 100% blasted and internally lined as per,

- Attachment Q - FSMPC GP External and Internal Painting of Bulk Tanks

6.8 Tank External Blasting & Coating

Tank shall be 100% blasted and coated externally as per Appendix Q for FSMPC GP External and Internal Painting of Bulk Tanks. All stages of coating reports shall be submitted to Vital Project Manager for acceptance. All supporting structures of the tank shall be coated. Contractor to discuss with OPS team and place all Tank signages and Name Plate upon completion.

6.9 Ancillary Fittings & Final Reports

All associated tank internal pipes shall be installed and checked to ensure that they are intact with gaskets. The tank contractor shall fit out tank with Ground Level Indicator, Stilling Well, Floating Suction, QFT Connections, All Roof Hatches and Manholes, Sample Points, receiving and discharge lines. Tank pipework's are done as separate project, these tank nozzles shall be correctly oriented to match the pipeline flange. Final Inspection & Test Plan shall be submitted by the contractor with weld map and traceability matrix to confirm all welds done are by qualified welders according to API653. Vital PM to arrange for Tank calibration once all internal fittings are completed. Fitness for Service cert to be obtained by Vital PM to confirm the upgrades meet API653 acceptance. All JIG related forms shall be completed and issued to Project Manager for the creation of the Tank Master File.

6.10 Demobilizing

The final phase of a project where all temporary facilities, equipment, and personnel are systematically removed from the site, restoring it to a safe and compliant condition. This process ensures that all work areas, infrastructure, and environmental considerations meet regulatory and contractual obligations before project closure and handing over the asset to custodian.

7 Documents Submittals & Approvals

The guidelines given under API Standard 650 Annex W (Commercial and Documentation Recommendations) shall be followed.

There are several forms that shall be completed for review and approval by the Principal shall include but necessarily be limited to with the Contractor, PMO, Terminal Team, Quality Assurance Manager, and external inspectors. These are to be completed in stages at specific activity, Contractor and Vital Project Manager is responsible to have this completed before moving to the next stage and having them approved as per the table A. These forms shall be listed in the contractors Inspection Test Plan as per the sequence of works.

Table C – Documents Submittals

Document Submittals – Preparation, Review & Approval			
Form Name	Responsible	Review	Approval
Tank Data Sheet	Project Manager	SME	Tank Engineer
Out of Service Inspection Report	3 rd Party Inspector	Project Manager	Tank Engineer
Construction/ Alterations/ Repair Quality Plan	Contractor	Project Manager/ QAM/ SME/OPS	Tank Engineer
General Arrangement Drawings	Tank Engineer	Project Manager /SME/ QAM/OPS	Jared Morris
Material Selection Report	Contractor	Project Manager	Tank Engineer
Tank Design Calculations	Not Required		
Tank Venting Calculations	Tank Engineer	Project Manager	Tank Engineer
Nozzle Load Computations	Not Required		
Seal Selection Materials	Contractor	Project Manager	Tank Engineer

Foundation Detail Design	Tank Engineer	Project Manager	Project Sponsor
Tank Constriction Drawings	Tank Engineer	Project Manager/ SME/ QAM/OPS	Jared Morris
PWHT Requirements	Contractor	Project Manager/ SME	Tank Engineer
Weld Procedure Specifications (WPSs)	Contractor	Project Manager/ SME	Tank Engineer
Procedure Qualification Records (PQRs)	Contractor	Project Manager/ SME	Tank Engineer
Inspection Test Plan	Contractor	Project Manager/ SME	Tank Engineer
Tank Repair/ Alterations Method Statement	Contractor	Project Manager/ SME	Tank Engineer
Coating Quality Assurance Plan	Contractor	Project Manager/ SME/ QAM	Tank Engineer
Welder Testing Records	Contractor	Project Manager/ SME	Tank Engineer
Weld Map Records	Contractor	Project Manager	Tank Engineer
Post Repair Inspection Report	3 rd Party Inspector	Project Manager/ SME/ Contractor	Tank Engineer
Hydro Test Procedure	Contractor	Project Manager/ SME	Tank Engineer
EF-P903-Tank Cleaning Checklist Rev1	Project Manager	SME/OIC/QAM	Project Sponsor
EF-P907 Tank Re-Commissioning Checklist	Project Manager	SME/OIC/QAM	Project Sponsor
EF P941 Change of Service Review Checklist	Project Manager	SME/OIC/QAM	Project Sponsor
AGD-F-M100 - Fixed Tank Summary	Project Manager	SME/OIC/QAM	Project Sponsor
AGD-F-M003 - Fixed Tank Inspection and Cleaning and Internal Maintenance	Project Manager	SME/OIC/QAM	Project Sponsor
AGD-P-Z815 - Storage Tank Visual Inspection and Tank Cleanliness Assessment	Project Manager	SME/OIC/QAM	Project Sponsor
AGD-F-M100 - Inspection& Maintenance of Pipes	Project Manager	SME/OIC/QAM	Project Sponsor
AGD-P-M201 – Floating Suction Inspection	Project Manager	SME/OIC/QAM	Project Sponsor
Daily Coating Inspection Record	Contractor	OSS/ Project Manager	Tank Engineer
Coating Inspection Report	Contractor	OSS/ Project Manager	Tank Engineer
Holiday Test Report	Contractor	OSS/ Project Manager	Tank Engineer
Tank Calibration Table (Metric & Imperial)	3 rd Party Inspectors	Project Manager/ SME	Tank Engineer
Fitness for Service Certificate	3 rd Party Inspection	Project Manager	Project Sponsor
As Built Redline Drawing	Contractor	Project Manager	Tank Engineer
Final As Built Drawings – Updated	Tank Engineer	Project Manager/ SME/ OIC/ QAM	Jared Morris
Tank Master File	Project Manager	SME	Project Sponsor

8 Requirements and Scope of Services

8.1 Objective

Nauru Tank 4 is due for 10-year API653 Inspection. The tank is used for Jet A1 storage and all products will be transferred into another tank by Vital Operations team. The tank maybe containing some slops/ sludge that shall be cleaned and treated off island as Nauru Terminal or the Island does not have treatment and disposal facility.

Vital Energy has appointed 3rd Party Tanks inspectors for providing the services and the contractor shall be responsible for the coordination of the works once in terms of target dates for different level of inspections. Operations Team will hand over the tank to the contractor for the following activities,

- **Tank Cleaning** – Secure area of work, barricaded and have access control to authorised

personnel only in the designated work area. Allow tank venting and airing process for good circulation of air, use venturi or alternative fan forced system for circulation. Re-direct vents for adjacent Tanks to take vapour away from Tank 4. Contractor is responsible for the tank cleaning, disposal and sludge treatment ensuring that the waste material is properly treated and disposed. Report of the treatment and disposal to be provided to Vital Energy.

- **Preparation for Out-Of-Service Inspection** – Sweep blast the tank floor and 1m of strake 1 for tank inspection works. Clean the tank Allow access for Tank Inspector to perform his activities on the tank. Contractor to have scaffolding setup around the tank prior to the arrival of the tank inspector for easy access to all areas of the shell plate. Contractors team shall be providing manway watch and assisting to the inspector in terms of manpower for the 5 to 6 days of inspection works.
- **Out-of-Service Inspection** – Appointed tank inspector shall be responsible to provide the full 10-year inspections on the internal and external of the tank as per their agreed scope. The inspector shall provide the draft version of the report that shall be the basis of the detail scope of works and recommended works to bring the tank back to service.
- **Evaluation of the Report** – Vital Team to review the tank report with the appointed Tank engineers and develop the detail scope works and construction drawings. Depending on the extend of the repairs, this can take some time in circumstances where tank requires major repairs such as tank floor replacement or strake replacement.
- Recommended Repairs, Alternations and Upgrades required – The contractor shall provide estimate cost for,
- **New Tank foundation construction.** To be reviewed after API653 OOSI Report
- **Tank Floor Replacement with sump.** To be reviewed after API653 OOSI Report
- **Replacement of all internal pipes.** To be reviewed after API653 OOSI Report.
- Strake 1 Replacement with all new nozzles. To be reviewed after API653 OOSI Report.
- **Quality documentation and Reporting** - The tender package has all the required forms that shall be completed and submitted, some will be done by others with the assistance from the contractor. Contractor shall be responsible for completing the daily and monthly report in the attached forms. Contractor shall complete the Inspection Test Plan for review and approval by Vital Team, the contractor is also responsible for submitting HSSE and Quality Management Plan for the Project.
- **Post Repair Inspection and Report** – After completion of all the welding repairs, the contractor shall advise the on the inspection of the repairs. Tank Inspector requires 30days notice for planning to be on site for the inspections. NO welds shall be painted and if there are surface corrosion, contractor shall be responsible to have these sweep blasted for inspection. All repairs shall be marked on the tank for inspection and contractor shall provide same on the weld map for traceability and records keeping. Inspector will mark all defects, and this will need to be re rectified at contractors' cost, if the repairs will take longer than the stay of the inspector, he shall then return at the agreed date. All weld repairs and re-inspection cost shall be taken care by the contractor. Tank internal and external shall be blasted and 100% coated using specified coating. Tank maybe subjected

to soak testing to confirm that coating is not failing or reacting with the fuel.

- **Fitness for Service (FFS) Assessment** – After successful repairs and coating, the appointed tank inspector will provide tank fitness for service certificate. If there are concerns that will need to be fixed in order to attain the fitness for service. If works done by the contractor fails in any way that shall be directly affecting the certification then the contractor shall be responsible for fixing the issues and correcting so the certification can be issued.
- **Tank Calibration** – 3rd party tank inspection company shall be responsible to calibrate the tank and provide chart. Contractor shall allow access and assist in the 2-day activity.
- **Return to Service** – Contractor shall connect all fittings and pipes to reinstate the service of the tank to Diesel.

The aim is to get the tank back in service, attaining API653 Fitness for Service Certificate, JIG requirements met, and future Fire System and Instrumentation provisions given so tank does not need to be empty. If any parts of the scope that the contractor feels is not suitable and will be deficit in the requirements shall be identified in the pricing template as additional item or recommendations.

8.2 Tank 4 Inspection and Assessment

- a. Appointed Inspector to Conduct API 653 out-of-service inspection (visual, ultrasonic thickness (UT), magnetic particle, radiographic, etc.).
- b. Evaluate tank integrity, including shell, bottom, roof, and nozzles.
- c. Perform floor scanning to assess corrosion and thinning.
- d. Assess settlement and foundation conditions.
- e. Verify compliance with JIG Guidelines, including water detection, contamination risks, and quality assurance.
- f. Conduct fitness-for-service (FFS) assessment to determine repair or replacement needs.
- g. Tank Calibration and Report (This report shall be in Metric and Imperial)

8.3 Reconstruction Drawing Package – Issued after Inspection

After the tank inspection report is issued, Vital Tank Engineers will provide the detail scope of works with all the relevant drawings. If there are details missing, Vital appointed Tank Engineers will provide clarification and additional details as required.

8.4 General Requirements – Scope to be finalized after the API653 OOSI Report

This scope covers the inspection, repairs, and upgrades of aviation fuel storage tanks to comply with API650, (Oil Tank Storage), **API 653 (Tank Inspection, Repair, Alteration, and Reconstruction)** and **Joint Inspection Group (JIG) Standards** for aviation fuel storage facilities.

- a. The Scope is written as amendments and supplements to API Standard 650, Twelfth Edition, March 2013, API Standard 653, and JIG 2 Standard. Wherever reference is made to API Standard 650, it shall be understood to mean API Standard 650 as

amended/supplemented by this scope document.

- b. Clauses in API Standard 650, which are not mentioned in this Scope Document, shall remain valid as written.
- c. If a discrepancy is noted between this Scope document and API Standard 650, the discrepancy shall be brought to the attention of the Principal, who shall initiate a review by the Principal's appointed Tank Engineers for resolution.
- d. Review and approval by the Principal of any project documentation shall not relieve the Contractor of its obligation to fully comply with local legislative requirements, relevant design codes and project specifications.
- e. Contractor shall be responsible to providing inspection date and direct engagement with the appointed 3rd party inspection company and keeping Vital Project Manager in the communication.
- f. Where requirements for engineering authentication and sign offs are not locally regulated, good engineering practices shall be followed.

It is the responsibility of the contractor to ensure that all aspects of Tank 3 are designed to fulfil the intended range of operating and service conditions.

8.4.1 Tank 4 Upgrade Scope – General Scope Information

8.4.1.1 Products

This Tank is intended to for the storage of Diesel product. The Tank shall meet API650, API653, and JIG 2 Standard. All relevant Tank and JIG requirements forms shall be completed. In future the tank can be used as swing tank and store USLD, ULP or JetA1.

8.4.1.2 Foundation

- No current works required.

8.4.1.3 Release Prevention Barrier/ Leak Detection System –

- No current works required.

8.4.1.4 Tank Floor Repair

- a. **Minor Repair** - The contractor shall price for a minimum repair of 6m² of floor plate replacement and buildup weld approx. 1m². All cost for Tank floor replacement, all joints shall be prepared as per API653 Section 9.10 and shall meet all requirements of API650 Section 5.1.5.4.
- b. **Major Repair** – Any repairs more than minor repairs shall be a variation order based on a buildup on the contractor's schedule of rates provided in Appendix Y – Tender Schedule of Rates Form.
- c. **Weld Repairs & Inspections** – All weld repairs shall be subjected to NDT by Vital Energy appointed inspector. These inspections shall be done prior to any coating applications.

~~8.4.1.5 New Floor Plate and Sump – Provide PC Sum~~

- ~~d. All cost for Tank floor replacement, all joints shall be prepared as per API653 Section~~

~~9.10 and shall meet all requirements of API650 Section 5.1.5.4.~~

- ~~e. Supply and install new 600mm diameter dished sump, place and weld to all plates sloping towards the sump. Contractor to confirm the foundation slop is sufficient.~~
- ~~f. Contractor shall plan sequence of welding to minimize distortions, plates with excessive distortions shall be removed and replaced at contractors' cost.~~
- ~~g. Contractor to ensure there are no arc strikes on the new floor plates, if any arc strikes are visible, the contractor shall repair as per weld procedure and perform NDE to confirm there are no cracks. The spot is to be marked for Tank Inspector to perform further inspection and confirm this meets API650 requirements.~~
- ~~h. NDE to be performed on 100% of the floor welds to confirm quality of the weld. Vacuum test shall be performed to confirm that there are no leaks on any weld.~~

8.4.1.6 *Strake 1 Works*

- a. **Minor Repairs** - The contractor shall price for a minimum repair of 6m² of shell plate replacement and buildup weld approx. 1m². All Shell removal and shell replacements shall be done in accordance with Section 9 of API653 Tank Inspection, Repairs, Alterations and Reconstruction.
- b. **Major Repair** – Any repairs more than minor repairs shall be a variation order based on a buildup on the contractor's schedule of rates provided in Appendix Y – Tender Schedule of Rates Form.
- c. **Weld Repairs & Inspections** – All weld repairs shall be subjected to NDT by Vital Energy appointed inspector. These inspections shall be done prior to any coating applications.

8.4.1.7 *Fire Protection System*

- a. Fire protection systems for aboveground storage tanks shall comply with AS1940:2017 Flammable Liquids Storage and Handling Standard.
- b. This Tank shall be fitted with all support brackets for future cooling ring and raiser pipes.
- c. The Principal shall be accountable for design and contractor responsible for installation of attachments, pipe risers, foam pourers, pipe support brackets, and splash plates as required for the specified fire protection system, up to the grade level flange on the vertical riser. All detailed drawing is provided in the drawing package.
- d. Beyond the grade level flange on the vertical riser, connections and tie-ins to the facility fire water hydrant system and foam supply, including commissioning of the fire protection system, shall be the responsibility of the Principal (unless this is specifically included in the tank contractors' scope of work).

8.4.1.8 *Coatings*

- a. Where external coating or internal lining of the storage tank is specified, all aspects of coating selection, product testing, surface preparation, application, inspection, testing and quality assurance shall be in accordance with the relevant provisions under the FSMPC GP External and Internal Painting of Bulk Tanks Annexed Q.

- b. Coating and lining selection and testing data for each individual tank shall be reviewed and approved by the Principals Technical Authority – Protective Coatings.
- c. All Tank internal lining shall be coated with Amercoat 240, refer to Appendix Q – FSMPC GP External and Internal Painting of Bulk Tanks.
- d. In the sections that will be internally lined, preparation of all internal welds shall conform to the applicable NACE Specifications.
- e. Coating or lining application shall not commence unless all welding, grinding, post repair inspection, repairs (if required) and hydrostatic testing of the tank is complete.

8.4.1.9 Tank Appurtenances

8.4.1.9.1 Inlet Nozzle – PC Sum

- a. Install the new 150NB Class 150 nozzle to be welded in line with the tank receiving line with reinforcement plate as per API653 Section 9.5. This shall meet the API650 compliance.
- b. Internal nozzle shall be installed on the inlet as per the General Arrangement drawing with a diffuser, this shall be designed to ensure an exit flow velocity of less than or equal to 1m/s (3ft/s).
- c. Supply and install the Tank Valve with sealing gasket.
- d. Connect the inlet line after hydro test or prior to commissioning.

8.4.1.9.2 Outlet Nozzles – PC Sum

- a. Install the new 150NB Class 150 nozzle to be welded to match the outlet line of the tank with new reinforcing plate as per API653 Section 9.5. This shall meet the API650 compliance.
- b. Internal pipe connection on the outlet shall be installed as per General Arrangement Drawings; the nozzle drawing is provided in the drawing package. This design shall meet the JIG requirements.

8.4.1.9.3 Tank Isolation Valves

- a. Contractor shall supply all tank valves.

8.4.1.9.4 Thermal Relief Bypass

- a. Flanged nozzles for thermal relief bypass connections shall be installed on the bottom shell course at or near the associated isolation valve or piping connection. Inlet and Outlet Nozzle shall be welded with 25NB (1 in) weldolet and flange connection that will need to be aligned with the pipelines. Refer to the general arrangement drawings for the thermal relief bypass.
- b. All pipes for the thermal bypass shall be of carbon steel 25mm (1in) Sch 80.
- c. All valves shall be of Class 800 and flange type.

8.4.1.9.5 Floating Suction – **Not Required**

- ~~a. This tank shall not be installed with any floating suction.~~
- ~~b. The tank will be installed as per General Arrangement Drawing T-002 – Fill Connection/Aviation Tank nozzle detail, with Aqua Standard.~~

8.4.1.9.6 Tank Bottom Sumps – PC Sum

- a. Tanks with a cone down bottom shall be provided with a minimum of one (1) bottom sump. Contractor to supply and install one piece dished down sump.

8.4.1.9.7 Water Draw Off – PC Sum

- a. Install new 100NB nozzle for stripping line as per drawing.
- b. Install new line as per drawing inside the tank.
- c. Fabricate new supports for the internal pipe.

8.4.1.9.8 Stilling Well

- a. A new Stilling well shall be installed on the roof as per the drawing package. This will need to be blind flanged for future use.
- b. Stilling well pipe shall have equally spaced holes to prevent product stratification inside the well. Clean all drill burs and smooth edges.
- c. Welding of internal support brackets to be as per the Stilling well drawing.
- d. Connection area to be determined on site.

8.4.1.9.9 Shell Manways – PC Sum

- a. This tank is fitted with only one manway; this will need to be changed since Strake 1 is replaced with new. Install with new 610mm (24 in) Shell Manway as per drawing meeting API60 Compliance.
- b. Shell Manway to be located close to the water draw off sump as this will assist in the future tank cleaning operations.

8.4.1.9.10 Roof Nozzles – PC Sum

- a. The number of nozzles on the roof is provided in the general arrangement drawing with schedule of all Tank Nozzles.
- b. The tank shall be fitted with the following roof nozzles.
 - **150NB Center Gauge Nozzle** – remove existing and install new gauge hatch that will be provided. Contractor to allow for installation including bolts and nuts, gaskets, and tools.
 - **150NB Corner Gauge Hatch nozzle** – remove existing and install new gauge hatch that will be provided. Contractor to allow for installation including bolts and nuts, gaskets, and tools.
 - **200NB P&V** – Remove existing P&V Vent. Supply and install new Vent as per recommendation by Vital appointed Tank Engineers.
 - **500mm Roof Manhole** – cut and remove existing then fabricate and install new roof manway as per drawing. Install at the existing positing.
 - **150NB Spare Nozzle** – install new nozzle for future ATG system.

8.4.1.9.11 Ground Lugs

- a. Grounding lugs shall be seal welded to the bottom shell course at a height of 300 mm (12 in) above the floor plate projection.
- b. Each lug shall be provided with a 20 mm (3/4 in) diameter pre-drilled hole for the grounding cable connection.

- c. A minimum of two (2) grounding lugs per storage tank shall be provided.
- d. Provide grounding cable from the tank to earth rod.

8.4.1.9.12 Product Sample Point

- a. The tank shall be fitted with 3 x 80NB nozzle for draw off sample point system with valve manifold for high, midway, and low connected to 20NB draw off valve.
- b. The system shall be set up with manifold type with two valves, one each at the tank nozzle and 20NB.
- c. Nozzle size pipe shall be installed inside the tank as be drawing for mid and high-level point.
- d. Refer to the drawing for the for details.

8.4.1.9.13 Stairways, Platforms and Handrails

- a. Stairways, platform, and railings shall be designed in conformance with the requirements under the local jurisdictional occupational health and safety regulations.
- b. Repair Stairways and landing in area. These areas can be verified during the site inspection by the contractor.
- c. All rungs and post of the handrails shall be finished with Golden Yellow.

8.4.1.9.14 Brackets and Supports

- a. Brackets and supports that are attached to the tank as permanent attachments shall be installed with wear pads that are sealed welded to the tank.
- b. Wear pads shall not be welded over vertical or horizontal weld seams.

8.4.1.9.15 Foam Pourer

- Install new Foam Pourer as per drawing.

8.5 Materials

- a. All materials shall be suitable for the minimum design metal temperature specified for the storage tank.
- b. Materials specifications that have been accepted for the project shall not be substituted without the prior written approval of the Principal.
- c. All plates thickness greater than 12.5mm ($\frac{1}{2}$ in) shall not be used for the shell, shell reinforcement or tank bottom annular plates.
- d. All bolt heads and nuts shall be of heavy hex pattern.
- e. Gaskets shall be of spiral wound for flanges and compressed Non-Asbestos Fibre.

Component	Material Specification	Standard
Tank Shell and Floor Materials		
Tank Shell	Carbon Steel (e.g., ASTM A36, A516 Gr. 70)	API 650, API653, ASME Sec. VIII
Tank Floor	Carbon Steel (ASTM A36, A283 Gr. C)	API 650, API 653
Tank Roof	Carbon Steel (ASTM A36, A516 Gr. 70)	API 650, API 653
Piping & Nozzles		
Inlet/Outlet Piping	Carbon Steel (ASTM A106 Gr. B, ASTM A53)	ASME B31.3, API 570
Nozzles & Flanges	Carbon Steel (ASTM A105, A350 LF2)	ASME B16.5
Gaskets	Spiral Wound (SS 316 + Graphite/PTFE)	ASME B16.20
Internal Lining & Coating		

Coating Type	Application	Standard
Epoxy Lining - Internal	Amercoat 240 Buff & White	API652, NACE RP0178, MIL-PRF-23236
Epoxy Lining – External	Amercoat 240 Buff/ White Sigama Guard series finish coat – white Sigama Guard – Golden Yellow – handrails	API652, NACE RP0178
Roof & Structural Components		
Support Structures	Carbon Steel (ASTM A36, A992)	API 650
Handrails and Ladders	Carbon Steel (ASTM A36)	API 650
Additional Components		
Bolts and Fasteners	ASTM A193 B7	ASME B18.2.1
Seals	Compressed Non-Asbestos Fibre	API650

8.6 Fabrication

- All plate cutting shall be cut using plasma cutter or oxy-acetylene.
- Edge preparation for proper welding, slags shall be removed.
- All cutting shall be uniform and consistent for root weld, uneven edges shall be corrected before assembly.
- Rolling, bending, and forming of plates to required dimensions.
- All authorised and accepted welders to perform welding.
- Using of correct welding electrodes (Low Hydrogen) for all welding.
- All assembly shall be checked by appointed person on site prior to welding.
- All defects' welds shall be properly repaired.
- There shall be no arc strikes on the tank surface; welders are to keep the striking plate. If there are strike marks, they shall be grounded off and repaired. NDT to be performed on all repaired welds and new welds.

8.7 Hydro Testing Requirements

- Contractor shall make allowance for Hydrostatic testing of the tank will be required if any works are done on the critical welds or major repairs are carried out. Vital Team to carryout the hydro testing works and contractor shall allow 3 days of his team to provide support and be on site.
- Hydrostatic testing of the tank shall not commence unless all the works are completed by the contractor.

8.8 Welding Procedures and Welder Qualification

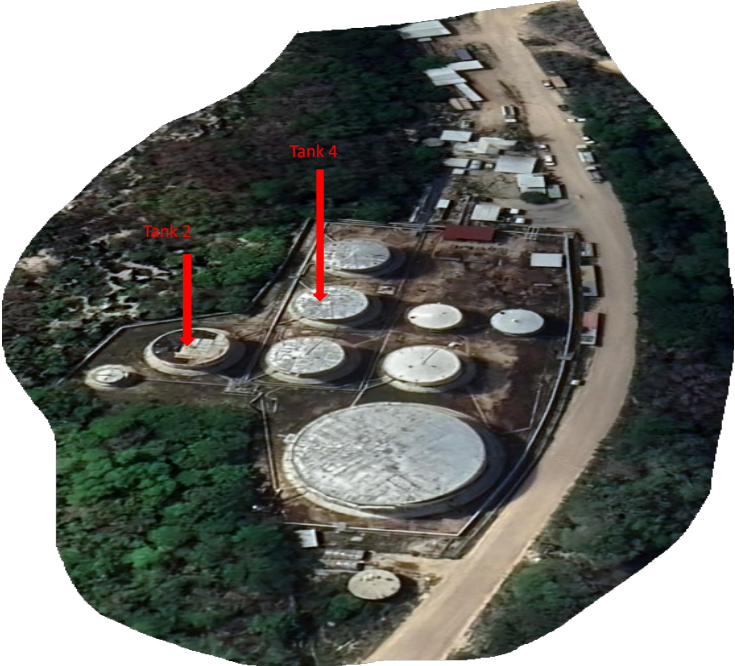
- All WPS and PQR shall be submitted to the Principal for approval for each welder.
- Ideally each welder must have 6G qualification that will allow him/her to weld in any areas of the tank.
- All procedures shall be on the contractors' company name only that will be accepted.
- All qualifications shall be done to ASME IX BPV Standard.

8.9 Tank Marking & Labels

- Tank Nameplate shall be provided.

- b. Attach all tank labels.
- c. Tank Number shall be painted with Signal Red colour.

9 Tank Photos

	<p>Nauru Fuel Facility Overview</p> <p>Tank is ready for contractors' possession.</p> <p>Works around the terminal are in progress such as new office construction and road access around the back of the terminal.</p> <p>All Equipment's are to be placed outside the bund area.</p> <p>Contractor site will need to be closed and access authorized people under the safe work permit.</p>
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Tank 4 – Spiral Stairs

Repairs required on the stairs.

External Tank blasting and coating required.



Tank 4 View

Other side of the Tank. 100% coating replacement as per coating spec.



Tank Manway & Internal

Tank has Jet A1 and this will be transferred by Vital Team.

Internal will need to be abrasive blasted and coated.



Tank Inlet & TRV

Tank to be isolated

Flange condition will be inspected and recommendation provided if it requires replacement.

Valves shall be replaced.

Installation of new Thermal Bypass connections.



Spare Nozzle

Replace valve with new.

Nozzle Flanged status to be determined after the inspection.



Outlet Line

Tank Isolation to be done by contractor.

All Valves to be replaced

Installation of new Thermal Bypass connections.

Nozzle flange status to be determined after inspection.



QFT Outlet & Return

Tank Isolation to be done by contractor.

All Valves to be replaced

Replace all pipelines for the QFT in Stainless Steel sch.40.

Nozzle flange status to be determined after inspection.



QFT Piping

Replace all QFT lines to and from the tank. All lines and fittings shall be Stainless Steel.



Water Drain

Tank Isolation to be done by contractor.

All Valves to be replaced

Nozzle flange status to be determined after inspection.



Tank Earth

Remove and reinstate the connections after works completed.



Tank Roof Varc mounting

Replace Varc pipes and cable connectors – Vital Energy supplied Varc gauge and pipe only.



Roof Manway 1

Recommendation shall be provided after the inspection

Replace gasket



Roof Manway 2

Recommendation shall be provided after the inspection

Replace gasket



Cooling Water Pipe

Replace pipe with new



Tank Vent

Vital appointed engineers shall provide the Vent sizing calculation. This to be replaced to free vent or P&V vent.



Spare Nozzle 1

Recommendation shall be provided after the inspection



Hatch

To be replaced with Sample Hatch.



Tank Gauge

This to be removed and replace with 6" nozzle only for future tank gauge.



Dip Hatch

Replace with new hatch.



Spare Nozzle 2

Recommendation shall be provided after the inspection

Appendix C

Project Objectives & Deliverables

Project Objective(s) and Deliverables

Objective(s)	Deliverables that confirm Objective(s) have been achieved
<p><u>Completion.</u> To complete the project, in full, on budget, and as specified (INFOBAS) with the prescribed technical specifications, and international best practices.</p>	<ul style="list-style-type: none"> • 10-year API653 Out-of-Service Inspection Report. • API MPMS Chapter 2.2D Calibration of upright cylindrical tanks using the Internal Electro-Optical distance range method. • Pipeline Calibration Tables suitable for custody transfer. • Project Documentation as per Section 5 Table C. • Variation Orders in accordance with an approved Schedule of Rates. • Lessons Learnt • Project Closing Report.
<p><u>Comprehensiveness.</u> Bid Document that includes fixed lump sum price, and a schedule-of-rates that is used for the pricing of variations to project scope, budget, and schedules.</p>	<ul style="list-style-type: none"> • Statement of Work (SoW) that provides the known knowns, and summary of known unknowns. • Variation Orders to clarify known unknowns, based on a repair methodology, technical / engineering notes against and approved repair methodology. • Inspection and Test Plans (ITP) for the Works. • A Schedule of Rates for plant, materials, workmen that shall form the basis of variation claims and pricing arrangements. • Project Risk Register. • AS4920 General conditions of contract for the provision of asset maintenances and services, refer to Appendix T. • Variation Orders in accordance with an approved Schedule of Rates
<p><u>Competitiveness.</u> To manage a transparent and prudent competitive bidding process and selection and contracting with a competent contractor.</p>	<ul style="list-style-type: none"> • Expression of Interest • Request for Proposal • Bid Award Report
<p><u>Compliance.</u> To successfully perform a 10 year out-of-service and repair (OOSIR) in accordance with API653.</p>	<ul style="list-style-type: none"> • API653 Post Inspection Repair Report • Welder Qualification • Weld Procedure • Fitness-for-Service Certificate • Tank Masterfile and project information assets.

Compliance. To successfully incorporate the additional EI/JIG specifications that are necessary to either have Tank 04 commissioned as a JetA1 storage tank, or for it to be used in future as a JetA1 storage operation

- EI/JIG Technical Specifications
- Internal Lining compliance and Soak Tests.
- Top-Middle-Bottom stainless-steel sampling

HSSE: To complete the project with minimum impact to the health, safety and 24/7 operability of fuel terminal receipt, discharge and delivery operations.

- Safe Work Permits:
 - Confined Space Entry
 - Hot Work in a Tank Compound
 - Working at Heights
- Contractor Job Safety Analysis (JSA's)
- Incident and Accident Reports

Appendix D

Tank 4 Data Table

Nauru Tank 4 Data Table

Tank General information							
Tank Number	T4		Owner	Government of Nauru			
Tank Location	Nauru Terminal – Nauru		Manufacture	Not Available			
Tank Diameter	12,180mm		Product	Jet A1			
Tank Height	14,790mm		Specific Gravity				
Maximum Filling Height	14,200mmt		Nominal Capacity (m³)	1,677,248 L			
Design Code	API650	Heating System	No	Cathodic Protection	No		
Data Plate	Yes	Insulation	No	Leak Detection	No		
Tank Component Geometry Information							
Foundation		On Ground	Roof		Fixed Cone Roof		
Shell		Butt Weld	Bottom		Flat		
Tank Component Coating Availability							
Shell	Internal	None	Roof	Internal	None	Bottom	None
	External	Coated		External	None		
Tank Dates Information							
Year of Commission		1977	Year of Last Inspection			N/A	
Year of Current Inspection		NA	Year of last Bottom Plates Change			N/A	
Other Information							
Access to Roof		Spiral Stairway					

Appendix E

Tank 2 Data Table

Nauru Tank 2 Data Table

Tank General information							
Tank Number	T2		Owner	Government of Nauru			
Tank Location	Nauru Terminal – Nauru		Manufacture	N/A			
Tank Diameter	12,180mm		Product	ADO			
Tank Height	14,790mm		Specific Gravity				
Maximum Filling Height	14,200mmt		Nominal Capacity (m³)	1,677,248 L			
Design Code	API650	Heating System	No	Cathodic Protection	No		
Data Plate	Yes	Insulation	No	Leak Detection	No		
Tank Component Geometry Information							
Foundation	On Ground	Roof	Fixed Cone Roof				
Shell	Butt Weld	Bottom	Flat				
Tank Component Coating Availability							
Shell	Internal	None	Roof	Internal	None	Bottom	None
	External	Coated		External	None		
Tank Dates Information							
Year of Commission	1977	Year of Last Inspection		N/A			
Year of Current Inspection	NA	Year of last Bottom Plates Change		N/A			
Other Information							
Access to Roof	Spiral Stairway						

Appendix F

Project Architecture - Roles and Responsibilities

Table of Contents

Vital Energy	2
Sponsor: Jared Morris	2
Operation, Logistics and Maritime Manager: Savenaca Tamani	2
Asset Custodian: Sireli Savou	2
Subject Matter Expert: Abdul Saheem	3
Contract Administrator: TBA.....	3
Asset Integrity Manager: Neil Halstead	3
Asset Integrity Officer: Epeli Sauleca	3
Asset Integrity Technician: Calvin Yetasurmwai	3
Project Management Office: Abdul Saheem	4
Vital On-Site Supervisor: Adonis Demauna.....	4
Permit Officer: Giovanni Bernick	4
SAFER Manager: Juanito Hasugulmal	4
Quality Assurance Manager: Maltrick Yamauchi	5
Procurement Manager: Garry Garsain.....	5
Travel Coordinator: Rosmina P. Eperiam.....	5
Inventory Coordinator: Esther Nedlic	5
Account: Jovaleen Cantero	5
Fixed Asset Manager: Relian Mudong	5
Project Manager: TBA	5
Project Site Engineer – Edmond Velasquez	6
Project Officer: TBA.....	7
TBA – Appointed Contractor	7
Contractor’s - Project Manager: TBA.....	7
Contractor - Project Administrator: TBA.....	7
Contractor - On Site Engineer/ Supervisor: TBA	8
Third Party Inspection Team.....	8
: TBA	8
Third Party Tank Engineers	8
Contact Details	9

The following criteria will be used to determine if an individual will be included as a stakeholder:

1. Will the person or their organization be directly or indirectly affected by this project?
2. Does the person or their organization hold a position from which they can influence the project?
3. Does the person have an impact on the project's resources (material, personnel, funding)?
4. Does the person or their organization have any special skills or capabilities the project will require?
5. Does the person potentially benefit from the project or are they able to resist this change?

Any individual who meets one or more of the above criteria will be identified as a stakeholder. Stakeholders from the same organization will be grouped to simplify communication and stakeholder management.

Vital Energy

Sponsor: Jared Morris

- Responsible for:
 - Project Document Approval
 - Budget Review and Approval
 - Conflict Resolution
 - Change Request Approval for,
 - Schedule slip/delay by 10% of the duration.
 - Cost increases by over 10% of the approved budget.
 - Change in Agreed Scope.
 - Change in Quality or Compliance.
 - Travel Approvals
 - Design and Drawings Approvals

Operation, Logistics and Maritime Manager: Savenaca Tamani

- Demonstrates that his Function is a Responsible and Prudent Operator of the Asset by:
 - Compliance with company policies, procedures, and processes.
 - Ensures that operators are 'Can Do' for product, service and safety critical processes and procedures.
 - Site HSSE overview
 - Inventory Oversight

Asset Custodian: Sireli Savou

- Responsible for:
 - For coordinating the safe and operational readiness for the release of the MCA to the Project Team.
 - Establish the Lock-Outs and Tag Outs for the Terminal Operations Team.
 - Conduct of Daily Toolbox meeting and ensuring integration of the project with operational activities.
 - Site Safety and Incident reporting. Takes lead role for overall HSSE for Chuuk Terminal.
 - Ensure the project gets operational support so that it can be completed on time, to specification and compliance.
 - Witness and Sign-Off on Hand-Over Certificate.
 - Schedule and Coordinate the Soak Tests and other commissioning arrangements.

- Plan to place the tank back in operational service.

Subject Matter Expert: Abdul Saheem

- Abdul Saheem (Tanks and Pipelines)

Contract Administrator: TBA

- Responsible for;
 - Contract Administrator:
 - Will authorize Invoices for Payment based on Payment Claim Certificates issued by the Project Manager.
 - Will prepare/obtain approvals to Change Orders from authorized persons.
 - Appoint a project manager and manage their performance.
 - Maintain a list of authorized vendors and contractors eligible to do work for Vital.
 - Escalate Problems and Issues to the Sponsor as and when needed.
 - Conduct and lead the Project Kick Off Meeting.
 - Coordinate with the Asset Operator and Custodian, the practicalities for taking a MCA out of service.
 - Obtain signoff of the Team Operating Agreement.
 - Provide Contract Performance Report

Asset Integrity Manager: Neil Halstead

- Responsible for:
 - Strategic asset management, and compliance with the E2E: Asset Lifecycle Process.
 - Tactical asset level considerations and recommendations to inspect, maintain, upgrade, mothball, decommission or to extend life shall be made by the Asset Integrity Team in consultation with the Asset Owner and the Asset Operator.
 - Review and accept Out-of-Service-Inspection (OOSI) Report.
 - Review and approve Repair Methodology for all major repair works.
 - Review post-repair inspection, confirm repair works and issue a OOSIR Report.
 - Maintain asset related critical records.

Asset Integrity Officer: Epeli Sauleca

- Responsible for:
 - Monitoring the Asset Condition Index (ACI) for mission critical assets
 - Work with the PMO to ensure that the master plan for terminals consider ACI.
 - Based on ACI conditions, request for a major repair to be scheduled within the year.
 - Coordinate with the Asset Custodian, the practicalities of taking a MCA out of service.

Asset Integrity Technician: Calvin Yetasurmwai

- Responsible for:
 - a 'digital-twin' of physical assets by using CARL Source, a computerized asset management system and development.
 - monitors the OI and PMI reports and triggers an ACI review when circumstances change.

- Produce reports on the efficiency, efficacy, and compliance of OI and PMI inspection regimes.

Project Management Office: Abdul Saheem

- Responsible for:
 - Coordination of the annual capital planning project cycle for the company and the production of the following deliverables:
 - A revised high level asset master plan (AMP) and future project pipeline(s) for a location and ensure that the schedule and prioritization of projects considers the ACI and state of compliance with standards.
 - A capital allocation plan(s) (CAP) in consultation with function, portfolio, program, and operational managers.
 - A high level cashflow forecast for the AMP and the CAP.
 - Responsible for ensuring that projects identified within the CAP are efficiently progressed through the Vital Project Management Cycle, Project Documentation requirements, and verification processes to ensure that project Specification has been achieved.

Vital On-Site Supervisor: Adonis Demauna

- Responsible for:
 - Participation in the contractors Job Safety Analysis (JSA) and Method Statements
 - Establish the Lock-Outs and Tag Outs for the Project Team.
 - Escalate Problems and Issues to the Project Manager as and when needed.
 - Coordinate project activities with operational activities with the Asset Custodian.
 - Responsible for the oversight of contractor activities. This work involves:
 - maintaining a Project Diary.
 - facilitating Contractor access to project site.
 - receiving instructions from the Project Manager.
 - providing instructions to Contractor.
 - oversight of SWP Controls; and
 - liaison with the OIC/Terminal Supervisor.
 - Witness Project Documentation as necessary to verify key milestones.
 - Sign the Hand Over Certificate confirming that the Tank is now being managed by the Custodian and Operator.

Permit Officer: Giovanni Bernick

- Responsible for,
 - Gas Testing for Site Clearance.
 - Tank Isolation
 - Lock Out Tag Out process with Project Manager.
 - Observe site safety.
- Report Near Miss or Incidents/ Accidents

SAFER Manager: Juanito Hasugulmal

- Responsible for:
 - Induction of Contractors and New employees.
 - Cold-eye review of the JSA and Method Statements.

- Work with Permit Officers and Senior Permit Officers to have SWP created and approved.
- Update as necessary the Contractor Safety Administration requirements as necessary.
- Review Tool-Box meeting discussion and extract information related to safety and incidents.
- Review of random Daily Dairy or site report and extracting information related to safety in terms of near misses or incidents and raising awareness with the project team.

Quality Assurance Manager: Maltrick Yamauchi

- Responsible for aviation quality:
 - JIG and EI Compliance.
 - Inspection of assets at stages and critical HOLD POINT for approval.
 - Liaise with appointed JIG Inspectors as and when required.

Procurement Manager: Garry Garsain

- Responsible for
 - contributing to the procurement strategies, and the finally approved Procurement Management Plan for the Project(s).
 - Responsible for the implementation of the Procurement Management Plan, and ensuring the procurement Policies, Procedures and Authorities are obtained where necessary for project expenditure.
 - Work with PM to obtain and order all materials confirmed in the Bill of Materials

Travel Coordinator: Rosmina P. Eperiam

- Responsible for Vital Teams
 - Travel between locations.
 - Arrangement of Hotels.
 - Arrangements of Car Rentals.

Inventory Coordinator: Esther Nedlic

- Responsible for Fuel Inventory Management
 - Monthly Stock Updates and reconciliation
 - Reports on available Stock on Hand

Account: Jovaleen Cantero

- Responsible for,
 - Online Payment Processing

Fixed Asset Manager: Relian Mudong

- Responsible for,
 - Asset the Project Team in the development of the Sanction.
 - Posting payments in accounting system and liaising with finance team.
 - Update the Fixed Asset Register (FAR) following Project Completion Report

Project Manager: TBA

- Responsible for:
 - Maintain the Asset Masterfile during the Project.

- Escalate Problems and Issues to the AIM as and when needed.
- Development and issuing *Scope of Work* with endorsement from the AIM.
 - OOSIR Inspections
 - Repair Methodology(ies)
 - Inspection Test Plans
 - Work Instructions to the Contractor
 - High level Milestones Schedule
- Development of the *Project Management Plan* including and its subsidiary components with the endorsement of the Project Team, namely:
 - Sanction for Planning, and Execution
 - Quality Management Plan
 - Risk Management Plan
 - Procurement Plan
 - Bill of Materials
 - Work Breakdown Structure
 - Detailed Schedule of Project
- Managing the Project to meet the agreed Project requirements/specification, within budget, and schedule.
- Responsible for day-to-day management Project Officers / OSS and issue of Work Orders
- Issue the Contractor Progress Payment Certificate.
- Manage *Project Closing* including:
 - Project Closing Report
 - Handover Certificate
 - Punch List
 - Review and refile the Master File in the Terminal Library
- Maintenance and Project Teams for preventative or corrective maintenance activities to defined SOW's provided by the Project Manager.
- Review of Daily Dairy or site report and extracting information related to safety in terms of near misses or incidents and raising awareness with the project team.
- Review and approve request for materials from inventory. (This can be listed in the procurement plan and all assigned materials for each tank released and moved to spare container that shall be managed by Sun Engineering OSS)

Project Site Engineer – Edmond Velasquez

- Responsible for:
 - Maintain the Asset Masterfile during the Project.
 - Escalate Problems and Issues to the Project Manager or PMO as and when needed.
 - Managing works as per *Scope of Work* with endorsement from Project Manager or PMO.
 - Asist in OOSI Inspections
 - Review Repair Methodology(ies)
 - Review of Inspection Test Plans
 - Site Work management with Contractor
 - High level Milestones Schedule
 - Overseeing that the Project to meet the agreed Project requirements/specification, within budget, and schedule.

- Responsible for day-to-day management Project Officers / OSS and issue of Work Orders
- Issue the Contractor Progress Payment Certificate.
- Assist in *Project Closing* including:
 - Project Closing Report
 - Handover Certificate
 - Punch List
 - Review and refile the Master File in the Terminal Library
- Maintenance and Project Teams for preventative or corrective maintenance activities to defined SOW's provided by the Project Manager.
- Review of Daily Dairy or site report and extracting information related to safety in terms of near misses or incidents and raising awareness with the project team.
- Review and approve request for materials from inventory. (This can be listed in the procurement plan and all assigned materials for each tank released and moved to spare container that shall be managed by Sun Engineering OSS)

Project Officer: TBA

- Responsible for,
 - Project Meeting coordination.
 - Document Control and uploading to Vital nominated project site.
 - Project update in Sensei
 - Monthly Project Report from Sensei

TBA – Appointed Contractor

Contractor's - Project Manager: TBA

- Responsible for:
 - Site Safety and Quality Management
 - Developing a Bill of Materials for additional works
 - Developing a Schedule and Manhour Budget.
 - Developing a Materials Budget (If required)
 - Managing the Work Crew to deliver the SOW.
 - As Specified
 - On Budget.
 - On Schedule
 - Complies with Vitals Contractor Safety Administration requirements.
 - Provides daily reports to the OSS.
 - Participate in the Job Safety Analysis (JSA) and Method Statements.
 - Maintain compliance with the approved Safe Work Permit (SWP) Conditions.
 - Provides Monthly reports as per template.
 - Write the required Methodology document.
 - Writing Project Quality document
 - Writing HSSE Plan for the project.
 - Managing Inspection Test Plan

Contractor - Project Administrator: TBA

- Responsible for:
 - Contract and Payment Administration

- Alerting scope or boundaries outside of the contract
- Contract costing.
- Invoicing and Payments, accounts reconciliation.

Contractor - On Site Engineer/ Supervisor: TBA

- Responsible for:
 - Lead the Job Safety Analysis (JSA) and Method Statements
 - Inspect the Lock-Outs and Tag Outs for the Project Team.
 - Escalate Problems and Issues to the Project Manager as and when needed.
 - Coordinate project activities with operational activities with the Asset Custodian.
 - Responsible for the day-to-day management of the Project. This work involves,
 - maintaining the Project Diary.
 - receiving instructions from the Project Manager.
 - providing instructions to Contractor.
 - implementation of SWP Controls; and
 - liaison with the OIC/Terminal Supervisor.
 - Managing site safety and site access.
 - Maintenance and Project Teams for preventative or corrective maintenance activities to defined SOW's provided by the Project Manager.

Third Party Inspection Team

: TBA

- Provide a Proposal for and Out of Service Inspection (OOSI)
- Conduct the Out-of-Service-Inspection (OOSI) in accordance with the appropriate standard and issue the OOSI Report.
- Issue a Repair Methodology Report for all major repair works.
- Conduct post-repair inspection, confirm repair works and issue an OOSIR Report.
- Issue a Fitness-for-Service Certificate.
- Tank Calibration and providing table

Third Party Tank Engineers

- Responsible for,
 - Providing Tank Drawings
 - Reviewing of Contractors' documents and providing clarification to Project Manager
 - Quality Plan
 - Inspection & Test Plan
 - HSSE Plan
 - Methodology Statement
 - Design Calculation and Stress Analysis
 - Engineering Support
 - Standard and Specification verification and confirmation

Contact Details

NAME	EMAIL	PHONE
Nauru Terminal		
Sireli Savou	gbernicke@fsmnpc.com	
Adonis Demauna	ademauna@fsmnpc.com	
Giovanni Bernick	gbernicke@fsmnpc.com	
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Relian Mudong		
Project Management Office		
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Vital SAFER Manager		
Juanito Hasugulmal	juanito.hasugulmal@fsmnpc.com	+691 922 1009 +691 350 2276
Tank Engineers		
TBA		
TBA		
3rd Party Inspectors		
TBA		
TBA		
Contractor		
Contractor Administrator		
Admin Office		
Project Manager		
Project Engineer		
Site Supervisor		

Appendix G

Vital Energy – Tank General Arrangement Layout

Construction Drawing Issued After Inspection

WELDER QUALIFICATION	
All Welders to be Qualified According to ASME IX for Tanks & Pipes	

All Welders to be Qualified According to ASME IX for Tanks & Pipes

TANK COATINGS

Shell External	Wet Blast – Sa Class 2.5 min 30um	Amercoat 240 Primer- avg. 100um	Amercoat 240 Intermediate Coat – avg 100um	Amercoat 450- Finish Coat -avg. 100um
Tank Floor	Wet Blast – Sa Class 2.5 min 30um	Amercoat 240 Primer- avg. 100um	Amercoat 240 Finish Coat – avg 100um	
Shell Internal	Wet Blast – Sa Class 2.5 min 30um	Amercoat 240 Primer- avg. 100um	Amercoat 240 Finish Coat – avg 100um	

REPORTS

Material Certs
Welding & Inspection Test Plan
Coating Inspection & Test Plan
Rain Days Data
Man-Hours/ Equipment Hours
Project Inventory List

TANK MASTER FILE

As Built Drawings
API 653 Reports
Inspection & Test Plans
Calibration Table
Project Completion Report

WELDER QUALIFICATION				
All Welders to be Qualified According to ASME IX for Tanks & Pipes				

FSMPC- TANK GENERAL REQUIREMENTS

TANK COATINGS				
Shell External	Wet Blast – Sa Class 2.5 min 30um	Amercoat 240 Primer- avg. 100um	Amercoat 240 Intermediate Coat – avg 100um	Amercoat 450- Finish Coat -avg. 100um
Tank Floor	Wet Blast – Sa Class 2.5 min 30um	Amercoat 240 Primer- avg. 100um	Amercoat 240 Finish Coat – avg 100um	
Shell Internal	Wet Blast – Sa Class 2.5 min 30um	Amercoat 240 Primer- avg. 100um	Amercoat 240 Finish Coat – avg 100um	

REPORTS
Material Certs
Welding & Inspection Test Plan
Coating Inspection & Test Plan
Rain Days Data
Man-Hours/ Equipment Hours
Project Inventory List

TANK MASTER FILE
As Built Drawings
API 653 Reports
Inspection & Test Plans
Calibration Table
Project Completion Report

NOTE:

1. Number of Manholes per tank size:
ONE- Upto 15m Diameter
TWO- Over 15m upto 30m diameter
THREE- Over 30m diameter
2. Provide Emergency Vent on Roof Manhole for tanks without weak roof to shell connection.
3. Number of Foam connections per Tank Size;
Refer to Fire Protection System Design
4. Install Pressure Vacuum Vents for product Flush Point $< 37.8^{\circ}\text{C}$,
Atmospheric (FREI) Vent for other products or with internal floating covers.
5. Locate vent 1.2m away from the centre of the roof crown. If more than one vent required space equally around 1.2m radius. If free vent, ensure it is offset 90° from the inlet nozzle of the tanks, whose inlet lines are cleared by pigging or inert gas.
6. Install Type A Dip Point with Pressure Vacuum vents and Type B Dip Point with Atmospheric vents including tanks with floating covers.
7. Information shown on this Drawing is base requirements of PetroCorp.

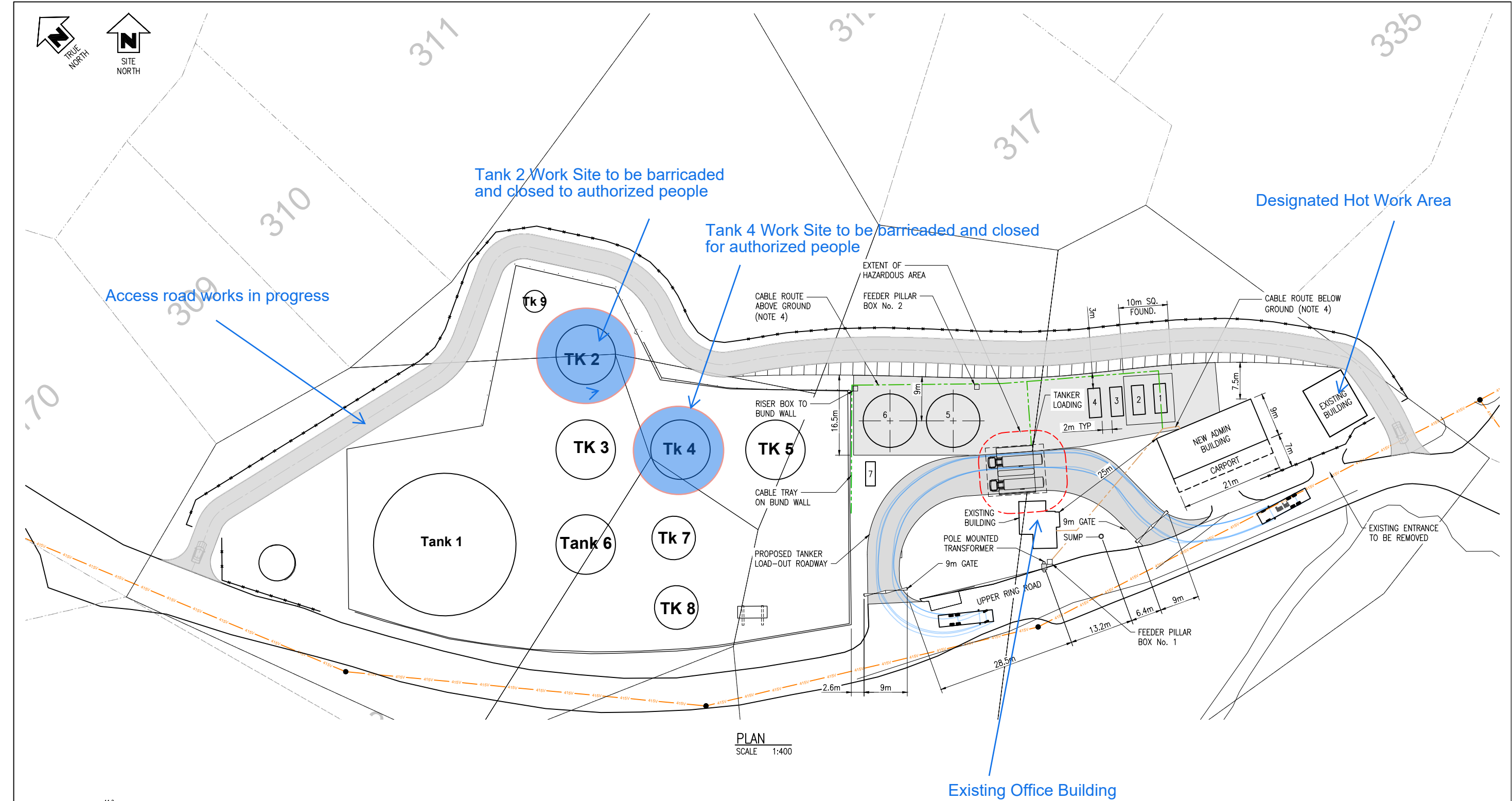
STANDARDS

- AS1940 – The Storage and Handling of Flammable & Combustible Products
- API 575 – Guidelines and Methods for Inspection of Existing Atmospheric and Low-pressure Storage Tanks
- API 577 – Welding Inspection and Metallurgy
- API 650 – Welded Tanks for Oil Storage
- API 651- Cathodic Protection of Aboveground Petroleum Storage Tanks
- API652 – Linings of Aboveground Petroleum Storage Tank Bottom
- API 653 – Tank Inspection, Repair, Alteration & Reconstruction
- ASME IX- Boiler & Pressure Vessel Code - Welding Qualification
- API RP 576 -Inspection of Pressure Relieving Devices
- ASME B16.5 – Pipe Flanges and Flanged fittings
- ASME B31.3 – Process Piping
- AS1657 - Fixed Platforms, Walkways, Stairways and Ladder- Design & Construction
- API2016- Guidelines And Procedures for Entering & Cleaning of Petroleum Storage Tanks

NOTE: The AGST's & Pipe works are not limited to the above Standards.

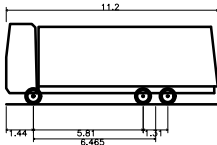
Appendix H

Nauru Terminal Layout



PLAN
SCALE 1:400

Existing Office Building



Nauru Truck
Overall Length 11.200m
Overall Width 2.400m
Overall Body Height 4.249m
Min Body Ground Clearance 0.585m
Track Width 2.400m
Lock-to-lock time 6.00s
Wall to Wall Turning Radius 12.500m

No	EQUIPMENT	DIMENSIONS
1	E HOUSE	6 x 2.5 m
2	GENERATOR	6 x 2.5 m
3	FOAM SHED	6 x 2.5 m
4	FIRE WATER	6 x 2.5 m
5	FIRE WATER TANK 1	Ø11 m
6	FIRE WATER TANK 2	Ø11 m
7	API OILY WATER SEP.	5 x 2 m

GENERAL NOTES

- ALL DIMENSIONS IN METRES UNO.
- COORDINATES IN TERMS OF: UTM-WGS 1984 DATUM, ZONE 58 SOUTH, METER; CENT. MERIDIAN 165D E (UTM84-58S).
- VERTICAL DATUM IN TERMS OF: "HIGH GROUND BOLTS" 1 TO 7.
- MDU SPEC INDICATED CABLE ROUTES.

JOB NO. 12891

ENGINEERING CONSULTANTS

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No	DATE	DRN	CHKD	ENGD	APPD	CLIENT	DESCRIPTION	REVISIONS
3	01/25	AM	BRJ	JD			ISSUED FOR INFORMATION - NAU06 (12891)	
2	07/24	CJ			CW	AS	ISSUED FOR CONSTRUCTION - NAU06 (12891)	
1	07/24	CJ			CW	AS	ISSUED FOR CONSTRUCTION - NAU06 (12891)	
0	04/24	KC	BRH	KB	CW	AS	ISSUED FOR CONSTRUCTION - NAU06 (12891)	

LOCATION

NAURU

PROJECT No

NAU06 (12891)

SCALE

1:400 @ A1

CLIENT

ital

DRAWN	CHECKED	ENGINEERED	APPROVED	CLIENT	DATE
K.CLEARY	B.HINTON	K.BLOXHAM	C.WILLIAMS	A.SAHEEN	04/24

ORIGINAL SIZE	DRAWING No	REVISION
A1	NAU-31010-01	3

NAURU FUEL TERMINAL UTILITIES AREA LAYOUT PLAN

Page 100 of 419

Appendix I

Tank 2 OOSI Report

issued after inspection

Appendix J

Tank 4 OOSI Report

issued after inspection

SECTION 2.2

HEALTH, SAFETY, SECURITY & ENVIRONMENT

- [Appendix F Vital HSSE Policy](#)
- [Appendix G Contractors Safety Administration Requirements](#)
- [Appendix H Nauru Terminal Hazard Drawing Layout](#)
- [Appendix N FSMPC Tank Cleaning Guidelines](#)

Appendix K

Vital HSSE Policy

Vital is committed to:

Protection of the Health, Safety & Security of our employees, and others with whom we come into contact

Elimination of work-related illness

Minimization of environmental impact

Education of employees on HSSE to enhance their awareness and induce their voluntary participation and cooperation. Vital seeks the cooperation of its contractors, dealers and customers in relevant areas.

Establishing contingency plans against accidents and taking measures to contain damages to as low as reasonably practicable in collaboration with relevant authorities

Managing HSSE as a Key Achievement Area in our business.

HSSE Management System:

- The HSSE Management System is evaluated and updated annually.
- Risk management is an integral part of the organization's management and decision making process
- All employees and contractors are trained in the HSE aspects of their role during induction
- All hazardous work requires a Safe Work Permit prior to commencement
- All accidents, near misses, unsafe acts and unsafe conditions are reported
- All visitors report to Security, and receive HSSE orientation prior to gaining entry and conducting business in Vital's facilities
- Personal Protective Equipment as described in the safety management system is worn at all times while engaged on Vital business
- All employees are trained in their roles in Emergency Response;
- Employees preparedness is a priority, and maintained through scheduled drills, exercises and refresher training
- Vital regularly audits its compliance with relevant laws, regulations and voluntary rules concerning HSSE

Appendix L

Contractor Safety Administrative Requirements

Contractor Safety Administrative Requirements

PREPARED BY: JARED MORRIS

1.0 Purpose

The purpose of this document is to establish FSMPC's contractual guidelines for a contractor company's management on safety. These contractual requirements establish minimum acceptable safety-related administrative standards and are intended to supplement, not replace, the contractor's own safety program. Contractors shall implement additional measures as necessary to ensure workplace safety and shall implement all applicable measures required by Government laws and regulations. FSMPC considers safety to be no less of a priority than other business considerations, including schedule and cost.

2.0 Scope

These safety-related administrative standards shall apply to all contractor companies and their subcontractors working on long form contracts, mid form contracts and as applicable on short form contracts within Corporation facilities, project sites and at project support facilities covered under laydown, fabrication or maintenance yards, as well as contractor camps housing Corporate employees or contractor/subcontractor personnel who work on contracts with FSMPC on or off Corporation property.

3.0 Standards

The requirements of the following are mandatory for contractor compliance.

- *Work Permit System*
- *Pressure Testing Safely*
- *Gas Testing Procedure*
- *Land Use Permit Procedures*
- *Contractor Site Allotment Procedure*
- *Electrical Arc Flash Hazard Mitigation*
- *Reporting of Contractor On-Job Injuries/Occupational Illnesses*
- *Isolation, Lockout and Tag Out Procedure*
- *Control of Remote Area Travel and Search/Rescue Procedures*
- *Traffic and Vehicle Safety*
- *Marine Crane, Hoist, and Rigging Operations*
- *Heavy Equipment Operator Testing and Certification*
- *Crane and Heavy Equipment Incident Reporting Procedures*
- *Crane Suspended Personnel Platform (Man-basket) Operations*
- *Crane Lifts: Types and Procedures*
- *Rigging Hardware Requirements*
- *Inspection and Testing Requirements for Elevating/Lifting Equipment*

- *Heavy Equipment Services*
- *Safety Requirements for Scaffolds*
- *Basic Life Support (BLS) Heartsaver Automated External Defibrillator (AED) / Standard First Aid (SFA) and First Aid Kit*
- *Implementing a Sanitary Code*
- *Administration Procedure of Contractor Camps/Parks and Construction Camps*
- *Waste Management*
- *Road Closure: Excavations, Reinstatement and Traffic Controls*
- *Request for Air Medical Evacuation*
- *Inspection, Testing and Maintenance of Fire Protection Equipment*
 - *Engineering Standards:*
 - *Safety Requirements for Plant and Operations Support Buildings*
 - *Fire Water System Design*
 - *Portable, Mobile and Special Fixed Firefighting Equipment*
 - *FSMPC Security and General-Purpose Fencing*
 - *Building Code*
- *Construction Safety Manual (CSM)*
- *Medical Minimum Standards Requirements Manual (MMSR Manual)*

4.0 General Requirements

4.1 Contractor's Safety Program and Performance

- A. The contractor shall establish an effective corporate (companywide) safety program that shall be fully implemented at each work site.
- B. The contractor's corporate safety program shall be aligned with FSMPC safety requirements and shall govern how safety is managed throughout the contractor company.
- C. The contractor's safety program shall be based on the safety/loss prevention policy formally endorsed by the contractor company's owner and/or senior management.
- D. The contractor's safety program shall include procedures for effectively evaluating potential subcontractors' safety programs and for conducting regular site safety performance evaluations of their subcontractor's work at the job site.
- E. FSMPC reserves the right to advise a contractor in writing of its objection to the safety program or safety performance of any subcontractor. The prime contractor retains full responsibility for the safety performance of his subcontractor(s). Contractor is not relieved from any liability or obligation as a result of contractor's use of subcontractors or non-objection of said subcontractors.
- F. During planning and execution of contracted work, the contractor shall meet all safety requirements. Contractor site management shall ensure compliance with the requirements of this document, the *Construction Safety Manual (CSM)*, other

applicable requirements and the Contractor Site Safety Program (CSSP) at the work site.

4.2 Contractor Safety Prequalification

In accordance with FSMPC's contracting procedures, contractor companies are required to be successfully prequalified in safety, before being eligible to be awarded a long form contract, mid form contract or short form contract for work to be performed within a FSMPC's facility or project site and considers the work to be inherently dangerous.

4.3 Contractor Pre-job Safety Explanation Meetings

- A. The Corporation will communicate relevant general and site-specific safety standards and information to the contractor during pre-job safety explanation meetings, including:
 - Job Explanation meetings, which are held with potential bidders, and/or
 - Kick-off meetings, which are held with the contractor that is awarded the contract before they begin on-site work activities.
- B. Following the pre-job safety explanation meeting, the contractor shall attend any site hazard identification tour led by the Corporation.
- C. Safety, health and environmental standards and information covered during these meetings may not represent all areas of potential hazard to the contractor/subcontractor's personnel and equipment. It shall be the contractor's responsibility to fully comply with the contract, including identifying and addressing all potential safety, health and environmental hazards, and to include the costs of compliance in the contract.

4.4 Facility Safety Orientation

The Site Administrator requires all contractor and subcontractor personnel to attend a facility-specific safety orientation prior to receiving their FSMPC plant ID and/or being allowed to work on-site. Multiple safety orientations may be required if a plant ID permits access to more than one facility (e.g., one orientation for each facility). Unless provided by the CORPORATION, the contractor shall provide translation of the safety orientation presentation(s) and materials into languages understood by its employees.

4.5 Contractor Site Safety Staff

- A. Contractor shall provide full-time and qualified site safety staff in accordance with Table 4.1, with respect to the maximum number of contractor and subcontractor employees who are present at the job site at a given time, or as otherwise requested by the CORPORATION (e.g., during a Job Explanation meeting).

Table 4.1

#Employees	Safety Manager required	Min. # Safety Supervisor(s) Required	Ratio of safety Officers to Employees Present (min.)
1 - 25	No	No	None
26 - 50	No	One (1)	None
51 - 500	No	One (1)	1:50
501 - 1,000	Yes	1 for every 10 safety officer	1:50
1,001 – 5,000	Yes	1 for every 10-safety officer	20 officers plus additional at ratio of 1:100
5,000	Yes	1 for every 10-safety officer	20 officers plus additional at ratio of 1:100

- B. The site safety manager (whose job title could also be site safety superintendent, senior safety engineer, safety coordinator, etc.) shall be fluent in spoken and written English and shall have at least 10 years of safety experience specific to the contract's scope of work.
- C. Site safety supervisor(s) shall be fluent in spoken and written English and shall have at least seven years of safety experience specific to the contract's scope of work.
- D. All field safety officers (whose job title could also be safety inspector, site safety engineer, safety advisor, safety representative or similar position) shall be fluent in spoken and written English and have at least five years of safety experience specific to the contract's scope of work.
- Note: Safety officers with less than five years of safety experience, as well as clerical, fire watch, confined space standby men, hazardous materials handlers, etc., shall be excluded from the numbers of safety staff in Table 4.1. Contractor is advised that additional safety officers may be necessary based on the risk of the activities to be performed and as requested by the CORPORATION.
- E. The contractor shall provide the safety manager and each safety supervisor with a personal means of communication (e.g., mobile phone) and a dedicated motor vehicle equipped for the travel environment that may be encountered during the course of his work.
- F. The names and qualifications (e.g., CV/resume, training certificates) of the safety manager, site safety supervisor(s) and all field safety officers who will work on the job shall be submitted to the CORPORATION for review and concurrence prior to beginning work.
- G. Prior to beginning work, the CORPORATION will review the qualifications of the contractor's on-site safety staff, including years of relevant safety work experience, academic education and degree(s), formal safety training and internationally recognized safety certifications (e.g., OSHA, NEBOSH, NSC). If requested by the CORPORATION, the contractor's safety staff shall also take and pass a written examination.

- H. The CORPORATION reserves the right to reject proposed safety staff personnel based on review of their qualifications.
- I. The safety manager/supervisor and field safety officer positions shall be filled prior to commencement of on-site work and shall remain filled until completion of work.
- J. Contractor safety staff personnel shall not be assigned dual roles (e.g., Not a site safety officer and the scaffold inspector).
- K. During the course of the work, safety staff qualifications shall be made available for review at the contractor's site office as requested by the CORPORATION.
- L. Contractor's site safety staff personnel shall be present at the job site at all times while contractor and/or subcontractor personnel are working, including nights, weekends, holidays and extended working hours.
- M. The CORPORATION reserves the right to require the contractor to replace the safety manager/supervisor or any safety officers whose work is deemed unacceptable by the CORPORATION.
- N. The CORPORATION reserves the right to require the contractor to provide additional safety and health specialists where special technical expertise is required.

4.6 Safety Meetings

- A. Contractor's site supervision shall conduct pre-job (toolbox) craft safety meetings with their personnel to address job-specific safety issues prior to beginning a different work activity. These pre-job craft safety meetings shall include a review of applicable sections of the hazard identification plan (HIP). See Section 6.0.
- B. Contractor's site supervision shall also conduct weekly safety meetings in the native language of the attendees. Attendees shall include contractor's and subcontractor's site personnel. These safety meetings shall be no shorter than 15 minutes and shall cover, but not be limited to, work hazards and related job procedures, as well as a review/update of the HIP.
- C. Weekly safety meetings shall be documented with records maintained and shall be made available for review by the CORPORATION upon request.
- D. Contractor site management shall attend and participate in the contractor's weekly safety meetings.
- E. Upon request by the CORPORATION, contractor's site management, site supervision and/or site safety staff shall attend the CORPORATION's safety meetings

4.7 Contractor Site Management Safety Meetings

In addition to making safety an agenda item at regular internal contractor company management meetings (e.g., project progress meetings), contractor site management (e.g., project manager, construction managers, site superintendents) shall conduct a separate meeting, at least monthly, to discuss safety, health and environmental issues. Minutes of these meetings shall be documented. Action items and needed corrective actions shall be documented and tracked until closed. Copies of these documents shall be provided to the CORPORATION upon request. Attendees shall include senior site supervision, the safety manager/supervisor(s), safety officers, key field personnel and, if requested, representatives from the CORPORATION and other applicable SA organizations.

4.8 Hazard Control and Personal Protective Equipment (PPE)

- A. Hazards not eliminated through design shall be mitigated by appropriate administrative controls (e.g., safe work procedures) and/or personal protective equipment (PPE) controls.
- B. Contractor and their subcontractor(s) shall provide the proper PPE (e.g., hard hat, safety glasses, safety shoes, hearing protection, gloves) that meets SA specifications to its employees.
- C. Contractor and subcontractor personnel who work in SA plant areas where use of flame-resistant clothing (FRC) is required or who may be exposed to a flash fire hazard shall be provided by their employer with the proper type, size and quantity of FRC in accordance with CORPORATION requirements.
- D. The type, size and quantity of arc flash PPE and FRC shall be provided to electrical workers by their employer and shall be properly used.

4.9 Health and Environmental Monitoring

Health and environmental monitoring shall be conducted by the contractor, as applicable (e.g., as identified in the HIP), to protect their personnel against exposure to health hazards (e.g., respiratory, noise etc). Monitoring shall be performed by qualified personnel and the results shall be submitted to the CORPORATION for review upon request.

4.10 Behavioural Observation and Site Safety Inspection

- A. The contractor shall implement behavioural observation and site inspection programs to detect and correct unsafe acts and conditions. Observations and inspections shall be frequently (e.g., weekly) conducted by contractor site management (e.g., project manager, construction manager, site superintendent), safety staff, supervisors and employees, who shall be properly trained.
- B. Unsafe acts and conditions shall be immediately reported to the relevant supervisor for correction as soon as practical. Life threatening hazards shall be corrected immediately. Corrective actions for unsafe conditions shall be identified and tracked until completion, with follow-up to verify proper implementation.
- C. Contractor shall perform trending and analysis of behavioural observations and site safety inspections to identify negative trends and mitigate safety problems.
- D. Statistics of inspection findings and observations shall be used to establish the priority of safety talks and training topics.
- E. Contractor shall provide copies of any and all inspection and observation records as requested by the CORPORATION.

4.11 Site Safety Performance Monitoring

- A. The CORPORATION will monitor, evaluate, inspect and report contractor job site safety performance. Performance monitoring will be performed in accordance with the SA Safety Management Guide, Contractor Site Safety Performance Monitoring and/or Project Management's Project Safety Index (PSI). Contractor shall participate in site safety evaluations and inspections, as requested by the CORPORATION.
- B. A rating of poor (4) or unsatisfactory (5) in any evaluation category on the Contractor Site Safety Evaluation Form or PSI is considered a violation of the safety requirements of the contract. In this case, the CORPORATION reserves the right to conduct performance counselling meeting(s) with contractor management and/or take other measures in accordance with SA's contracting procedures.
- C. Corrective actions shall be implemented by the contractor within any SA specified time period and in accordance with Section 4.14 herein. Corrective actions shall be identified and tracked until completion, with follow-up to verify proper implementation.

4.12 Work Permits

- A. For work to be carried out at an FSMPC specified or restricted area, or as may be required by the CORPORATION, contractor and subcontractor personnel shall comply with the requirements of Chapter I-4, Work Permit System, of the CSM.
- B. Contractor's and subcontractor's work permit receivers shall obtain the proper work permit (e.g., hot work permit or cold work permit) and any associated confined space entry and release permits for work to be carried out in a FSMPC specified or restricted area or as may be required by the CORPORATION.
- C. Contractors shall maintain records of their current receiver certificate holders, with their names and corresponding certificate expiration dates.

4.13 Jobsite Safety Logbook (JSL)

- A. For capital project construction contracts and other long form contracts as requested by the CORPORATION, a hardbound Jobsite Safety Logbook (JSL), supplied by the contractor(s), shall be maintained at the SA job site office. The JSL shall have pages that are sequentially numbered.
- B. The CORPORATION (e.g., SA Project Management), or other FSMPC personnel will enter their name, date and comments regarding safety observations in the JSL on the left-hand page.
- C. Contractor shall immediately take necessary corrective actions to mitigate observed safety hazards, including those documented in the JSL.
- D. Contractor responses shall be entered within 48 hours on the right-hand page opposite the SA entry. Contractor responses shall clearly state action items, responsible parties, and estimated time for completion (ETC) in order to close the entry.
- E. A member of the contractor's site management (e.g., project manager, job manager, site superintendent), other than safety staff, shall sign/date that entries are properly closed.

- F. The CORPORATION reserves the right to notify contractor of failure to properly close JSL entries and to take necessary actions to eliminate the subsequent deficiency.
- G. Failure to correct deficiencies noted in the JSL may result in that part of the job site work activities being suspended at the contractor's expense until the noted safety deficiencies have been corrected.
- H. JSLs shall be given to the CORPORATION when all pages are filled and/or at job completion.

4.14 Failure to Comply

- A. Upon receiving notification from the CORPORATION of failure to comply with the requirements of the contract and any actions needed to prevent the injury or death of personnel, damage to equipment, loss of process or damage to the environment during performance of work, the contractor shall immediately take all necessary actions including, but not limited to, action requested by the CORPORATION.
- B. If contractor fails to take prompt corrective action, the CORPORATION may direct the contractor to suspend all or part of the work until satisfactory corrective action has been taken. Costs incurred by contractor as a result of such work suspension shall be solely the contractor's responsibility.
- C. Disputes involving safety shall be elevated to the contractor's higher management for resolution before work can proceed.

4.15 Transportation

- A. Contractor and their subcontractors shall provide safe and adequate transportation to and from the work site for their employees.
- B. The contractor shall install and maintain roads as needed to access the work site (e.g., for remote capital projects).
- C. Contractor-provided transportation shall stop at a safe location completely off the main road or highway (e.g., on a side street or authorized bus stop) and contractor personnel shall only disembark on the safe (i.e., sidewalk) side.
- D. Motor vehicles used for transportation of contractor's employees shall have a valid SA sticker (if required to enter an FSMPC facility) and be kept in a clean and hygienic condition. Automobiles shall be air-conditioned. Defective vehicles shall not be used for transportation.
- E. Contractor's employees shall be transported in the passenger compartments of motor vehicles equipped with seat belts for all occupants. All seats in cars and trucks shall face forward.
- F. For larger sites, suitable buses may be used for transportation of employees. Buses without seat belts shall not be used after Jan. 1, 2015. Newly purchased buses shall have seat belts provided for all occupants and have air-conditioning installed.
- G. Seat belts shall be continuously worn by all occupants of motor vehicles and buses in motion.

- H. Buses shall not be overloaded (no more occupants than the manufacturer's stated seating capacity of the bus) and emergency exits shall be accessible and operable (not blocked or locked). Buses shall be equipped with fire extinguisher(s).
- I. Motor vehicles and buses shall be in good working order. Documented inspections shall be performed for motor vehicles and buses at least monthly. Motor vehicles and buses shall be maintained in accordance with the manufacturer's instructions. The CORPORATION reserves the right to require removal and replacement of any motor vehicle or bus deemed unsafe or unfit for its intended purpose.
- J. Personnel operating motor vehicles and buses on FSMPC property or project sites shall follow all FSM Government regulations, and the rules and requirements in Chapter I-8, *Traffic and Vehicle Safety*, of the CSM.
- K. Contractor site management shall develop and implement a remote area travel program to control travel and provide for any necessary search and rescue of their employees in remote areas.
- L. For remote travel and oversize/heavy loads, the contractor shall implement a journey management program.

4.16 Fitness for Duty

- A. Contractor shall verify that its personnel are fit for duty relative to medical, physical and substance abuse considerations.
- B. Contractor shall arrange for vision check(s) for all employees needing or suspected of needing corrective lenses in order to perform their assigned work.
- C. Contractor shall ensure that personnel requiring sight correction (as determined by a vision check) wear appropriate safety eyewear (i.e., prescription safety glasses with side protection or safety over-glasses over standard prescription glasses). See Chapter I-3, *Personal Protective Equipment (PPE)*, of the CSM.
- D. To prevent serious fatigue, contractor and subcontractor personnel shall not work excessive hours, with a maximum of 12 hours daily, except as may be requested/approved by the CORPORATION (e.g., during an emergency or unforeseen circumstances). Maximum work hours including portal-to-portal transportation shall not exceed 16 hours in any 24 hour period.

4.17 Heat Stress

- A. Contractor management is responsible for managing their employees' work so as to avoid and prevent heat-related illnesses. Contractor shall ensure the requirements in Chapter I-13, *Heat Stress*, of the CSM are fully implemented at the work site.
- B. Prior to performing work during hot weather, the contractor shall conduct a thorough heat stress evaluation to identify tasks and conditions that present a potential heat stress hazard. This evaluation shall include observations, discussions with workers and supervisors, review of any previously reported heat-related illnesses and shall be based on the U.S. Occupational Safety and Health Administration (OSHA) Technical Manual TED 01-00-015, Section III: Chapter 4, "Heat Stress" and/or the National

Institute for Occupational Safety and Health (NIOSH) *Occupational Exposure to Hot Environments*.

- C. The contractor shall develop and implement a written heat stress management program based on the results of the heat stress evaluation, as well as SA's heat stress requirements. The contractor shall provide proper resources to support implementation of the plan, including but not limited to procurement and provision of materials and supplies. The contractor's heat stress management program shall be submitted to the CORPORATION for review and concurrence prior to the start of work during hot weather (i.e., prior to April 1).
- D. The contractor's heat stress evaluation and management program shall address the following:
 - Job Location, specific locations of each task, including proximity to heat-producing equipment, confined spaces, work requiring specialized PPE, etc.
 - Work Duration and Schedule, frequency at which the task is performed and how much time and effort is required to perform the work.
 - Clothing, what workers wear can make a big difference in how much body heat they build up. Additional work clothing and/or more frequent laundry cycles shall be provided to enable workers to wear clean clothes each day.
 - Environmental Conditions, procedures to monitor air temperature and humidity and immediately communicate changing heat stress conditions to workers (e.g., use of color-coded flags and/or mass distribution of SMS mobile phone text messages to site supervisors and other personnel in non-restricted areas).
 - Controls, plan for and provide needed heat stress controls (i.e., engineering, administrative and personal protective controls) that shall be used to prevent heat-related illness. See Chapter I-13, *Heat Stress*, of the CSM.
- E. Contractor shall provide training to site management and supervision on the heat stress management program, including recognition of, prevention of and response to heat-related illness, with emphasis on their responsibilities for ensuring safe working conditions (particularly suitable work/rest rotations for workers).
- F. Contractor shall provide training and guidance to their employees in the recognition of, prevention of and response to heat-related illness.

4.18 Emergency Response

- A. An emergency response plan (ERP) for each specific site shall be established by the contractor and/or by the contractor in coordination with the CORPORATION. For additional information, see the SA Emergency Management Guide. The contractor's ERP shall be submitted to the CORPORATION for review prior to the start of work.
- B. Contractors shall ensure that their ERP is aligned with the CORPORATION and/or FSMPC facility's ERPs, as applicable.
- C. Contractor shall train personnel on their specific roles in the ERP and shall conduct their own periodic emergency drills.
- D. When an emergency alarm is sounded for any reason, all contractor personnel shall immediately shut down their job, make it safe and proceed in an orderly manner to the designated assembly point.

- E. SA periodically conducts emergency response drills to perform and evaluate emergency response procedures. All contractor personnel are required to take part in these drills just as if it were an actual emergency as mentioned above.
- F. Any action items from critiques of emergency drills that are applicable to the contractor shall be implemented by contractor site management. Review and verification of closure of these action items shall be performed during contractor site management safety meetings.
- G. For projects outside of FSMPC facilities, the contractor shall install a proper emergency notification system and alarm(s), which shall include prompt activation of emergency response personnel. Contractor shall periodically conduct emergency response drills to evaluate emergency response systems and procedures.

4.19 Authority for Employees to Stop Work

Contractor shall provide the CORPORATION with written evidence that its employees and subcontractor employees clearly have authority to stop their own work and the work related to the contract due to unsafe conditions or acts.

4.20 Incident Reporting and Investigation

- A. Contractor shall establish a policy and procedures to promote timely reporting of all unsafe acts and conditions, near-misses, injuries and other incidents, in accordance with GI 6.007 and Chapter I-2, *Incident Reporting and Investigation*. Proper corrective actions shall be promptly taken.
- B. Contractor shall investigate all incidents involving their personnel and/or their subcontractors' personnel and shall participate in any SA incident investigation as requested by the CORPORATION.
- C. Contractor's incident investigations shall be performed in a timely manner and root causes of the incident shall be properly identified. Effective corrective actions to prevent recurrence shall be identified and tracked to completion, with follow-up to verify proper implementation.

5.0 Contractor Site Safety Program (CSSP)

5.1 Contractor shall properly plan and establish job-specific safe work procedures for all contracted work. For long form capital project construction contracts where SA Project Management is the proponent or as requested in writing by the CORPORATION, the contractor shall develop, implement and adhere to a job-specific contractor site safety program (CSSP) that conforms to the requirements of the contract, this document and all other applicable SA safety requirements. If requested by the CORPORATION, the contractor shall submit a supplementary detailed safety plan as may be needed before starting a new major phase of work.

5.2 CSSP Submittal and Review Requirements

- A. Within fifteen (15) working days of contract execution, contractor shall submit three copies of the job-specific CSSP to the CORPORATION for review. The CORPORATION will forward a copy of the CSSP to the Loss Prevention Department (LPD) and other applicable FSMPC organizations for additional review.
- B. Any review comments will be forwarded to the contractor for its action. Contractor shall address all comments and resubmit the CSSP to the CORPORATION for final review and concurrence. Contractor shall not begin work onsite until the job-specific CSSP for the contract, if required, has been concurred with by the CORPORATION. The contractor shall furnish two (2) copies of the final CSSP to the CORPORATION prior to the start of work and shall also maintain copies at the job site.

5.3 The CSSP shall state specifically how the contractor will meet FSMPC's safety requirements for the work to be performed. The CSSP shall include the following, as applicable to the contract and work to be performed:

- A. Title page, specifying budget item (BI), job order (JO) or contract number.
- B. Job title and brief scope of work.
- C. Site location map(s) with legend (symbols).
- D. Contractor company's current safety policy (signed by their upper management).
- E. Job-specific organization chart that clearly defines safety reporting relationships.
- F. Names and qualifications (e.g., CV/resume) of safety manager/supervisor(s) and safety officers, as required.
- G. Job-specific assignment of safety responsibilities by job classification.
- H. Job-specific training needs analysis (e.g., training matrix) showing the safety training and job-skills/competency training required for all job classifications, as applicable to project's scope of work.
- I. Written safety training program that includes: (1) a description of the basic safety training courses (e.g., first aid, fire safety, hazard recognition, confined space safety, driving safety) provided to contractor company's employees, (2) how these safety training courses are delivered (e.g., in-house, third-party) and (3) which of these courses are required for each type of job (e.g., documented in a safety training matrix or safety training plan).
- J. *Written job skills/craft competency* training program that includes: (1) a description of the specific job skills/craft training courses required for each type of job (e.g., HVAC technician, plumber, pipefitter, scaffolder, welder) that are specific to their work for SA, (2) how these job skills/craft training courses are delivered (e.g., in-house and/or third-party) and (3) refresher training frequency.
- K. List of jobs to be performed that require SA-approved certification (e.g., scaffold supervisor/inspector, crane/heavy equipment operator, rigger, welder).
- L. Complete list of known subcontractors.
- M. Project-specific plan/program the contractor will use for managing their subcontractors, including their safety performance.
- N. Procedures for behavioural observations, site safety inspections, safety meetings, incident/injury/near miss reporting and investigation, safety training, safety recommendation tracking, etc.
- O. Description of contractor's site safety incentive and/or disciplinary action programs.

- P. Hazard identification plan (HIP) as per Section 6.0. Q. Waste management plan as per Section 10.0.
- R. Hazardous substances plan, which describes the contractor's procedures for identifying and handling hazardous chemicals, materials, etc. Hazardous chemicals/materials shall be stored and handled in accordance with FSMPC chemical hazard bulletins (CHBs) and the manufacturer's material safety data sheets (MSDSs).
- S. Job-specific and/or location specific safety procedures that are applicable to the contract's scope of work. These procedures may include but are not limited to: work permits, confined space entry, PPE, respiratory protection, fall protection, lock-out/tag-out, waste management, site demobilization/restoration, emergency response, etc., (see Section 6.2 for additional topics).

Note 1: When the CORPORATION has applicable procedures, the contractor shall adopt them by reference with the contractor's job-specific safety procedures supplementing FSMPC's requirements by explaining specifically *how* the contractor will meet FSMPC's requirements. The contractor's safety procedures shall *not be a verbatim copy* of FSMPC's safety requirements (e.g., copied directly from the FSMPC *Construction Safety Manual*).

Note 2: If the CORPORATION confirms that they do not have the needed existing procedures or that their procedures are not applicable to the project, the contractor shall develop their own safety procedures.

- 5.4** Since the contractor is completely responsible for their subcontractors, the contractor shall verify that the safety procedures and safe work practices identified in each subcontractor's site safety program are adequate and satisfy SA's and the contractor's minimum expectations and requirements. In the event that any subcontractor's safety procedure or safe work practice does not meet the minimum expectation, contractor shall work closely with subcontractor to develop/upgrade the appropriate safety procedure or safe work practice. Contractor shall complete the verification process prior to commencement of the work. CORPORATION may participate in the development/upgrade process at their discretion.

6.0 Hazard Identification Plan (HIP) and Other Submittals

- 6.1** For all FSMPC contracts (e.g., long form, mid form and short form contracts), the contractor and/or their subcontractor(s) shall develop, implement and adhere to a contract-specific HIP. The HIP shall list all tasks/activities associated with the contracted work, potential hazards of each activity and control measures to mitigate these hazards. The contractor's HIP shall identify all potential hazards associated with the work to be performed. The HIP shall not be a list of generic hazards.
- 6.2** The topics in Table 6.1 represent some, but may not be all, of the safety issues that shall be considered when developing the HIP.

Table 6.1 Possible HIP Topic's

Abrasive blasting	Falling object prevention
Asbestos	First aid, hospital transfer provisions
Blinding	Hand tools
Cartridge operated tools (Hilti)	Heat stress hazards
Chemicals and chemical handling	Heavy equipment operations
Communications	Housekeeping
Compressed gas cylinders	Toxic gasses
Concrete forming and shorting	Hydro-testing
Concrete placement	Impact on FSMPC's operations
Confined space entry/ rescue	Ionizing radiation
Cranes and rigging	Isolation/ Lock out/ Tag out (LOTO)
Cutting, welding and brazing	Materials handling
De-mobilisation	Mechanical equipment
Demolition	Painting and coating
Driving/ vehicle safety	PPE
Dust control	Portable power tools
Electrical safety	Scaffolding
Elevating/ lifting equipment	Steel erection
Emergency response (ERP)	Transportation
Excavations and shorting's	Welding on lines in service
Explosives	Work at height
Fall prevention/ protection	Work over water
Fire prevention/ fire fighting	Work permits

- 6.3** Within fifteen (15) working days of contract execution, the contractor shall submit three copies of contractor's job-specific HIP to the CORPORATION for review. The CORPORATION will forward a copy of the HIP to the LPD and other applicable FSMPC organizations for additional review.
- 6.4** Any comments will be forwarded to the contractor for its action. Contractor shall address all comments and resubmit the HIP to the CORPORATION for final review and concurrence. Contractor shall not begin work on-site until the HIP for the contract has been concurred with by the CORPORATION. The contractor shall furnish two (2) copies of the final HIP to the CORPORATION prior to the start of work and shall also maintain copies at the job site.
- 6.5** The contractor's job-specific HIP shall be revised and amended, as needed, when conditions change, new hazards are introduced or the scope of work changes.
- 6.6** In addition to the HIP, contractor shall submit, as applicable to the contract, job-specific plans such as, but not limited to: site layout plans, site-specific traffic flow plans, fire protection plans, security fence layout plans, project support facility plans (e.g., office, maintenance, sanitary, dining, laydown/storage facilities) and contractor camp plans (see Section 10.3 and Section 11.0 herein). The contractor shall submit three copies of these job-specific plans to the CORPORATION for review within fifteen (15) working days of contract execution. Contractor shall not begin work on-site until the job-specific plans for the contract have been reviewed by the CORPORATION. Contractor shall furnish two (2) copies of these job-specific plans

to the CORPORATION prior to the start of work and shall also maintain copies at the job site.

7.0 Contractor Personnel Safety Responsibilities

7.1 General

- A. Each contractor employee working on FSMPC jobs shall comply with the SA GIs, standards, manuals and other contract documents that are applicable to the work, including the *SA Safety Handbook*.
- B. The contractor's line management and site supervision shall be fully responsible for compliance with SA's safety requirements. This responsibility shall not be delegated to the contractor's safety manager/supervisor(s)/officer(s).
- C. Contractor supervisory personnel or other qualified staff shall be present at the job site while work is in progress.
- D. The contractor shall remove from the job site any of its employees who refuse or repeatedly fail to comply with safe work practices or supervisors who fail to enforce compliance, including as requested by the CORPORATION.
- E. Listed below are some responsibilities associated with specific contractor job categories, as applicable (e.g., specific management and supervisory job categories may not be required or may be combined if agreed to by the CORPORATION). Contractor personnel working on FSMPC jobs shall abide by these responsibilities.

7.2 Contractor Management

Contractor company management shall:

- Ensure compliance with SA's safety requirements for the control of injury, damage and fire as stated in the contract.
- Ensure preparation and submittal of a contract-specific CSSP and/or HIP, as required by the CORPORATION.
- Ensure the contractor's subcontractor selection process includes an evaluation of subcontractor safety management program and performance.
- Provide the necessary personnel, training, tools, equipment and materials to enable the work to be performed competently and safely.
- Train and qualify contractor site management and supervision on their job safety responsibilities, including incident investigation and job safety analysis (JSA).
- Conduct training needs analysis to determine the required training for all levels of contractor employees.
- Ensure contractor employees are trained and qualified on their safety responsibilities.
- Provide needed PPE and establish training/procedures to ensure proper
- PPE selection, use and maintenance.

- Participate in coordination (interface) meetings between SA, subcontractors and any other contractors that may be working on the same jobsite to coordinate work activities.
- Ensure development, CORPORATION review and implementation of detailed procedures for critical work activities such as welding, tie-ins, hot taps, loop tests, excavations, confined space entries, equipment/vehicle access, etc.

7.3 Contractor Site Management

- A. The contractor's site management (project manager, construction manager, site superintendent or equivalent position) shall establish the following at the planning stage:
 - Safety responsibilities for supervisors, subcontractors and other personnel.
 - Fire prevention and protection provisions.
 - Emergency vehicle access.
 - Specific hazards to be identified in the CSSP and/or HIP.
 - Job-skills/craft training and safety training/orientation requirements for personnel.
 - Types and quantities of PPE needed.
 - First aid, medical and sanitation facilities needed.
 - Work permit procedures and requirements, if not already established by the CORPORATION.
 - Emergency Response Plan (ERP) and/or emergency procedures aligned with any applicable CORPORATION ERP.
- B. The contractor's site management shall be fully responsible for implementation of all contractual requirements at the job site and shall visibly demonstrate the priority of safety in all activities, including setting a good personal example and as follows:
 - Empower all contractor and subcontractor personnel on site to stop their own work and work related to the contract that they deem to be unsafe and take immediate corrective actions as needed.
 - Understand and implement the safety and health requirements of the contract.
 - Implement the CSSP and/or HIP and convey the safety responsibilities of each level of supervisory staff.
 - Use only FSMPC certified work permits when work will be conducted in FSMPC restricted areas or where required by the CORPORATION.
 - Implement contractor's work permit procedures in work areas where SA work permits are not required or as requested by the CORPORATION.
 - Attend/conduct safety meetings to promote and reinforce proper safety and health performance.
 - Periodically inspect the work site, report any unsafe acts/conditions to the contractor's site supervisor and/or foreman, provide recommendations to correct deficiencies and perform follow-up inspections to ensure corrective actions have been taken.

- Routinely consult with the contractor's safety manager/supervisor(s)/officers to assess the job site safety status and identify areas for supervisors and foremen to take corrective action.
- Provide and maintain a Jobsite Safety Logbook (JSL) at each separate job site (note: the JSL shall be used by SA and the contractor to document unsafe acts/conditions and the corrective actions taken).
- Ensure that the appropriate supervisor or foreman responds immediately to comments written in the JSL.
- Review work methods and precautions with site supervision before work starts.
- Immediately report all incidents and near misses to the CORPORATION.
- Ensure incidents and near misses are properly investigated to determine root causes, make recommendations to prevent recurrence and that corrective actions have been taken.

7.4 Site Safety Manager/Supervisor

The contractor's site safety manager/supervisor (site safety superintendent, senior safety engineer, safety coordinator or equivalent position) shall visibly demonstrate the priority of safety in all activities, including setting a good personal example and as follows.

- Be responsible and accountable for the proper performance of field safety officers under his authority.
- Be empowered in writing by his management to stop their own work and work related to the contract that they deem to be unsafe and take immediate corrective actions as needed.
- Understand safety and health requirements of the contract as well as the CSSP/HIP and CSM.
- Conduct safety 'kickoff' meetings with subcontractors to explain site-specific safety requirements and expectations.
- Ensure all contractor and subcontractor personnel attend site safety orientations, including as required by the CORPORATION, and ensure contractor and subcontractor personnel attend applicable safety training.
- Communicate safety rules and standards to the contractor and subcontractor workforce.
- Provide/assist with safety training for personnel.
- Periodically inspect the work site, report any unsafe acts/conditions to the area supervisor and/or foreman, provide recommendations to correct deficiencies and follow-up to verify corrective actions have been taken.
- Keep a record of safety meetings, including agendas and personnel attendance records.
- Keep a permanent record of job-related injuries/illnesses, near misses, fires, motor vehicle accidents, property damage, crane and heavy equipment incidents, etc.
- Participate in incident investigations, safety meetings, drills, etc., and conduct/facilitate safety training sessions.

- Ensure general safety rules are printed in languages understood by contractor and subcontractor personnel and are posted in areas where they are clearly visible.

7.5 Project Engineer

- A. The contractor's project engineer (project superintendent or equivalent position) shall immediately notify the contractor's site management and the CORPORATION of the following:
 - Injury or death of personnel, damage to equipment, loss of process or damage to the environment.
 - Safety infractions noted during site inspections, etc.
- B. The contractor's project engineer shall visibly demonstrate the priority of safety in all activities, including setting a good personal example and as follows:
 - Conduct daily site inspections and evaluate safe work methods in operation.
 - Monitor compliance with Government regulations and SA requirements, including the adequacy of sanitation and first aid/medical facilities.
 - Provide/assist with safety training for personnel.
 - Meet and discuss with the CORPORATION, regarding injury or death of personnel, damage to equipment, loss of process or damage to the environment.
 - Obtain and circulate relevant safety information applicable to personnel.
 - Attend safety meetings and report on-job safety performance.
 - Participate in incident investigations, drills, etc., and conduct/facilitate safety training sessions.

7.6 Site Supervision

The contractor's site supervision (field engineers, supervisors, foremen or equivalent position) shall visibly demonstrate the priority of safety in all activities, including setting a good personal example and as follows.

- Be qualified, proficient in both verbal and written English, provide direct and effective on-site supervision and be continuously present on- site.
- Be empowered in writing by their management to stop their own work and work related to the contract that they deem to be unsafe and to take immediate corrective actions as needed.
- Understand the safety and health requirements of the contract as well as the contractor's CSSP and/or HIP.
- Assess the workplace and work activities to determine hazards that are present or are likely to be present, in consultation with the safety manager/supervisor(s) or field safety officer as needed.
- Evaluate hazardous operations and implement needed precautions to ensure the safety of all affected personnel (note: hazardous operations may

include, but are not limited to: welding, radiography, abrasive blasting, asbestos removal, electrical work, solvent cleaning, crane operations, etc.).

- Understand the safest method of performing each job activity in their area of responsibility.
- Provide instructions to their personnel on proper work methods, sequence of operations, potential hazards at each stage and precautions to follow.
- Inform their personnel of safe work methods and safety requirements detailed in the CSSP and/or HIP prior to beginning a different work activity (i.e., conduct pre-job toolbox (craft safety meetings).
- Use only trained personnel who are properly qualified for the work to be performed.
- Ensure that equipment operators operate only the specific equipment for which they have been trained and/or certified.
- Plan and maintain good housekeeping in the work area.
- Coordinate with subcontractors and other contractors on-site to avoid confusion in areas with joint or overlapping responsibility or joint occupancy (note: this includes work that may be separate and unrelated).
- Position temporary equipment to avoid safety hazards.
- Provide the required PPE and ensure proper use.
- Ensure equipment and tools (both power and hand tools) are in good operating condition and properly used.
- Train their personnel on emergency response procedures/plans.
- Provide immediate assistance as requested by the contractor's safety manager/supervisor, emergency response organizations, CORPORATION, etc., during emergencies.
- Conduct weekly safety meetings for their personnel.
- Conduct daily work site inspections to identify and immediately correct unsafe acts, conditions and/or equipment.
- Document and coordinate safety inspection activities and findings with the safety manager/supervisor.
- Commend personnel who, by action and/or initiative, eliminate hazards.
- Immediately report all incidents, unsafe conditions and defects in equipment to the contractor's site management and the CORPORATION.
- Participate in incident investigations, safety meetings, drills, etc., and conduct/facilitate safety training sessions.

7.7 Field Safety Officer

The contractor's field safety officers (safety inspector, site safety engineer, safety advisor, safety representative or equivalent position) shall visibly demonstrate the priority of safety in all activities, including setting a good personal example and as follows:

- Be empowered in writing by their management to stop their own work and work related to the contract that they deem to be unsafe and take immediate corrective actions.
- Understand the safety and health requirements of the contract as well as the CSSP/HIP.

- Communicate safety rules and standards to the contractor and subcontractor workforce.
- Inspect the work site daily, report any unsafe acts/conditions to the supervisor and/or foreman, provide recommendations to correct deficiencies and follow-up to ensure corrective actions have been taken.
- Participate in incident investigations, safety meetings, drills, etc., and conduct/facilitate safety training sessions.

7.8 Equipment Manager/Supervisor

- A. The contractor's equipment manager/supervisor or equivalent position shall ensure that all equipment purchased, rented or leased:
 - Has proper guarding for electrical, mechanical and chemical hazards.
 - Is equipped with required safety devices.
 - Has required testing laboratory stamps, labels and certifications affixed.
- B. The equipment manager/supervisor shall visibly demonstrate the priority of safety in all activities, including setting a good personal example and as follows:
 - Attend and participate in safety meetings.
 - Verify heavy equipment operators are certified as required by SA.
 - Ensure hand-held electrical equipment and power tools are rated at 110 volts.
 - Ensure tools constructed of good quality materials are used. Use of homemade tools is prohibited.
 - Ensure periodic tests, inspections and maintenance of equipment are carried out when due and records are properly maintained and available for review by the CORPORATION.
 - Ensure equipment defects are promptly repaired and defective equipment is immediately tagged with in red, removed from service and discarded/destroyed.

7.9 Contractor Personnel

Contractor personnel shall visibly demonstrate the priority of safety in all activities and shall:

- Be empowered in writing by their management to stop their own work and work related to the contract that they deem to be unsafe (without fear of retribution).
- Immediately report all incidents or hazardous conditions to their supervisor.
- Never endanger themselves or their fellow workers, including refraining from horseplay.
- Take and pass required job-skills/craft training and safety training.
- Understand safety rules, safe work practices and follow special safety precautions (e.g., in FSMPC restricted areas).
- Properly use the correct tools and equipment for the job.
- Keep tools in good condition and repair.

- Properly use the correct PPE.
- Never remove, modify or abuse safety devices, equipment and welfare facilities.
- Attend and participate in safety meetings, —toolbox talksll, safety training, etc.
- Obey posted warning signs.

8.0 Personnel Qualifications, Training and Certification

8.1 General

- A. Contractor shall ensure that all its personnel are qualified, competent and have demonstrated they have the necessary knowledge and skills to safely and properly perform their assigned work.
- B. Contractor shall ensure their personnel receive documented training, based on job classification and training needs analysis, before being permitted access to the work site. This training shall include: (1) safety orientation, (2) job-specific safety training and (3) job-skills/craft competency training for personnel engaged in specific craft activities (e.g., electrical, scaffolding, steel erection, welding, cutting, crane/heavy equipment operation).
- C. Contractor shall establish job classifications (e.g., welder, rigger, crane operator, heavy equipment operator, driver) required to perform the work and the specific job skills/craft competence and training requirements for each of these job classifications, including FSMPC and/or FSM Government certification/license requirements.
- D. Where a specific job function requires FSMPC and/or FSM Government certification/license, these job functions shall be assigned only to properly certified/licensed personnel (e.g., certified crane/heavy equipment operators).
- E. Contractor shall establish additional training programs for personnel who perform high-risk activities, such as but not limited to: confined space entry, fire watch, isolation and lock-out/tag-out, working on or near energized electrical equipment, working at height, lifting and rigging, excavation, specialized power tools and equipment, handling of hazardous chemicals, waste storage and handling, etc.
- F. Contractor's in-house or third-party training shall include:
 - Training facilities complete with multimedia (audio/visual) resources.
 - Qualified instructors to ensure personnel properly receive the required training.
 - Verbal instruction and written materials in a language clearly understood by the personnel receiving the training.
 - Documented post-training competency assessments.
 - Documentation of completed safety training (e.g., pocket card, "safety passport" or file copies of training records).

- G. Personnel shall maintain the required FSMPC and/or FSM Government certification/licenses in their possession at all times.
- H. Contractor shall work closely with their subcontractors to provide training programs to ensure that subcontractor personnel have the necessary knowledge and skills required to safely and properly perform the assigned work.

8.2 Safety Orientation for Contractor Employees

- A. Contractor companies shall ensure that their employees and subcontractor employees who are new to a particular work site attend and pass their own company's safety orientation, as well as any facility safety orientation that may be required by the CORPORATION.
- B. The contractor's safety orientation program shall include an overview of relevant requirements in the SA Safety Handbook and Construction Safety Manual (CSM).
- C. The contractor's safety orientation program shall include, but not be limited to, the applicable topics shown in Table 8.1.

Table 8.1 Contractors Safety Orientation Topics

Alarms and notifications	Incident reporting procedures
Assembly points	PPE
Basic safety rules	Smoking restrictions and locations
Break areas	Traffic rules and restrictions
Emergency response procedures (ERP)	Understanding safety signs and warnings
Heat stress precautions	Work permits
Toxic gasses	

8.3 Short Service Employee (SSE) Program

- A. Contractor shall establish a short service employee (SSE) program. This program shall include identification of new or inexperienced personnel so others may take extra care in their presence and provide additional assistance.
- B. The SSE program shall define the criteria for an inexperienced worker based on duration of employment, change of job scope and/or length of industry service.
- C. All new or inexperienced workers shall be classified as a SSE for a predetermined duration (e.g., 3-6 months) and shall be assigned a mentor during this time.
- D. All SSE's shall continuously wear a visual identifier while at the job site (e.g., green hard hat). The SSE visual identifier to be used shall be approved beforehand by the CORPORATION.
- E. Before work commences, contractor shall inform the CORPORATION of the maximum ratio of SSEs to experienced workers that will be present at the job site at any given time. The CORPORATION reserves the right to require an alternate maximum ratio of SSEs.
- F. Supervisors shall observe their SSE's work performance until they are satisfied that the employee can perform his job in a safe and effective manner.

G. The SSE program shall provide additional training as requested by the supervisor.

8.4 Job-Skills/Craft Competency Training and Safety Training

- A. Contractor shall ensure that job-skills/craft and safety training fully qualify personnel to perform their job properly and safely.
- B. Job-skills/craft competency training and safety training shall include, but not be limited to, the relevant topics listed in Table 8.2, depending upon the job scope and assigned responsibilities.

Table 8.2

Job-skills/Craft Training	Safety Training
Abrasive blasting	Basic life support (BLS)
Asbestos	Communications
Cartridge operated tools (Hilti)	Compressed gas cylinders
Concrete formwork/shoring	Confined space entry/rescue
Cranes and rigging	Emergency response procedures
Cutting, welding, brazing	Fall prevention/protection
Demolition	Falling object prevention/protection
Electrical systems/equipment	Fire prevention/firefighting
Elevating/lifting equipment	First aid
Excavations and shoring	Hazard recognition
Explosive materials	Hazardous chemicals
Gas testing	Heat stress
Hand tools and power tools	Housekeeping
Heavy equipment	Hydrogen sulfide (H ₂ S)
Hydrotesting	Incident reporting/investigation
Ionizing radiation	Isolation/lockout/hold tag
Isolation and blinding	safety analysis (JSA)
Non-destructive testing (NDT)	Ladders
Painting and coating	Materials handling
Piling	Personal protective equipment (PPE)
Pipefitting	Respiratory protection
Plumbing	Vehicle/traffic/driving safety
Portable power tools	Work over water
Pressure testing	Work at heights
Scaffolding	Work permits

- C. Contractors shall maintain training records for review by the CORPORATION upon request.
- D. SA reserves the right to test/verify the job skills/craft competency and qualifications of contractor's employees and to remove any employee failing this test/verification.

- E. Safety training shall also address off-job hazards (e.g., seat belt use, cooking safety).

8.5 Refresher Safety Training

Refresher safety training shall be:

- Conducted at a frequency not less than that established by FSM Government regulations or SA requirements (note: in the event that refresher safety training is not covered by FSM Government regulations or SA requirements, the CORPORATION or contractor shall document the refresher safety training frequency).
- Documented by the contractor, including the personnel that attended and passed refresher safety training.

8.6 Safety Training for Site Supervision and Safety Staff

- A. Contractor shall ensure that all their site supervision and safety staff receive formal safety training, OSHA, NEBOSH, NSC or other CORPORATION approved equivalent safety training program. This training shall include a review of typical site hazards and safe work practices.
- B. Contractor's site supervision and safety staff shall be trained in, but not be limited to, the following:
- The job-specific CSSP and HIP.
 - The contract's safety requirements.
 - Specific hazards and safe work practices associated with the job.
 - Relevant sections of the *SA Safety Handbook* and the *SA Construction Safety Manual* (CSM).
 - Injury/incident reporting and investigation.
 - Applicable emergency response procedures.
 - First aid and basic life support (BLS). Note: They shall have valid first aid and BLS certificates in their possession at all times.

9.0 Medical

9.1 General

Contractor shall provide for medical care of its employees according to requirements established by the FSM Government Ministry of Health (MOH) and FSM labour law. This medical care shall include, but not be limited to, first aid, urgent and emergency care, stabilization and immediate transfer of patients to hospital, inpatient/outpatient hospitalization and emergency and disaster response.

9.2 Provision of First Aid

- A. First aid, which is the immediate help provided at the work site to injured or seriously ill personnel prior to the arrival of professional medical assistance.
- B. Contractor shall provide and maintain adequate first aid supplies for contractor and subcontractor personnel at all work locations.
 - If fewer than 50 people are at a work site, provide at least one 10-unit first aid kit/cabinet.
 - If 50 people or more are at a work site, provide at least one 36-unit first aid kit/cabinet.
 - If work is carried out at locations that are more than 500 m (1,500 ft) apart, a separate first aid kit/cabinet shall be provided for each group of workers.
 - The contractor shall assign first aid attendant(s) to be responsible for each first aid kit/cabinet and to ensure there is sufficient stock of all supplies at all times.
 - Signs/notices shall be posted near each first aid kit/cabinet stating the following:
 - Name of person(s) who is in charge of the first aid kit/cabinet.
 - Hospital where injured/ill personnel are to be transported.
 - Telephone number(s) of doctor(s) or first aid attendant(s).
 - Emergency telephone number(s).
- C. First aid supplies shall be kept readily available in a first aid kit/cabinet designated for those supplies only. First aid supplies shall be kept in a sanitary condition at all times.
- D. Contractor shall provide an adequate number of personnel at each work site who are trained in first aid and BLS, including those in charge of first aid supplies.
- E. One four-wheel drive vehicle equipped with a well-stocked first aid kit for each crew shall be available for personnel performing pipeline or power- line work, or who are working in remote areas. These vehicles shall be marked to indicate they carry a first aid kit. A minimum of one person in every remote area crew shall have a valid first aid/BLS certificate.
- F. A medical logbook shall be maintained at each first aid station and medical facility by the first aid attendant who shall log all injuries/illnesses treated. See the MMSR manual for a sample log.
- G. Contractor or FSMPC shall provide Automated External Defibrillators (AEDs) as required. At each site with an AED, contractor shall provide an adequate number of personnel who are trained in AED operation.

9.3 Work Site Medical Facilities (Clinics)

- A. Contractors employing more than fifty (50) total people for a given project (whether working on multiple shifts or not), including personnel employed by the contractor's subcontractors, shall contractually arrange with an FSMPC medical designated facility (MDF), or other medical facility recommended in writing by the Corporation.
- B. Work site medical facilities (clinics) shall be fully established and in operation before work begins and shall:

- Have the capability to provide first aid, urgent care, prehospital and resuscitation care, stabilization and prompt transfer to the nearest hospital.
 - Have an emergency response plan (ERP) detailing the response capabilities specific to the geographical location. A medical emergency and disaster call-out list shall be posted in the work site medical facility (clinic).
- C. The contracted MDF or other medical facility shall provide, in addition to qualified manpower and proper supplies, all medical services required to operate the work site medical facility. This operation shall include, but not be limited to, providing the following services: clinic supervision, medical referral and consultation, pharmaceutical (drug formulary, storage, administration, dispensing and disposal), medical equipment and equipment maintenance, medical transportation, emergency/disaster response planning and training, healthcare policies and procedures, and other needed general and technical medical support services, including medical training to the contractor's employees.
- D. Contractor shall make arrangements to have each work site medical facility (clinic) independently inspected/audited prior to 'startup' and at least semi-annually thereafter. These inspections/audits shall be performed by medically qualified personnel from the contracted MDF or other medical facility used by the contractor for its work site medical facilities (clinics), but shall not be personnel who staff the specific work site medical facility being inspected/audited.
- E. These inspections/audits shall use a Survey and Compliance Review Report. The clinical and technical parts of the survey shall be performed by medically qualified personnel. The contractor shall be responsible for promptly correcting all deficiencies or violations identified by any such inspections/audits. Initial and periodic inspections/audits shall cover all areas mentioned in this Section 9.0 and:
- General health care requirements.
 - Building specifications.
 - Manpower requirements.
 - Staff qualifications, continuing education and training.
 - Safety, environmental, health and infection control requirements.
 - Medical equipment and supplies.
 - Pharmaceutical Services.
 - Support services (communications/ambulance/janitorial services).
 - Medical emergency and disaster response procedures/Medevac procedures.
 - Health care policies, procedures and scope of service.
 - First aid kit/cabinets required, including an Automated External
 - Defibrillator (AED).
- F. Contractor shall ensure that drug formulary, prescription, supplies, storage, administration and dispensing shall be under the supervision of a licensed pharmacist or physician from the contracted MDF or other medical facility used by the contractor for its work site medical facilities (clinics).
- G. Contractor shall ensure it has or has arranged to have in place the necessary support services, including safety, environmental health and infection control (e.g., disposal of medical waste), equipment management, janitorial services and communication services.

- H. Work site medical facilities (clinics) shall be subject to inspection by SA. The contractor shall be responsible for promptly correcting any deficiencies or violations identified by SA following any such inspections/audits.

9.4 Medical Professional Personnel

- A. Medical professional personnel (e.g., physicians, nurses) shall at a minimum meet the licensing requirements of the FSM MOH and shall possess the necessary experience, training, minimum qualifications and required certification.
- B. The names, qualifications and MOH certificates of the medical professional personnel who will staff a medical facility (clinic) shall be submitted to the CORPORATION for review before work begins.
- C. Contractor shall have arrangements in place with the contracted MDF or other medical facility used by the contractor for its work site medical facilities (clinics) to provide medical professional personnel coverage for unplanned emergencies, holidays, sickness, off-duties, absences and other unplanned events.
- D. Medical professional personnel shall be provided with periodic mandatory and continuing education by their employer as required by the MOH. This continuing education shall include, but not be limited to: first aid/BLS, safety and infection control, heat stress, fire and disaster training, etc.
- E. Contractor shall make arrangements with the contracted MDF or another medical facility (e.g., hospital) for consultation services so a qualified physician (specialist or otherwise) can be consulted by the work site medical facility's staff 24 hours a day, seven days a week for medical advice, prescription of drugs, referral and/or transfer of patients as needed.
- F. All medical professional personnel shall receive disaster training at least annually. Training shall include the application of the commonly used triage system in disaster management, communication strategies and participation in at least two disaster drills per year.

9.5 Medical Insurance and Ambulance(s)

- A. To facilitate and expedite patient transfer and admission to a nearby hospital for definitive care and to comply with the FSM Government's medical insurance laws, contractors shall ensure all their employees, including subcontractor employees, are continuously provided with valid medical health insurance coverage, before they enter the work site, for outpatient, first aid, emergency, specialist and inpatient care at a nearby hospital that is operated 24-hours a day, seven days a week. Contractor shall submit documentary evidence of current medical health insurance coverage for its employees to the CORPORATION monthly and upon request.
- B. Contractors shall provide or make arrangements to provide a dedicated, full-size emergency vehicle (ambulance, or other suitable method of transportation) at each work site medical facility (clinic) to transport injured/ill personnel to the nearest hospital. If the work location is off road, the contractor shall provide a four-wheel drive ambulance.

- C. Ambulances (or other suitable method of transportation) shall be maintained in a safe, clean, sanitary and roadworthy condition in compliance with FSM Government regulations and FSMPC vehicle requirements. Ambulances shall be provided with a dedicated shaded parking space.
- D. Ambulances shall have purpose markings, be configured safely and be equipped, at a minimum, with emergency and resuscitation supplies as specified in the MMSR manual.
- E. A daily ambulance log and ambulance preventive maintenance work sheet shall be maintained (see the MMSR manual for samples).
- F. Contractors shall provide ambulance drivers with first aid/BLS training, site orientation and medical facilities location training.
- G. Ambulance drivers shall be qualified as per the MMSR manual and shall have a valid FSM Government driving license.

9.6 Air Medical Evacuation (Medevac)

- A. Contractor shall ensure that needed Medevac procedures are incorporated into their emergency response procedures as a part of their CSSP.

10.0 Site Planning, Usage and Housekeeping

10.1 Initial Site Planning

- A. Prior to start of on-site work, the contractor shall determine what personnel, equipment, procedures, etc., will be needed and how they will be provided in order to ensure that the work will be conducted in a safe manner.
- B. The contractor's initial site planning shall consider, but not be limited to, the following topics:
 - Site location—offices, worker camps, etc. (see Sections 10.0 and 11.0).
 - Heavy equipment, chemicals, demolition, welding, non-destructive testing (NDT), etc.
 - Personal protective equipment (PPE).
 - Emergency response procedures.
 - Work permit requirements.
 - Control of falling objects.
 - Required barriers.
 - Medical and first aid resources needed (see Section 9.0).
 - Heat stress management and prevention.
 - Fire/drinking/sanitary water supply and distribution.
 - Transportation.
 - Excavations.
 - Electrical tools and services.

- Scaffolding and work at heights.
- Safety staff (see Section 4.5).

Note: Some of the above topics are covered in further detail elsewhere in this manual.

10.2 Site Planning and Layout

- Site planning shall include, but not be limited to: building spacing, fire protection, welfare facilities, rest areas, recreational facilities, assembly areas, offices, living quarters, medical facilities, dining facilities, prayer areas, laydown yards, fabrication shops, etc.
- The site layout shall be planned before mobilization to the work site to identify issues such as, but not limited to: emergency access routes, normal traffic flow, parking areas, siting for cranes, staging areas, material storage, sanitation/welfare facilities, first aid stations/medical facilities, fixed/portable fire protection, utilities, etc.
- Access road planning shall include, but not be limited to: traffic flow, load-bearing capacities, traffic signs and controls, road striping, parking areas, road intersections and multiple-use roads. Emergency response vehicle access shall be provided at all times to all locations.
- Contractor shall provide adequate shelters/rest facilities and drinking water supply at construction sites and work locations, including as needed for prevention of heat stress.

10.3 Plans for Contractor Camps and Project Support Facilities

- Contractor shall prepare comprehensive plans for all contractor camps and project support facilities that incorporate the requirements from the above planning and are in accordance with Section 11.0. These plans shall address, at a minimum, the following as applicable to the contract:
 - Plot plans and building layouts, which for contractor camp facilities shall show the camp site layout including medical, dining, recreation and toilet/shower facilities.
 - Interior building layout/space utilization, which shall show site offices, conference rooms, prayer rooms, open office space for clerks, partitioned office spaces, kitchens, storage areas, etc. For contractor camps, interior building layouts shall show dormitory room planned occupancy and furniture layout.
 - Building architectural/structural design features, including materials of construction.
 - Building fire protection and alarm systems.
 - Building air-conditioning, heating and ventilation distribution systems, including temperature control and equipment sizing calculations.
 - Electrical power distribution systems.
 - Electrical outlets per room (number and location shall be sufficient to safely accommodate personal electronics needs, such as TVs, mobile phone chargers, radios, etc.).
 - Building and area lighting.

- Communications systems, data cabling and equipment.
- First aid, ambulance and medical services/clinics.
- Fire prevention and firefighting provisions.
- Raw water treatment and drinking water supply.
- Sewage/waste water collection, treatment and disposal.
- Sanitation plan, including refuse handling requirements and waste management facilities.
- Storage, shop, fabrication areas.
- Roads and parking areas.
- Provisions for vehicle repairs, service and maintenance.
- Site lunch shelters.
- Site security fencing.

10.4 Land Use Permit

- Whenever a contractor camp or project support facility is needed, the contractor shall obtain, through the CORPORATION, any required land use permit (LUP) prior to the commencement of any work activity at the site.
- Contractor shall comply with all conditions stated on the FSMPC LUP.

10.5 Project Signs

- A job activity information sign shall be erected at the main entrance(s) to the job site and shall comply with the requirements of this section.
- At a minimum, the following information shall be shown on project signs:
 - CORPORATION name.
 - Project title.
 - Emergency contact numbers for CORPORATION and contractor representatives.
- The design of project signs shall be:
 - A minimum of 1.2 m (4 ft) high and 2.4 m (8 ft) wide.
 - Printed in black and white.
 - Printed in English and the local language, with the local text located above or to the right of the English text.
- Sufficient signs shall also be erected and maintained on or near the site to direct delivery vehicles and visitors to the work area.
- Other signs, such as safety warnings, may be required (e.g., by the CORPORATION).

10.6 Entry and Exit

Safe entry and exit points shall be provided at work sites. Entry and exit points shall be kept clear and unobstructed at all times.

10.7 Pedestrian Pathways On-Site

On-site dedicated pedestrian walkways/pathways shall be clearly marked and distinct from vehicular travel routes. Physical barriers shall separate parallel personnel walkways/pathways from adjacent vehicular and heavy equipment traffic.

10.8 Barricades

Barricades shall be provided where required. Barricades shall be clearly marked with flagging. Barricades shall have protective lighting, when necessary.

10.9 Site Drainage

Sites shall have good drainage and be graded so water does not pool on job sites, camps, roads, etc.

10.10 Fire Protection and Prevention

- A. Contractor shall provide firefighting equipment (e.g., fire extinguishers, hydrants, hoses, sprinklers, alarms).
- B. Firefighting equipment shall be readily available and accessible. Areas around fire extinguishers, hydrants, hoses and other firefighting equipment shall be kept clear.
- C. Fire extinguishers, hydrants, hoses and other firefighting equipment shall be regularly inspected and maintained. Contractor shall provide fire equipment inspection and maintenance records to the CORPORATION upon request.
- D. Designated site personnel shall be trained in the use of the various types of firefighting equipment on-site.
- E. Smoking shall be permitted only in designated areas.

10.11 Materials Storage Yards

- A. Flammable and combustible material storage areas within materials storage yards shall be clearly marked and adequate in size and layout.
- B. Material storage yards shall not be closer than 15 m (50 ft) to any other structure.

10.12 Site Illumination and Electrical

- A. Adequate lighting shall be provided.
- B. Grounding for electrical tools and wiring installations shall be in accordance with local safety requirements.
- C. Contractor shall comply with the National Fire Protection Association, NFPA 70, *National Electrical Code (NEC)*, and FSMPC's electrical safety requirements.

10.13 Security Fencing

- A. Contractor shall provide, install and maintain required temporary security fencing in accordance with Corporation requirements.

- B. Fences shall be properly designed, grounded, of sound construction, appropriate for the intended purpose and built in accordance with FSMPC requirements.
- C. Fences shall be periodically inspected.
- D. Existing roadways and pedestrian walkways crossing the work site shall be rerouted outside the work site perimeter fence prior to the start of work.
- E. Red and white, blue and white, or black and reflective yellow (or white) flags shall be fastened to the fence when a fence crosses an existing road.
- F. Dead-end signs shall be erected on the approach to fences if access is blocked. The distance to the blocked access shall be noted on the sign. However, if there is a temporary bypass, a —DIVERSION AHEAD sign, with diversion arrows showing the proper route, shall be erected on the approach to the fence in black and yellow (or white) reflective material.
- G. At least two access gates 4.5 m (15 ft) wide, located at opposite ends, shall be provided to the site. Access gates, where possible, shall avoid opening onto main thoroughfares.
- H. Standard stop signs shall be attached to vehicle access gates.
- I. Temporary signs shall be erected to route traffic in the safest manner to, from and within the site. Temporary signs shall not be placed on public highways and roads (refer to government traffic regulations).

10.14 Securing Site and Equipment after Working Hours

- A. Power-driven construction equipment shall have the ignition locked and key removed when not in use.
- B. Heavy equipment that will be left unattended overnight shall be made immobile by disconnecting the battery or by other appropriate means if there is no lock for the cab and the engine compartment access is readily available.
- C. Bulldozer blades, front loader and backhoe buckets and similar pieces of equipment shall be lowered to the ground when not in use.
- D. Excavations or obstructions creating hazards to pedestrian or vehicular traffic at night shall have adequate lighting. Warning signs shall be posted on approved types of barricades.
- E. Contractor shall provide night watchmen and security personnel as needed to control access to the site after hours.

10.15 Manholes and Covers

Open manholes and openings in grating on elevated levels shall be properly barricaded. Hard barricades and warning signs shall be installed prior to removing a manhole cover or grating. Manhole and grating shall be immediately put back in place upon completion of the work activity.

10.16 Guy Lines/Ropes

Temporary guy lines and barrier ropes shall be clearly marked with reflective tape and/or signs and barricades provided to protect them, when needed.

10.17 Road Closures

Road closures shall be performed in accordance with FSM Government regulations and Site Administrators requirements.

10.18 Dust Control

A dust control program shall be identified in the HIP, developed and implemented to protect personnel and the general public.

10.19 Protection of the General Public

The general public shall be protected from exposure to hazards associated with the contractor's work activities such as, but not limited to, abrasive blasting, radiation, painting, excavations and traffic routing.

10.20 Housekeeping

- A. Contractor shall provide for:
- Cleaning of the entire site, including identifying areas where each subcontractor is responsible for the cleaning.
 - Collection, storage and disposal of non-hazardous and hazardous waste.
 - An adequate amount of trash receptacles in work areas.
 - Keeping waste segregated at all times in accordance with waste handling requirements.
- B. The contractor's site supervision shall ensure that trash and debris is properly collected and disposed of daily.
- C. Trash containers shall be of durable construction and shall be located as needed throughout the work area. Trash containers shall be covered, clearly marked and emptied daily. Separate trash containers, with suitable disposable plastic liners, shall be provided for food scraps and other organic matter.
- D. Refuse, trash and garbage shall only be disposed of at approved sites as designated by Site Administrator or local municipality.
- E. Excavation spoils and building materials shall only be disposed of at other approved sites as designated by Site Administrator or local municipality.
- F. Contractor shall establish a site-specific waste management plan, which shall include specific procedures for disposal of any hazardous wastes (e.g., waste oil, sewage, naturally occurring radioactive materials), in accordance with FSM Government regulations and Site Administration's Environmental Protection (EPD) requirements. Contractor shall submit their site-specific waste management plan to the CORPORATION for review. The CORPORATION reserves the right to forward a copy of the waste management plan to EPD for review.

11.0 Contractor Camps and Project Support Facilities

11.1 General

- A. Contractor shall ensure contractor camps/compounds and project support facilities (e.g., site offices, storage/laydown yards, fabrication/maintenance shops, medical/clinics) that are provided for contractor's personnel, subcontractors' personnel and/or FSMPC employees comply with the provisions of the FSM Labour and Workmen Law and Site Administrators safety, health and environmental requirements.
- B. Site Administrator will inspect and periodically re-inspect any contractor camp, other project support facility or work site, on or off Site Administrator property, for compliance with applicable laws and FSMPC's safety, health and environmental requirements. Corrective actions shall be taken as noted.
- C. Contractor camps and project support facilities shall be located so as to minimize exposure to hazards (e.g., located upwind from process areas and well sites), including traffic hazards to work site(s). Site Administrators shall approve the location of contractor camps and project support facilities prior to their construction.
- D. Buildings, including portable buildings, are not allowed within 50 m (164 ft) of a plant perimeter fence, pipeline corridor or well site without Site Administrators.
- E. The Corporation shall furnish, install and maintain a fire alarm system for all contractor camp and project support buildings.
- F. Contractor shall provide designated outdoor smoking facilities within contractor camp and project support facilities. Only smoking facilities approved by the CORPORATION shall be used by workers on jobs located within a Site Administration plant.
- G. Prior to occupancy and connection of utilities, contractor camp and project support facilities shall be subject to inspection by the CORPORATION, LPD, Fire Protection Department, Inspection Department (electrical, mechanical, plumbing), EPD, and shall meet all applicable safety, fire and health standards. Any concerns generated during the inspection or otherwise brought to the attention of the contractor shall be promptly and satisfactorily resolved prior to occupancy.
- H. For contractor camps and project support facilities, a dedicated and properly trained maintenance crew shall be available 24 hours per day. The names and contact information for these maintenance personnel shall be prominently displayed within the camp/facility.
- I. High risk maintenance activities (e.g., confined space entry, electrical isolation, rigging and lifting) at contractor camps and project support facilities shall be controlled (e.g., by developing JSAs, using work permits, or issuing procedures).

11.2 Contractor Camp General Requirements

- A. Contractor shall design and construct structures and buildings to meet the requirements of SAES-M-100.
- B. Contractor shall provide a camp(s) to adequately house anticipated staff and labour force. Depending on the nature of the contract these camps may also house SA and subcontractor personnel in addition to contractor personnel.
- C. Contractor shall operate and inspect (with corrective actions), manage and maintain accommodation camps so as to ensure an acceptable standard of living, including proper facility maintenance, hygiene standards, fire and life safety, pest control and food safety. Facilities for sleeping, dining, medical, firefighting, sanitation and recreation, as well as barber shops, bakeries, grocery/convenience markets, cleaning/laundry services, etc., shall be provided in accordance with the requirements of this document.
- D. Sleeping and living areas within contractor camps shall be air-conditioned and periodically maintained on at least a biannual basis in accordance with the manufacturer's recommendations. The contractor shall submit to the CORPORATION a copy of the maintenance records, upon request.
- E. Contractor camps shall include a fully equipped kitchen(s) and dining room(s) suitable for the preparation of high-quality meals. Dining facilities shall be provided with tables, chairs, utensils and cutlery.
- F. Personnel housed in the contractor camp shall be provided with three ample and well-balanced meals per day.
- G. Cooking shall not be allowed within contractor camp accommodation rooms. Use of hot plates, stoves, portable ovens, open-flame burners, etc., shall only be permitted in designated kitchen and break room areas. Use of smoking materials, including cigarettes, cigars, pipes, etc., and burning of candles, incense, etc., shall not be allowed inside any building.
- H. Camp food establishments, grocery/convenience markets, etc., shall not sell raw meats, cooking oil, cooking pots and pans, cooking burners, hot plates or other food items and equipment that would enable camp residents to cook in their own rooms.
- I. All buildings, including portable buildings, shall be equipped with hand-held fire extinguishers.
- J. Any personal electrical items offered for sale to camp residents (e.g., in a camp grocery market or convenience store) or used in the camp shall be labelled as meeting CE, Underwriters' Laboratories (UL) or Factory Mutual (FM) requirements.
- K. Contractor camps and project support facilities shall include adequate purpose-designed lighting for all streets, parking areas, sidewalks and around buildings and outdoor facilities.
- L. Contractor camps and project support facilities shall be adequately drained on and away from the site.
- M. Contractor camps and project support facilities shall include paved/designated streets and parking areas with a properly prepared and compacted base. Speed bumps/dips shall be installed on streets as required for pedestrian safety. The camp/support facility shall include paved/designated sidewalks for all areas to be

utilized as pedestrian walkways and shall include small diameter crushed stone as ground cover in unpaved areas around all buildings.

11.3 Minimum Safety Standards for Contractor Camp Buildings and Project Support Buildings

- A. The minimum clear spacing between non-combustible buildings larger than 548 m² (5,900 ft²) and/or between clusters of smaller buildings totaling more than 548 m² (5,900 ft²) shall be 6.1 m (20 ft). The minimum clear spacing between smaller buildings and buildings within a cluster shall be 1.8 m (6 ft). The minimum clear spacing from perimeter fences to buildings shall be 3 m (10 ft).
- B. The building's structural design shall be for applicable loads and in accordance with local regulations and be cyclone proof. Building frames shall be supported on concrete footings.
- C. Camp accommodation rooms shall have not less than 4.6 m² (50 ft²) of air-conditioned living area per person, preferably at least 6.5 m² (70 ft²) per occupant.
- D. A separate bed shall be provided for each camp occupant. Triple deck bunk beds are not permitted.
- E. Sleeping rooms shall have an emergency egress opening, which can either be an outward opening man door or a window that opens to the outside. Emergency egress openings shall be operational from inside the room without use of keys or tools. All operable windows in accommodation rooms shall be provided with an insect screen.
- F. Any newly installed, relocated or renovated building, whether portable or fixed, that is located in a zone predicted to receive at least 3.5 kPa gauge (0.5 psig) peak side-on overpressure from a vapour cloud explosion shall be designed and constructed in accordance with SAES-B-014.
- G. Pre-engineered modular buildings meeting local requirements or equivalent standards of quality, durability, safety, sanitation and reliability may be proposed by the contractor for consideration by the CORPORATION. Proposals for pre-engineered modular buildings shall include the manufacturer's name, address, phone/facsimile numbers, Internet Web site address and sufficient product information to enable the CORPORATION to evaluate the suitability of such structures.
- I. Pre-engineered modular buildings shall meet the following minimum requirements:
 - 100 mm (4 inches) minimum wall thickness.
 - Fully insulated walls and ceilings.
 - Metal or other non-flammable roof materials.
 - Suspended ceiling completely wired and plumbed with concealed wiring and plumbing.
 - Built-in circuit breaker panel and exterior electrical connection.
 - Ground fault circuit interruption (GFCI) devices on all electrical outlets within 1.8 m (6 ft) of a water source (e.g., sink, tub, toilet, shower, etc.).
 - Air conditioning and heating with individual controls to maintain temperature between 21 and 24 °C (70-75 °F).

- Offices with full height walls shall be lockable and have windows facing the outside of the building with blinds.
- J. External egress doors shall swing outward and shall be provided with panic push bars. Internal doors shall be painted solid core with frame and door stopper.
- K. Buildings and structures shall be electrically grounded. Metal enclosures of power distribution panel boards shall be connected to a grounding system.

11.4 Welfare/Sanitation Facilities

- A. Contractor shall provide welfare facilities (e.g., toilet/washing facilities) for personnel at contractor camps, project support facilities and other work sites.
- B. Toilet facilities shall include western style toilets, urinals, ablution hoses, sinks, water heaters, air extractors, mirrors, toilet paper holders, paper towel holders, soap dispensers/dishes, coat hooks and garbage bins.
- C. Toilet facilities shall be easily accessible and shall be of durable and hygienic construction consistent with their purpose and shall have adequate lighting, ventilation and a continuous supply of water.
- D. Washing facilities shall be provided in the workers camp and prior to entering the dining hall.
- E. Toilets and washing facilities shall be continuously maintained in a clean and sanitary condition.
- F. Potable (fresh) drinking water shall be readily available. Contractor shall provide conveniently located bottled drinking water dispensers. Only water bottles with tops that have been sealed by the supplier shall be used (i.e., bottles shall not be refilled except by the bottle supplier). Water bottles shall be routinely changed and all water dispensers shall be frequently cleaned to maintain a sanitary and fresh supply of drinking water in each dispenser. Common drinking cups or dippers are prohibited. Disposable paper cups or other separate cups shall be provided for each person.
- G. Sun-protected rest areas shall be provided and shall be away from operating equipment and work areas.

11.5 Electrical Power Generation and Distribution Systems

- A. Contractor shall provide, install, operate and maintain power generation and distribution facilities at contractor camps, project support facilities and worksites, as needed.
- B. The power system shall provide electrical power supply at 110 volts/60 Hz, on a 24 hour per day, 7 days per week basis, or as needed.
- C. Power distribution panel boards shall be labelled to identify the service of individual breakers.
- D. The entire electrical installation shall comply with the U.S. National Electrical Code (NEC) and be tested at least annually by a qualified electrical engineer from an independent source. The contractor shall submit to the CORPORATION a copy of the electrical test certificate, upon request.

11.6 Fire Protection Systems

- A. Contractor shall design, install and operate a fire water system(s) with sufficient storage capacity to provide full fire protection coverage. Design plans for fire protection systems shall be submitted to the CORPORATION for review.
- B. Inspection, testing and maintenance of fire alarm and protection systems, including sprinklers and portable fire extinguishers.
- C. Dedicated fire water storage capacity shall not be used for any other purpose (e.g., drinking, bathing, ablution).

11.7 Raw Water Treatment and Drinking Water Supply Facilities

- A. Contractor shall provide, install, operate and maintain all required raw water treatment facilities, potable water distribution systems, drinking water supply systems within the contractor's and subcontractor's assigned areas.
- B. Plans for raw water treatment and drinking water shall be reviewed by the Corporation prior to construction
- C. Contractor shall ensure that the bacteriological and chemical qualities of the drinking water, including during transportation and storage are within US FDA requirements.

11.8 Sewage and Solid Waste Management Facilities

- A. Contractor shall provide, install, operate and maintain all required sanitary sewer systems at contractor and subcontractor assigned areas, including contractor camps and project support facilities. The contractor shall be responsible for installing all required sewage collection manholes and piping.
- B. Contractor shall remove all solid waste and debris from contractor camp and project support facilities on not less than a daily basis and dispose of it at a solid waste disposal facility approved by Site Administrator.
- C. Plans for sewage collection, holding, treatment and final disposal and plans for solid waste management facilities shall be reviewed by the Site Administrator and FSMPC prior to construction.



PPE Chart for Tank Upgrading Works

Foundation Works

Examples										
	Clothing	Safety Boots	Safety Glasses	Hard hat	Ear Protection	Kevlar Gloves	Fall Arrest	Leather Gloves	Face Shield	Respiratory Protection
	Full length clothing, cotton. Fire Resistant	Rubber sole, Steel Cap, Fuel & Chemical resistant, Anti-Static	Anti Fog, Impact resistant	Plastic full brim or short bill, Chin Strap	Earmuffs or ear plugs					Fitted or open
	Single Layer HRC 2*	ANSI Z41-1991	ANSI Z87.1-2020	ANSI Z89.1-1986	ANSI S3.19					
Heavy Equipment Operator	✓	✓	✓	✓	✓	✓		✓		
Foundation Excavation	✓	✓	✓	✓	✓	✓		✓		
Mansory Works	✓	✓	✓	✓		✓		✓		
Materials Handling	✓	✓	✓	✓	✓	✓		✓		
Steel Fixing	✓	✓	✓	✓	✓	✓		✓		
Formwork	✓	✓	✓	✓		✓				
Concrete Pouring	✓	✓	✓	✓		✓				
Metal Cutting						✓			✓	

Notes:

Note: The list is generic, and contractor shall be aware of all the activities and required PPE for such activity. Vital OSS and HSSE team can stop works and review PPE requirements after incidents or near miss.



PPE Chart for Tank Upgrading Works

Welding & Assembly Works












Activity											
	Clothing	Safety Boots	Welding Shield	Hard hat	Ear Protection	Kevlar Gloves	Fall Arrest	Welding Gloves	Safety Glasses	Face Shield	Welding Helmet with Air Supply
	Full length clothing, cotton. Fire Resistant	Rubber sole, Steel Cap, Fuel & Chemical resistant, Anti-Static, inner metal in sole	Auto darkening,	Plastic full brim or short bill, Chin Strap	Earmuffs or ear plugs				Anti Fog, Z87+ marked for impact resistance	Fitted or open	Fitted with BA connections and fully enclosed shield
	Single Layer HRC 2*	ANSI Z41-1991	ANSI Z87.1-2020	ANSI Z89.1-1986	ANSI S3.19				ANSI Z87.1-1989		
Heavy Equipment Operator	✓	✓		✓	✓	✓			✓		
Plate Roller Operations	✓	✓		✓	✓	✓			✓		
Materials Handling	✓	✓		✓	✓	✓			✓		1
Working at Heights	✓	✓		✓		✓	✓		✓	✓	
Structural Steel Assembly	✓	✓		✓	Optional	✓		✓	✓	✓	
Welding Works	✓	✓	✓					✓	✓	✓	
Grinding and Flame Cutting <i>(either ONE eye or head protection to be used)</i>	✓	✓	Optional	Optional				✓	Optional	Optional	
Confine Space Welding											✓

Note: The list is generic, and contractor shall be aware of all the activities and required PPE for such activity. Vital OSS and HSSE team can stop works and review PPE requirements after incidents or near miss.



PPE Chart for Tank Upgrading Works

Routine Work

Examples											
	Clothing	Safety Boots	Safety Glasses	Hard hat	Ear Protection	Leather Gloves	Electrical Safety Gloves	Leather Overgloves	Chemical Gloves	Face Shield	Respirators
	Full length clothing, preferably cotton. Fire Resistant	Rubber sole, Leather		Plastic full brim or short bill	Earmuffs or ear plugs		See voltage classifications for correct colour		Nitrile rubber	Fitted or open	Types depends on risk
	Single Layer HRC 2*	ANSI Z41-1991	ANSI Z87.1-1989	ANSI Z89.1-1986	ANSI S3.19						
Operational Inspections	✓	✓	✓	✓	✓	✓					
Engine Service (Noise level above 85 dB)	✓	✓	✓	✓	✓						
Engine Service (Noise level below 85 dB)	✓	✓	✓	✓							
Operating LV Circuit Breakers	✓	✓	✓	✓	✓	✓					
Operating HV Circuit Breakers	✓	✓	✓	✓	✓		✓	✓		✓	
Lube/Coolant sampling	✓	✓	✓	✓	✓				✓	✓	
Coolant change	✓	✓	✓	✓	✓				✓	✓	✓

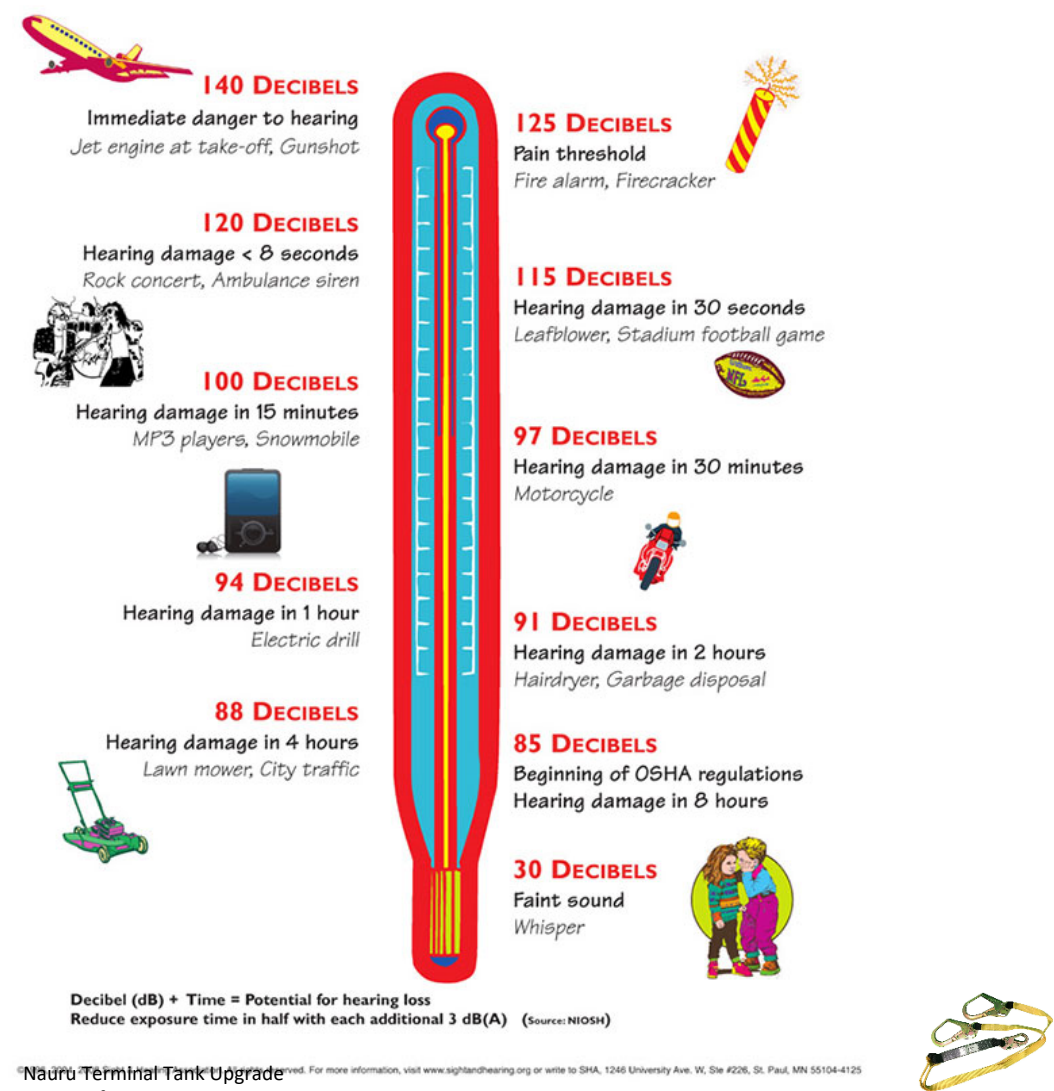
Note: The list is generic, and contractor shall be aware of all the activities and required PPE for such activity. Vital OSS and HSSE team can stop works and review PPE requirements after incidents or near miss.



PPE Chart for Tank Upgrading Works

NOISE

Thermometer™



PPE Chart for Tank Upgrading Works



Personal Protective Equipment [PPE] Checklist

PPE is personal and commentaries here must account for each and every individual worker who has to wear such equipment, e.g. body size for clothing; sight impairment for safety-glasses; facial hair for breathing apparatus

Date checklist completed		Date for review	
Name of Vital's rep.			
Name of Contractor's rep			

PPE Checklist	YES	NO
Selection of Personal Protective Equipment [PPE]		
1. Has a risk assessment been done to determine what PPE is required?	<input type="checkbox"/>	<input type="checkbox"/>
2. Have other control measures been implemented for the hazard identified (hierarchy of control) and what are they?	<input type="checkbox"/>	<input type="checkbox"/>
3. Have employees/workers been consulted in the process of selecting PPE for particular tasks?	<input type="checkbox"/>	<input type="checkbox"/>
4. Does the PPE fit properly and is comfortable to wear?	<input type="checkbox"/>	<input type="checkbox"/>
5. Are employees/workers trained in PPE procedures, such as the fit, use and maintenance of PPE? (Provide evidence)	<input type="checkbox"/>	<input type="checkbox"/>
6. Do employees/workers wear PPE in accordance with the instructions provided?	<input type="checkbox"/>	<input type="checkbox"/>
7. Is the PPE stored in a clean area where it will not be damaged or exposed to contaminants?	<input type="checkbox"/>	<input type="checkbox"/>
8. Is a maintenance program established for PPE and documented?	<input type="checkbox"/>	<input type="checkbox"/>
9. Have medical conditions or physical characteristics of employees/workers been taken into consideration?	<input type="checkbox"/>	<input type="checkbox"/>
Supervision		
10. Has suitable training and resources been provided to Supervisors to enable them to ensure the proper, selection, fit, use, cleaning and maintenance of PPE?	<input type="checkbox"/>	<input type="checkbox"/>
11. Are employees/workers aware of the disciplinary action to be taken if PPE procedures are not adhered to?	<input type="checkbox"/>	<input type="checkbox"/>

PPE Checklist	YES	NO
12. Has responsibility for supervision and enforcement of the organisations PPE policy and procedures been allocated to a senior manager?	<input type="checkbox"/>	<input type="checkbox"/>
13. Are Supervisors provided disciplinary powers and appropriate support?	<input type="checkbox"/>	<input type="checkbox"/>
Potential Hazards Requiring PPE		
14. If there is a danger of cuts, or exposure to corrosives, chemicals or infectious materials are protective goggles, gloves, aprons or shields worn?	<input type="checkbox"/>	<input type="checkbox"/>
15. Are hard hats provided where there is a risk of falling objects?	<input type="checkbox"/>	<input type="checkbox"/>
16. Is footwear provided where there is a risk of foot injuries from hot or corrosive substances, crushing or penetrating objects?	<input type="checkbox"/>	<input type="checkbox"/>
17. Are safety glasses, goggles provided for eye protection where there is a risk of flying objects, sparks, and filaments?	<input type="checkbox"/>	<input type="checkbox"/>
18. Is respiratory protection provided in areas where there is exposure to dust, gases, chemicals	<input type="checkbox"/>	<input type="checkbox"/>
19. Is other appropriate PPE provided for hot work, work near traffic, vibration, moving parts?	<input type="checkbox"/>	<input type="checkbox"/>
List additional hazard and PPE identified:		
Signage		
20. Are signs posted in the workplace wherever it is necessary to wear PPE?	<input type="checkbox"/>	<input type="checkbox"/>
21. Is the signage in the mandatory format?	<input type="checkbox"/>	<input type="checkbox"/>
22. Is PPE provided in accordance with the relevant WHS legislation and relevant International Standards and stamped accordingly?	<input type="checkbox"/>	<input type="checkbox"/>
Action Required:		

PPE Checklist	YES	NO

Date actions completed:		
Name:	Position:	
Signature:		

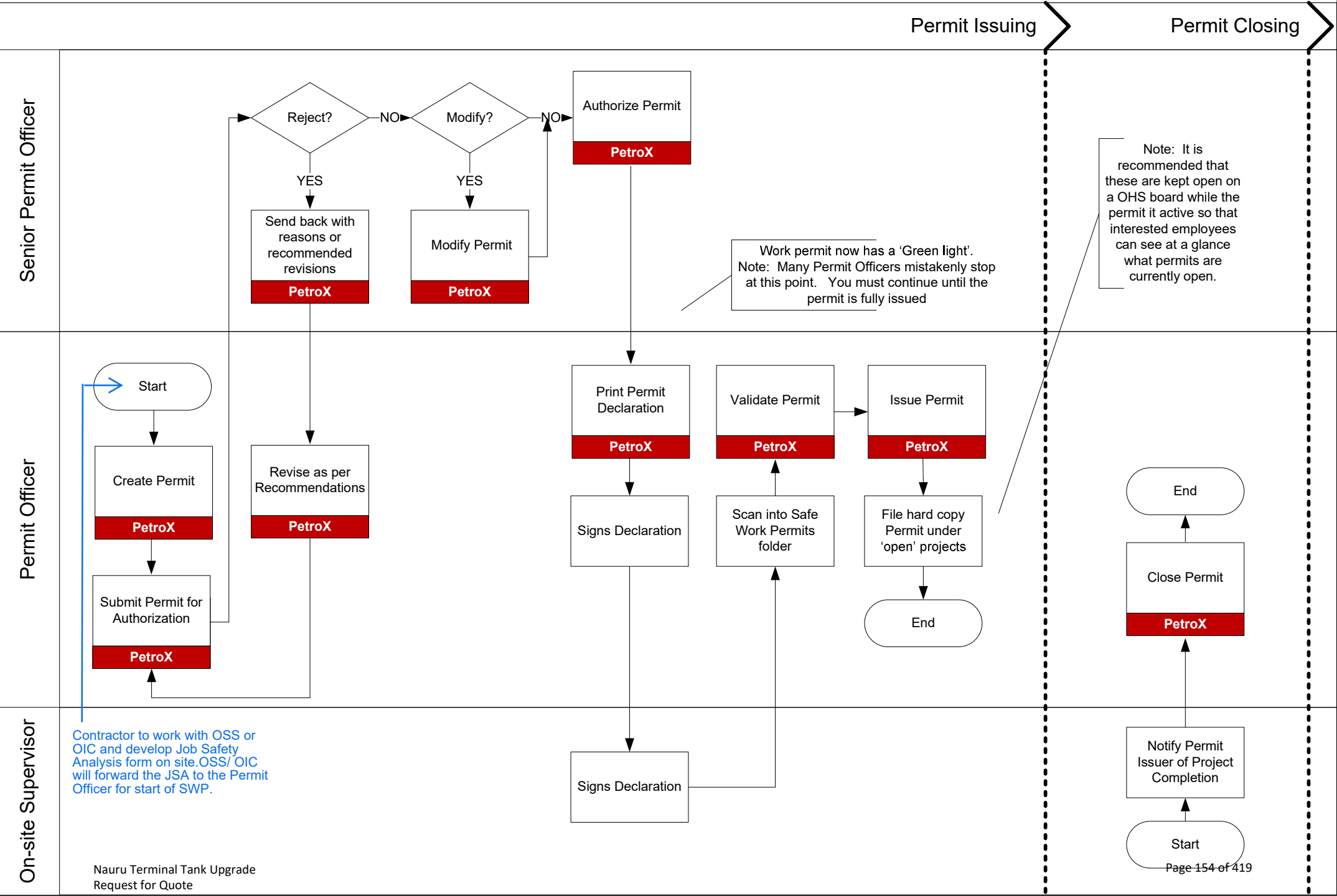
Return completed form to:

- ... Officer In Charge
- ... Project Manager
- ... SAFER Manager
- ... Contractors Representative

Note:

1. Vital OSS to check the PPE for each of the contractor staff at the 1st day when they come to site, if they don't meet requirements or specifications, this needs to be reported, and employee shall not proceed to work area until resolved.
2. This form to be used by OSS for Vital Energy and Contractor's site supervisor or Project Manager at the start of the week during the toolbox meeting.
3. All non-conformances will need to be corrected by the contractor and staff will only be accessed and approved the OIC if he feels the situation is safe and person can be appointed to alternative task.

Safe Work Permit Process (As-is 2012/05)



SITE:	DAILY SITE SAFETY TOOLBOX RECORD SITE REGISTER OF EVERYBODY ENTERING SITE	
-------	---	---

DATE:

1

NAME – FIRST NAME	Type of work performed / Reason for visit	Time in	Time out	Visitor Signature (*) <i>(Anyone not in the SWP)</i>	JSA Reviewed / checklists completed	Attended today's toolbox Meeting
					(Site Supervisor Initials for Acknowledgement)	

	DAILY SITE SAFETY RECORD	
SITE:		

DATE:

2

Start Work Discussion held by:

(Works to be performed during the day – Any safety precautions to take? – Review of hazardous situations spotted during the previous day - **see also start work discussion guide**)

Hazardous situations spotted during the day

(Describe briefly what? where? what could have happened?)

Safety Toolbox discussion topics (log attendance on page 1)

Notes and action points

Reviewed by:

Project Engineer

Signed

Date

Safety Consultant

Other (Contractor)

Start Work Discussion Guide

<div>1) Log Attendees</div> <div>2) List today's activities<ul style="list-style-type: none">• See project planning• Use Site layout plan to locate</div> <div>3) Discuss potential hazardous / higher risk activities involved<ul style="list-style-type: none">• What did we learn from yesterday (hazards / near misses)• Include Weather conditions</div>	<div>4) Discuss type of hazards and preventive measures to take<ul style="list-style-type: none">• Use Poster and seek input• Use toolbox packs to re-enforce</div> <div>5) Verify understanding by attendees</div> <div>6) Closure</div>		
<div>3) Potential Hazardous activities</div> <div>Consider:</div> <div><ul style="list-style-type: none">• Demolition works?• Excavation works?• Working near objects that may move?• Line breaching or potential hydrocarbon release?• Working at height?• Working near areas that could cause personnel to slip, trip or fall?• Working with equipment or connections under pressure or life?• The use of lifting equipment?• Using portable electrical equipment and hand tools?• Equipment which is potentially dangerous?• Working with dangerous goods and substances hazardous to health?• Working in noisy areas?• Environmental impact?• Manual handling – moving objects/loads• Working in an area with poor lighting or a tight/confined space?• Personnel who are new to work the site or each other?</div>	<div>4) Type of hazards</div> <div>Consider:</div> <div><div>Contact:<ul style="list-style-type: none">• Struck Against• Struck By• Harmful Contact with Object (cut, abrasion)</div><div>Caught:<ul style="list-style-type: none">• In• Under• Between• By</div><div>Fall:<ul style="list-style-type: none">• Slip / Trip• Fall on Same Level• Fall from Height</div><div>Strains / Overexertion:<ul style="list-style-type: none">• Lifting• Pushing / Pulling• Bending• Twisting</div><div>Exposure<ul style="list-style-type: none">• Extreme Temperature• Chemical Burn• Radiation• Hazardous Atmosphere</div><div>Energy Sources:<ul style="list-style-type: none">• Electricity• Pressure• Compression / Tension</div></div>	<div>5) Verify understanding</div> <div>Can all personnel in the group answer YES to the following questions?)</div> <div><ul style="list-style-type: none">• Have all the significant hazards involved with the work been identified and control measures been identified for these hazards?• Does everyone know that any changes to the work plan have to be communicated to everyone involved in the work?• Does everyone know that any new people joining the work party must be given a full and thorough briefing prior to hand over?</div> <div>For higher risk activities, ALL workers involved must have signed off on the JSA</div>	<div>6) Closure</div> <div><ul style="list-style-type: none">• Reminder on Site Safety Rules (Golden Safety Rules)• Reminder on every ones responsibility</div> <div>Be their own keeper: Always perform your Last Minute Risk Assessment</div> <div><ul style="list-style-type: none">• No short cuts• Follow the agreed procedures• Using the correct tools for the job• Being aware of the hazards around them and remaining vigilant to change• Using the correct PPE for the job</div> <div>Be their brothers keeper - Address any Hazard you see</div> <div><ul style="list-style-type: none">• Invite all to mark any hazards spotted on the poster</div>

INSTRUCTIONS FOR COMPLETING A JSA (back of the form)

JSA No.	Task/Job:		Date	Page: 1 of: 2
	Person(s) doing the job:	Analysis completed by:	JSA facilitated by:	
	Plant/location:	Department:	Approved by:	
<div>Summary of Assessed Hazards</div> <div> <input type="checkbox"/> Working at heights <input type="checkbox"/> Exposure to hazardous materials <input type="checkbox"/> Working with plant <input type="checkbox"/> Electrical Equipment <input type="checkbox"/> Exposure to Noise </div> <div> <input type="checkbox"/> Manual handling <input type="checkbox"/> Confined space entry <input type="checkbox"/> Release of stored energy <input type="checkbox"/> Electrical Hazards <input type="checkbox"/> Poor Visibility </div> <div> <input type="checkbox"/> Slips, trips and falls <input type="checkbox"/> Use of tools <input type="checkbox"/> Human factors <input type="checkbox"/> Electrical over 400amps <input type="checkbox"/> Falling Objects </div> <div> <input type="checkbox"/> Heavy lifting <input type="checkbox"/> Hot works <input type="checkbox"/> Flammable Material Present <input type="checkbox"/> Others (Specify Details) </div>				

Risk Assessment Matrix – refer to RAM for details

Severity	Consequences					Probability				
	People	Financial Loss/ Assets	Environmental	Reputation	Customer Impact	A	B	C	D	E
						<0.0001	0.0001 to 0.001	0.001 to 0.01	0.01 to 0.1	0.1 to 1
						Less than once in 10,000 yrs	Once in 1,000 to once in 10,000 yrs	Once 100 to once in 1,000 yrs	Once in 10 to once in 100 yrs	Annually to once in 10 yrs
						Never heard of in industry	Heard of in industry	Occurred in OP	Happens several times per year in OP	Happens several times per year in a location
0	No health effect/ injury	No loss/ No damage	No effect	No impact	No complaints	0	0	0	0	0
1	Slight health effect/ First Aid injury	<\$10K/ Slight Damage	Slight effect	Slight impact	Off spec or Not delivering	1	3	5	8	9
2	Minor health effect/ Lost time injury	<\$100K/ Minor Damage	Minor effect	Limited impact	Formal complaints	2	7	11	14	17
3	Major health effect/ PPD injury	<\$1M/ Localised Damage	Localised effect	Considerable impact	Complaints of several customers	4	10	15	19	22
4	PTD or 1 to 3 fatalities	<\$10M/ Major Damage	Major effect	State impact	Loss of customers	6	13	18	21	24
5	Multiple fatalities	>\$10M/ Extensive Damage	Massive effect	National or International impact	Considerable loss of market share	12	16	20	23	25

Note: Distribution cross-overs or cross-drops should be ranked as blue incidents unless the situation warrants a higher classification.

Standards & Codes, Vitals' General Practice's Documents & Local Legislation that are applicable:	

NOTIFIABLE & SITE PRESEAVATION OF INCIDENTS & ACCIDENTS

- VITAL SITE SUPERVISOR TO AUDIT THE PPE OF ALL WORKERS BEFORE WORK STARTS.
- ALL INCIDENTS AND ACCIDENTS SHALL BE REPORTED TO THE SUPERVISOR AND TERMINAL MANAGER INSTANTLY.
- ALL MAJOR SPILLS, INCIDENTS AND FATALITIES SHALL BE REPORTED TO VITAL ENERGY CEO IMMEDIATELY.
-

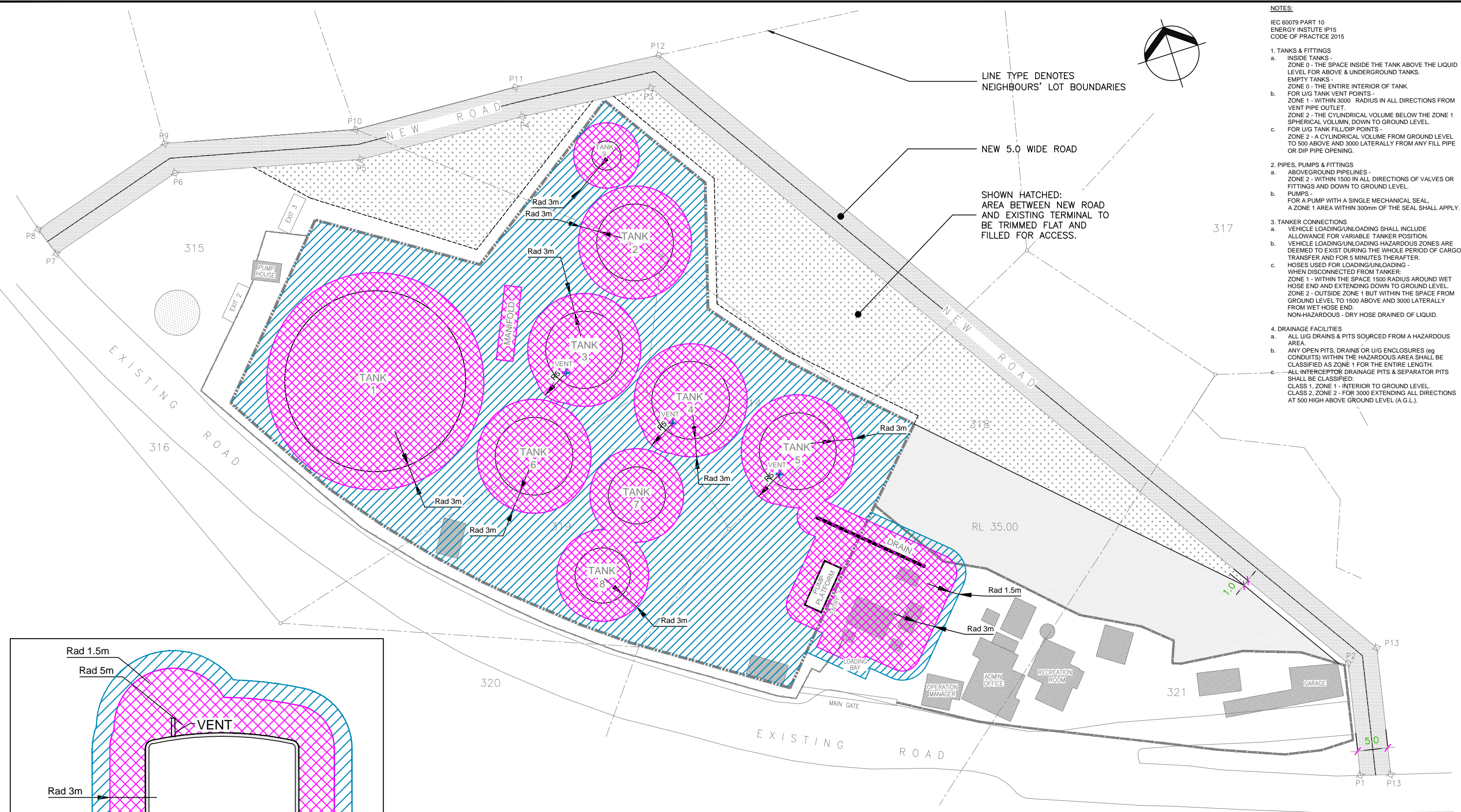
Basic Job Steps <i>(logical and sequential steps)</i>	Potential Hazards <i>(refer hazard and assess checklist)</i>	Level of Risk <i>(score)</i>	Controls <i>(eliminate, substitute, isolate, procedure, PPE)</i>	Re-assessment of Risk <i>(score)</i>

NAME	DATE	COMPANY	ROLE	SIGNATURE

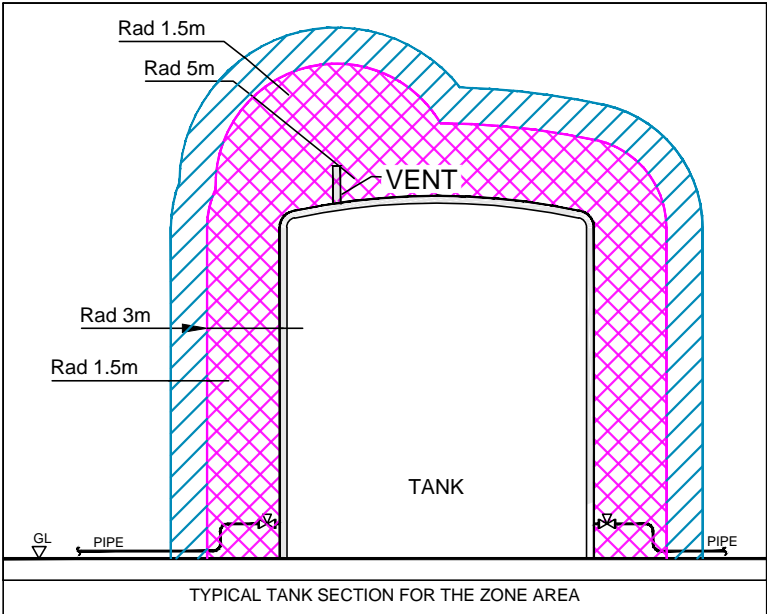
SEQUENCE OF BASIC JOB STEPS		POTENTIAL HAZARDS	RECOMMENDED ACTION		
<p>Break the job into basic steps. Between 10 and 20 steps is acceptable, above 20, consider breaking down in 2 JSA's</p> <ul style="list-style-type: none">List each step of the job in order of occurrence using the "Job Steps" Column.Start each step with a doing word (e.g. lift, turn, move etc.). As a guide, a step should be recorded wherever there is a change of direction or change in energy state (e.g. potential, kinetic, chemical or electrical)Record enough information to describe each job action but do not make the list too long.Allow sufficient space to capture updates or upgrades as JSA is reviewed.Later, go over the steps with someone who has done the job to ensure that the Steps - and the order in which they are listed - is correct.Focus on RISK: It is the responsibility of the JSA team to keep focused on Risk and not get buried in details. The JSA should focus on the activity itself and not extraneous activities.		<p>Identify all the hazards associated with each step. Include possible actions, conditions, and circumstances that could lead to an undesired result. A hazard is a potential danger and can be broken down into 6 categories:</p> <ul style="list-style-type: none">Contact - victim is struck by or strikes an object;Caught - victim is caught on, caught in or caught between objects;Fall - victim falls to ground or lower level (includes slips and trips);Exertion - excessive strain or stress / ergonomics / lifting techniques;Exposure - inhalation/skin hazards.Energy sources - electricity, pressure	<p>Using the first two columns as a guide, list every action necessary to eliminate or minimize the hazard. <u>The hierarchy of controls</u> 1) Significant hazards are to be eliminated where practicable. 2) Where this is impracticable, those hazards are to be isolated This is where the hazard and the employee or environment are separated (e.g. a noise cover fitted over a motor, or an extraction fan to remove fumes, adding machine guards) 3) If this is also impracticable, all practicable steps must be taken to minimise the likelihood that the hazard will be a source of harm to employees or the environment These strategies may take the form of personal protective equipment, staff job rotations, the timing of a specific task is undertaken</p> <ul style="list-style-type: none">List the recommended safe operating procedures. Be specific in describing necessary action. Tell exactly what needs to be done to correct the hazard, e.g. "use two persons to lift" and avoid general statements such as, "be careful".Consider possibilities such as combining the steps or changing the sequence or whether safety equipment and precautions are needed to reduce the hazards.If the hazards are still present, try to reduce the necessity for performing the job or the frequency for performing it.Do not start a job until the remaining risk is acceptable.		
Number the steps to provide a reference point for the hazards and actions developed in the other two columns.		Number the hazard list to correspond with the task steps (1.1, 1.2, 2.1, 2.2, etc.).	Number the actions to correspond to the task steps and hazards (1.1.1, 1.1.2, 1.2.1, 1.2.2, etc.).		
GENERAL CONSIDERATIONS WHEN DEVELOPING / REVIEWING A JSA					
<p><u>Work Team Considerations</u></p> <ul style="list-style-type: none">Review the JSA at the worksite.Is the JSA consistent with the local Safety Manual?Is the task necessary? Is now the right time to do this job?Has the JSA been updated to include current conditions (weather, Simultaneous operations etc)?Have personnel who have done this task at this location reviewed the JSA?Is the staffing level adequate for the task?Does the team agree on the scope of work?Do the workers have the necessary physical skills?Do the workers have the necessary technical skills or job knowledge?Is there a history of shortcutting steps in performing this task or similar tasks?Personal Protection available – hand, face, eyes, body, foot, hearing, fall protection, etc.Do Work Practices exist – pre-task inspection, pre-job briefing, standard procedures.Tools/Equipment available, proper selection, in good condition.			<p><u>Workplace Factors</u></p> <ul style="list-style-type: none">Is access to the equipment adequate?Does the workplace design require overly stressful actions to complete the task?Housekeeping, working surfaces, barricades, confined spaceDoes the workplace design contribute to worker confusion or error?Does the task require extreme or awkward body postures, bending, twisting, or reaching?Does the task induce fatigue?Can hazardous substances be replaced with less hazardous materials?Is it practical to use smaller quantities of hazardous materials? <p><u>Process Factors</u></p> <ul style="list-style-type: none">Have you asked, "What is the worst thing that can happen while performing this task?" for each step?Have you evaluated the hazards in all of the categories below?Have all of the hazards been adequately addressed and is the remaining risk acceptable?Did you include a post-job critique of the job and review process of the JSA for the future?Have you communicated with others who may be affected?		
HAZARD CATEGORIES					
<p><u>Contact:</u></p> <ul style="list-style-type: none">Struck AgainstStruck ByHarmful Contact with Object (cut, abrasion)	<p><u>Caught</u></p> <ul style="list-style-type: none">InUnderBetweenBy	<p><u>Fall:</u></p> <ul style="list-style-type: none">Slip / TripFall on Same LevelFall from Height	<p><u>Strains / Overexertion:</u></p> <ul style="list-style-type: none">LiftingPushing / PullingBendingTwisting	<p><u>Exposure</u></p> <ul style="list-style-type: none">Extreme TemperatureChemical BurnRadiationHazardous Atmosphere	<p><u>Energy Sources:</u></p> <ul style="list-style-type: none">ElectricityPressureCompression / Tension

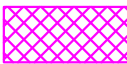

Appendix M

Nauru Terminal Hazard Drawing



- NOTES:
- IEC 60079 PART 10
ENERGY INSTUTE IP15
CODE OF PRACTICE 2015
1. TANKS & FITTINGS
- a. INSIDE TANKS -
ZONE 0 - THE SPACE INSIDE THE TANK ABOVE THE LIQUID LEVEL FOR ABOVE & UNDERGROUND TANKS.
EMPTY TANKS -
ZONE 0 - THE ENTIRE INTERIOR OF TANK.
b. FOR U/G TANK VENT POINTS -
ZONE 1 - WITHIN 3000 RADIUS IN ALL DIRECTIONS FROM VENT PIPE OUTLET.
ZONE 2 - THE CYLINDRICAL VOLUME BELOW THE ZONE 1 SPHERICAL VOLUME, DOWN TO GROUND LEVEL.
c. FOR U/G TANK FILL/DIP POINTS -
ZONE 2 - A CYLINDRICAL VOLUME FROM GROUND LEVEL TO 500 ABOVE AND 3000 LATERALLY FROM ANY FILL PIPE OR DIP PIPE OPENING.
2. PIPES, PUMPS & FITTINGS
- a. ABOVEGROUND PIPELINES -
ZONE 2 - WITHIN 1500 IN ALL DIRECTIONS OF VALVES OR FITTINGS AND DOWN TO GROUND LEVEL.
b. PUMPS -
FOR A PUMP WITH A SINGLE MECHANICAL SEAL, A ZONE 1 AREA WITHIN 300mm OF THE SEAL SHALL APPLY.
3. TANKER CONNECTIONS
- a. VEHICLE LOADING/UNLOADING SHALL INCLUDE ALLOWANCE FOR VARIABLE TANKER POSITION.
b. VEHICLE LOADING/UNLOADING HAZARDOUS ZONES ARE DEEMED TO EXIST DURING THE WHOLE PERIOD OF CARGO TRANSFER AND FOR 5 MINUTES THEREAFTER.
c. HOSES USED FOR LOADING/UNLOADING -
WHEN DISCONNECTED FROM TANKER:
ZONE 1 - WITHIN THE SPACE 1500 RADIUS AROUND WET HOSE END AND EXTENDING DOWN TO GROUND LEVEL.
ZONE 2 - OUTSIDE ZONE 1 BUT WITHIN THE SPACE FROM GROUND LEVEL TO 1500 ABOVE AND 3000 LATERALLY FROM WET HOSE END.
NON-HAZARDOUS - DRY HOSE DRAINED OF LIQUID.
4. DRAINAGE FACILITIES
- a. ALL U/G DRAINS & PITS SOURCED FROM A HAZARDOUS AREA.
b. ANY OPEN PITS, DRAINS OR U/G ENCLOSURES (eg CONDUITS) WITHIN THE HAZARDOUS AREA SHALL BE CLASSIFIED AS ZONE 1 FOR THE ENTIRE LENGTH.
c. ALL INTERCEPTOR DRAINAGE PITS & SEPARATOR PITS SHALL BE CLASSIFIED:
CLASS 1, ZONE 1 - INTERIOR TO GROUND LEVEL.
CLASS 2, ZONE 2 - FOR 3000 EXTENDING ALL DIRECTIONS AT 500 HIGH ABOVE GROUND LEVEL (A.G.L.).



-  HAZARDOUS AREA CLASS 1, ZONE 1
-  HAZARDOUS AREA CLASS 1, ZONE 2

Vital Energy
Fuel Farm, Nauru



REV	DESCRIPTION	DATE
A	Preliminary Draft Information	8/2017

Approved For Construction:

By:

Date:



MDU Spec (M) Sdn Bhd
Commissioning and Consultancy

DWG. TITLE
NAURU TERMINAL
HAZARDOUS PLANT

SCALE (A1)	NTS	PROJECT No:—
SCALE (A3)	NTS	DWG. No.
DESIGN	DMG	—
DRAWN	JL	
DATE	08/2017	

Appendix N

FSMPC Tank Cleaning Guidelines

Vital Energy Inc

FSMPC TANK CLEANING GUIDELINES
PROJECT MANAGEMENT OFFICE

TABLE OF CONTENTS

1	VERTICAL STORAGE TANK CLEANING	4
1.1	GENERAL	4
2	TANK CLEANING OVERVIEW	4
2.1	TANK PRE-CLEANING ELEMENTS	4
2.2	TANK CLEANING ELEMENTS	5
2.3	TANK POST-CLEANING ELEMENTS	5
3	EXTENSION OF TANK VENTS ADJACENT TO HOT WORK	6
3.1	GENERAL	6
3.2	ARRANGEMENTS OF VENT EXTENSIONS	6
3.3	CALCULATING THE SIZE OF THE DUCT	7
4	PREPARING THE TANK ENTRY AND CLEANING	1
4.1	TANK PRE-CLEANING	1
4.2	VITAL ENERGY ACTIVITIES	1
4.3	CONTRACTOR ACTIVITIES	1
4.4	PROCEDURES & PLANS.....	2
4.5	DECOMMISSIONING	3
4.5.1	<i>Isolating the Tank</i>	3
4.6	CONTROL OF IGNITION SOURCES	3
4.7	LIGHTING AND THUNDERSTORM	5
4.8	VAPOUR AND GAS FREEING, DEGASSING AND VENTILATING	5
4.8.1	<i>Vapor and Gas Freeing Methods</i>	6
4.8.2	<i>Vapor and Gas Freeing Selection</i>	6
4.8.3	<i>Tank Location</i>	6
4.8.4	<i>Environmental Factors</i>	6
4.8.5	<i>Internal Tank Cleaning</i>	7
5	TESTING THE TANK ATMOSPHERE	7
5.1	ATMOSPHERIC TESTING PROCEDURES	7
5.2	ATMOSPHERIC TESTING INSTRUMENTS.....	7
5.3	OXYGEN MONITORS.....	8
5.4	FLAMMABLE VAPOR (COMBUSTIBLE GAS) INDICATORS	9
5.5	TESTING THE ATMOSPHERE OUTSIDE THE TANK	10
5.6	TESTING THE ATMOSPHERE INSIDE THE TANK	10
5.7	MONITORING THE TANK’S ATMOSPHERE DURING ENTRY.....	12
5.8	STORAGE TANK HAZARDS	12
5.8.1	<i>General</i>	12
5.8.2	<i>Oxygen Deficiency and Enrichment</i>	12
5.8.3	<i>Oxygen Deficiency</i>	13
5.8.4	<i>Oxygen Enrichment</i>	13
5.9	FIRE AND EXPLOSION HAZARDS	14
5.10	PHYSICAL AND OTHER HAZARDS	15
5.11	HAZARD ASSESSMENT FOR ENTRY PERMITS.....	15

5.11.1	Entry Conditions	15
5.11.2	Operating Conditions	16
5.11.3	Record Retention	16
6	LEVELS OF ENTRY	16
6.1	GENERAL	16
6.2	TANK CLEANING PERSONNEL	17
7	EXTENSIONS OF TANK VENTS ADJACENT TO HOT WORKS	22
7.1	PREPARATION OF WORK	22
7.2	VENTILATION.....	22
7.3	OXYGEN	23
7.4	FLAMMABLE ATMOSPHERE.....	24
8	PROTECTIVE EQUIPMENT REQUIREMENTS	25
8.1	GENERAL	25
8.2	TOXIC CONTAMINATION	26
8.3	RESPIRATORY REQUIREMENTS	26
8.4	FITTING, TESTING, AND CHECKING RESPIRATORS	27
8.5	BREATHING AIR CYLINDERS	27
8.6	BREATHING AIR COMPRESSORS	27
8.7	AIR SUPPLY LINES, HOSES AND COUPLINGS	28
9	ENTERING AND WORKING INSIDE THE TANK	28
9.1	GENERAL	28
9.2	CONFINE SPACE ENTRY PERMITS	29
9.3	PROTECTION FROM HAZARDS	30
9.4	UNDESIRABLE PRODUCT, SLUDGE, AND RESIDUE DISPOSAL	30
10	HOT WORK AND TANK REPAIRS.....	31
10.1	GENERAL	31
10.2	HOT WORK REQUIREMENTS.....	31
10.3	HOT WORK PERMIT	31
10.4	PERMIT CONDITIONS.....	31
10.5	PERMIT REQUIREMENTS	32
10.6	HOT WORK HAZARDS.....	32
10.7	HAZARD AWARENESS	33
10.8	EQUIPMENT HAZARDS	34
10.9	FIRE PREVENTION	34
11	EMERGENCY RESPONSE PLAN	34
11.1	PLAN ELEMENTS	34

1 Vertical Storage Tank Cleaning

1.1 General

2 Tank Cleaning Overview

There are a number of basic activities applicable to every tank that is to be cleaned. These activities include, but are not limited to, confined space classification; decommissioning; product, sludge and residue removal; isolation; vapor and gas testing; inspection; rescue; hot and safe (cold) work operations; and recommissioning. Many of these activities are covered by existing employer programs and procedures such as Confined Space; Energy Isolation; Hot Work and Safe Work; Hazard Communications; Operations, Maintenance and Inspection; Respiratory Protection and Process Safety Hazard Analysis.

ANSI/API Recommended Practice: *Guidelines and Procedures for Entering and Cleaning Petroleum Storage Tanks* outlines in details the requirements of the cleaning operations.

2.1 Tank Pre-Cleaning Elements

- All sludge & slops shall be shipped off Nauru for treatment and disposal. There are No facilities available for this activity.
- Determining that tank cleaning supervisors, entrants, testers, attendants, standby persons, rescuers and workers are trained, educated and/or otherwise qualified to perform assigned tasks, including but not limited to, hazard evaluation, testing, job safety analysis issuance (JSA), entry, tank cleaning, attendant, standby, rescue, and inspection activities. Vital On-Site Supervisor (OSS) or Permit Officer (PO) will arrange the Safe Work Permit (SWP).
- Determining and evaluating potential safety, fire and health hazards of product, sludge and residue in the tank and the corrosive or hazardous chemicals used to clean or repair the tank.
- Establishing requirements, exposure limits and procedures for atmospheric testing and determining, achieving and maintaining safe exposure levels for oxygen, flammable vapours and toxic materials including, but not limited to, hydrogen sulfide, benzene and organic lead.
- Determining personal and respiratory protection requirements, this shall be reviewed and accepted by Vital's Senior Permit Officer (SPO).
- Determining specific work to be performed and assigning responsibilities, this shall be outlined in the JSA activities.
- Conducting a tank pre-cleaning meeting and site survey with all parties involved.
- Determine disposal and treatment plan, this shall be reputable and certified treatment facility in New Zealand or Australia.
- Tank venting and redirection of adjacent tanks shall be done appropriately as per the approved MoC document.

2.2 Tank Cleaning Elements

- ISO tanks for storage to be placed on site prior to opening. Vital On-Site Supervisor and Project Manager to provide estimated slops/sludge volume inside the tank.
- Establishing requirements and procedures for removal of recoverable product and for removal, handling, storage, and disposal of sludge and residue (hazardous waste) to pre-approved facility.
- Establishing requirements and procedures for safe tank cleaning including, but not limited to, vacuum truck operations (check availability in Nauru) and use of air pumps, educators/blowers, degassing, and tank cleaning equipment.
- Establishing normal and emergency communication and notification procedures.
- Determining rescue requirements, designating rescuers, determining required rescue equipment, and establishing and implementing an emergency response and rescue plan.
- Establishing requirements and procedures for tank isolation including, but not limited to, valves, connections, lines, drains, water draws, impellers, mechanical and electrical appurtenances, etc.
- Establishing requirements, equipment, and procedures for vapor and gas freeing, degassing, and ventilation and establishing procedures for inerting, if required.
- Determining the requirements and conditions for continuous or periodic flammable vapor and toxic exposure monitoring and continued mechanical ventilation during entry and work. OSS will perform gas testing after each break and issue clearance for work to resume.
- Establishing cleaning, inspection and testing procedures to assure the tank, walls and bottoms, roofs, internal lines, sumps, etc. are completely free of liquid, vapors, gases, and contaminants after cleaning, including hazards arising from acids or chemicals used in treating or cleaning tanks.
- Establishing procedures for conducting hot work inside and on top of cleaned tanks.
- Establishing procedures and work and entry permit requirements for owner/operator employees and contractor/ sub-contractor employees working inside and around the tank, including requirements for personal protective equipment and respiratory (breathing air) protection. This shall be outlined in the JSA provided by the contractor and SWP.
- Establishing requirements and procedures for the re-classification of a cleaned and open tank as a permit required confined space.
- Establishing requirements and procedures for safe (cold) work and hot work operations inside and around a tank depending on whether the tank is open or closed, cleaned or not cleaned, and classified as a confined space or a non-confined space.

2.3 Tank Post-Cleaning Elements

- Establishing requirements and procedures for returning tanks to service including inspections and safety checks to assure that the tank is clean, free of waste and debris, and ready for Out of Service Inspection and repairs work.

- Establishing requirements and procedures for checking the tank and lines during refilling for leaks and to prevent overfilling the tank.
- Establishing requirements and procedures for entry onto tank roofs following refilling.
- Assuring that all required reports, documentation, and records are completed, maintained on file and filed with the proper authorities as required.

3 Extension of Tank Vents Adjacent to Hot Work

3.1 General

To permit hot work in a tank farm it may be necessary to extend the vents of working tanks away from the hot work area. The contractor shall be responsible for arranging all the materials and skills required for the installation of the temporary vents on adjacent tank(s).

Such vent extensions permit the working tank to breathe normally and during pumping out of the tank but DO NOT permit receipt of product into the working tank. If it is necessary to receive product into the tank all hot work must cease, and temporary vents must be removed and all vents restored to normal conditions.

3.2 Arrangements of Vent Extensions

PGI, PGII (Class 3.1) (Australia) or Class 3(a) (New Zealand) Tanks with P-V Valves - One P-V valve is left operative - all other vents, dip hatches etc. are sealed off. A vapour tight enclosure is fitted over the operative P- V valve and the extension duct fitted to this enclosure.

PGIII (Class 3.2) (Australia) or Class 3(b) and 3(c) (New Zealand) Tanks - Open vented - The extension duct can be connected directly to one vent outlet and all other vents, dip hatches etc. sealed.

The duct may consist of light metal tubing, PVC piping or light hose provided it is adequately supported, and all joints are vapour tight.

The open end of the duct must be at least 6 m above the ground and provision must be made to collect any condensate collecting at low points in the duct.

The working tank's manometer must be operating correctly. When checking Work Permit conditions, the gas testing officer shall also check the manometer readings to ensure they remain within permissible limits for the tank concerned

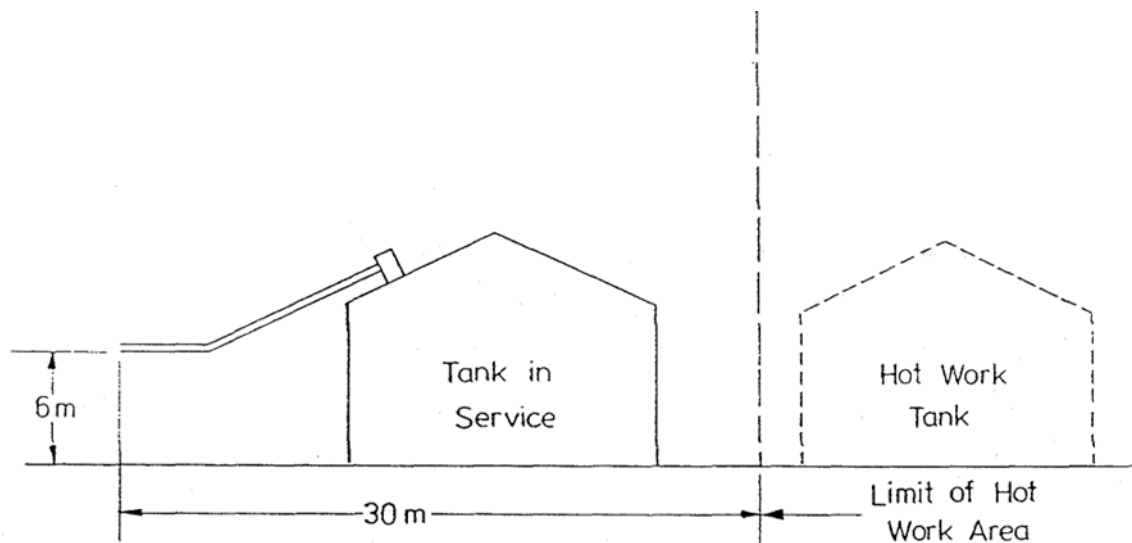


Figure 1 - Arrangement of Vent Extension from the Hot Work Tank

3.3 Calculating the Size of the Duct

To prevent excessive pressure or vacuum developing in the tank the maximum pressure drop allowed over the length of the duct is 13 mm water gauge.

The critical design condition is when the tank is subjected to a negative pressure from a combination of a sudden temperature drop and maximum product withdrawal.

Assuming:

- (i) Tank 1/3 full, the most onerous case.
- (ii) Temperature change in vapour space is a maximum of 17°C per hour.
- (iii) Breathing follows the combined gas

laws: $((P_a + P_p)V_1) \div T_1 = ((P_a - P_v)V_2) \div T_2$

Where P_a = Atmospheric pressure,
 = absolute. 10215 mm of H₂O

P_p	=	Tank pressure at which pressure valve opens, gauge
P_v	=	Tank pressure at which vacuum valve opens, gauge
T_1	=	Temperature of vapour space, abs: (273 + t_1)°K at beginning of hour
T_2	=	Temperature of vapour space, abs: (273 + t_2)°K at end of hour
V_1	=	Initial volume of vapour space at P_a
V_2	=	Final volume of gas at P_a
Or V_2	=	$(V_1 \times T_2 \times (P_a + P_p)) \div (T_1 \times (P_a - P_v))$
Air inflow due to temp drop	=	$V_1 - V_2$ m ³ /hr
Inflow due to pumping	=	pump capacity q m ³ /hr
Total inflow Q	=	$V_1 - V_2 + q$ m ³ /hr.

Next we determine the rate of pressure drop over the duct by calculating the total effective length of duct by adding to its actual length allowances for bends etc, from tabulated figures under the nomogram.

This length in metres is divided into the allowable total pressure drop of 13 mm to give a rate in mm per metre. The duct diameter is then calculated using the nomogram as follows:

- Draw a straight line from the Q value on the left-hand scale to the Density value on the right-hand scale (use a density of 1 for air inflowing into a tank).
- Mark where this line crosses the "pivot" line and draw another line from this point to the pressure drop value³ on the P/L scale.
- Project this line back to the diameter scale.

Example:

Tank Capacity 5000 m³

Temperature drop-in hour 24°C to 7°C

Maximum pump out rate 140 m³/hr

Effective length of duct 25 m

Pressure Vacuum Valve setting

$P_p = 200$ mm

$P_v = 65$ mm

$$V_1 = 2/3 \times 5000 \text{ m}^3 = 3333 \text{ m}^3$$

$$V_2 = 2 \times \frac{5000}{3} \times \frac{280}{297} \times \frac{10415}{10150} \text{ m}^3$$

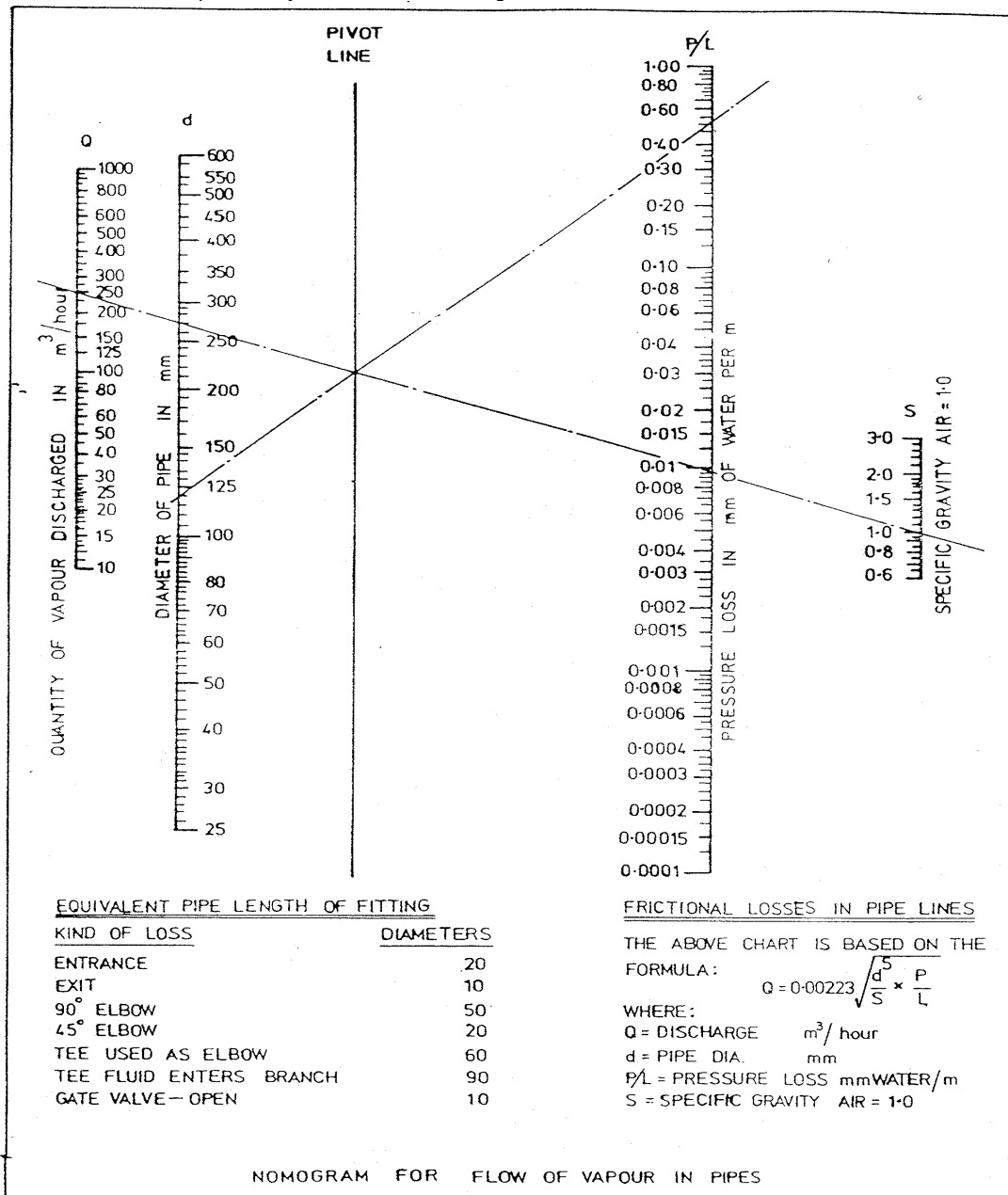
$$= 3224 \text{ m}^3$$

$$Q = 3333 - 3224 + 140 = 249 \text{ m}^3/\text{hr}$$

$$P/L = 13/25 \text{ mm/metre}$$

From chart d required = 120 mm

- preferably use 150 mm ducting



4 Preparing the Tank Entry and Cleaning

4.1 Tank Pre-Cleaning

Vital Energy Inc staff shall assure that during planning and conducting tank cleaning operations, the essential elements for preparing a tank for safe entry and cleaning is considered, including but not limited to the following that shall be undertaken by Vital Energy staff,

4.2 Vital Energy Activities

- **Management of Change (MoC)** – Vital Energy staff will prepare the MoC to have tank 2 off-line, prepare isolation process and LOTO process completed.
- **Tank Inventory** – Vital Energy staff shall ensure that the product stock level is checked and reconciled in PetroX System.
- **Product Transfer** – Vital Energy Nauru team to prepare all HSSE requirements for safe product transfer. Vital Energy staff to prepare the transfer of the product from Tank 2 into nominated tank. They will ensure that clean product is transferred from the outlet and further removed using the drain nozzle. Slops and Sludge shall be left in the tank for disposal by the selected contractor.

4.3 Contractor Activities

- **Tank Data & Team** – Vital Energy team on site shall provide tank data, product details, volume inside the tank and other relevant details to make aware of all hazards and risks handling the slops and products. Vital Energy team with the Contractors staff shall determine the potential hazards associated with these products, sludge, residue and materials and develop vapor and gas freeing, ventilation and (where required) degassing, mitigation and control methods and personal protection requirements. Contractor shall appoint a competent team for this activity with past experiences, tools and equipments required for successful completion.
- **Job Safety Analysis (JSA)** – review the MoC document and Project Scope, the team shall prepare the JSA for sludge/ slops removal from the tank. All task and activities shall be listed with mitigation, risk level and emergency response in case of mishaps. Contractor shall share a written procedure for the tank cleaning activity or method statement, so it's clearly understood between all parties.
- **Method Statement** – The contractor shall provide their tank entry procedure with confine space training records for each person. In the absence of procedure, the contractor shall write a method statement and submit to Vital Project Manager for

review and approval. This will be the guidelines for the development of Job Safety Analysis and Safe Work Permit.

- **Safe Work Permit** – Vital On-Site Supervisor shall review the JSA with SAFER Manager and develop the Safe Work Permit with the Permit Officer for review and approval by SAFER Manager. There may be change in conditions and SAFER Manager may ask additional precautions to be put in place.
- **Tank Isolation** – the Contractor shall ensure all lines are isolated prior to removing of sludge/slops from the tank.
- **Vent Extension** – the contractor is responsible for all works related to vent extension.

4.4 Procedures & Plans

- Contractor shall develop or use written procedures and work plans that provide for safe tank cleaning operations from decommissioning to commissioning.
- Contractor shall assure that the procedures and work plans provide applicable information and guidance so that entry supervisors and qualified persons may anticipate, recognize, test, analyse and determine appropriate measures to control potential hazards that may be encountered during tank cleaning operations.
- Contractor shall prepare written procedures and a detailed work plan covering decommissioning, product removal, tank isolation, vapor and gas freeing, degassing, ventilation, testing, inspection, entry, cleaning, construction, repair or maintenance work, rescue, refilling and recommissioning in accordance with the facility and contractor tank cleaning, permit and confined space programs.
- Vital Energy team will ensure that ALL the appropriate permit requirements covering decommissioning, emptying, isolating, vapor and gas freeing, degassing, ventilation, testing, inspecting, entering, inspecting, cleaning, sludge and residue handling, refilling, recommissioning and hot and safe (cold) work performed in and around the tank.
- Vital Energy team shall have established in the MoC the criteria for the operation of adjacent tanks within the same dike area as the tank being cleaned (or within 100 feet of the tank being cleaned if outside the dike area) to control vapor emissions from these tanks. The MoC shall also cover the placement of the ISO Tank that shall be holding the Slops/ Sludge for disposal.
- Contractor shall make arrangements of the ISO tank to be removed from the site to authorized agency for proper treatment and disposal outside of Nauru as there are not suitable or approved facility available.

4.5 Decommissioning

During the tank pre-cleaning meeting, activities of each party shall be clearly identified, and responsible team leaders brief their teams of their roles and responsibilities. These task and activities shall be discussed during the daily toolbox meeting and preparation of the Job Safety Analysis (JSA).

Contractor will be handed over the tank as part of the asset handover during the initial custody transfer and once the works are completed and accepted by the asset owner and PMO, the custody transfer will be done from the contractor to the Officer In-Charge.

4.5.1 Isolating the Tank

During the Tank pre-cleaning meeting Vital Energy team and contractors shall determine the responsibilities for isolating the tank, including, but not limited to, product lines, sample and gaging lines, alarm systems, foam lines, appurtenances, relief and vapor recovery lines, energy sources, and cathodic protection systems.

- **Isolating Lines** - Contractor shall assure that the tank is isolated from all lines connected to the tank, including, but not limited to, product, relief, gauging and sampling, and water draw off lines and foam/cooling water lines. Lines shall be isolated as close to the tank as possible by installing blanks between two flanges, using two gaskets and fully engaged bolts or stud bolts in all flange bolt-holes. Lockout/tagout devices shall be placed to isolate lines by the contractor and Vital Energy On Site Supervisor.
- **Isolating Energy Source** - During pre-planning and pre-cleaning, Vital Energy Y and Contractor's team shall review the lockout/tagout program and determine and implement the applicable requirements necessary to safeguard the tank and during isolation. Entry supervisors shall assure that all energy sources (including, but not limited to, electrical, steam, hydraulic and mechanical) and all tank equipment and appurtenances (including, but not limited to, tank mixers, heaters, sensors, and other instrumentation) are isolated by disconnecting, and blinded, blanked, or double blocked and bled.

4.6 Control of Ignition Sources

Vital Energy On-Site Supervisor and Contractor shall assure that all ignition sources in the area are eliminated or controlled before permitting any work to be conducted that might involve the potential release of flammable vapours into the atmosphere around or inside the tank. All close tanks vents shall be re-directed to take the vapours away from Tank 2.

- **Electrical Tank Equipment** – Vital Energy On-Site Supervisor (OSS) shall assure that all electrical equipment and appurtenances that a qualified person has determined may create sufficient energy to be a source of ignition, and that are in, attached to and around the tank, are disconnected and locked or tagged out before issuing an entry permit. Such equipment and appurtenances include, but are not limited to, metering devices, alarms, sensors, overflow protection systems, cathodic protection systems, or any that is related to the works.
- **Electrical Tank Cleaning and Maintenance Equipment** - Depending on the potential exposures, contractor's entry supervisor and Vital Energy OSS shall assure that all electrically powered tank cleaning and related equipment, including but not limited to, electrical powered tools, communication devices, lights and motors, used throughout tank cleaning operations, meets the minimum requirements of NFPA 70 for Class I, Division 1, Group D (or higher) (or Class 1, Zone 0 or Zone 1) locations. The use of any type of non-explosion proof electrical equipment shall be prohibited unless specifically permitted under an authorized job site procedure or entry, hot work or safe (cold) work permit (see NFPA 30 and NFPA 77 for additional information).
- **Electrical bonding and grounding (earthing)**- Bonding and grounding cables and clamps shall be inspected by a qualified person to assure good condition, adequacy and integrity prior to the start of work and periodically, as necessary, during the work. Entry supervisors and qualified persons shall assure that equipment capable of creating an ignitable spark upon disconnection is properly bonded and grounded (earthed) before issuing permits. Contractor Supervisor shall assure that bonding and grounding procedures include, but are not limited to, the following requirements:
 - All metallic parts of vacuum hoses, suction hoses, vacuum pumping equipment shall be bonded to the tank.
 - All metallic parts of vapor and gas freeing, degassing and ventilating equipment, including blowers, educators and ducting (wire helix) shall be bonded to the tank.
 - Nozzles of steam, water, solvent and chemical hoses shall be bonded to the tank.
 - Static generating equipment, including, but not limited to, vacuum trucks, compressors and pumps, shall be bonded to the tank and properly grounded (earthed).
 - Conductive connectors and conductive hoses used for product and sludge transfer and solvent and chemical washing, shall be bonded to the tank and the receiving ISO tanks.

- All portable electrical equipment shall be grounded (earthed) by using an approved ground fault circuit interrupter (GFCI) or other approved means of grounding (earthing). A qualified person shall assure that the capacity and continuity of the GFCI adequately protect workers.
- Welding machines shall be grounded (earthed) and bonded to the tank or other equipment or structure being welded. A qualified person shall assure that the capacity and continuity of the grounding and bonding are adequate to protect workers.
- Contractor shall require and Vital Energy OSS shall assure that air compressors are equipped with appropriate filters to remove moisture, scale, rust, and oil from the compressed air, as moisture and particles in the air stream can generate static electricity and become a source of ignition. Entry supervisors shall assure that any compressors used to provide fresh air (non-breathing air) into a tank for vapor and gas freeing, degassing and ventilation are grounded (earthed) and bonded to the tank.

4.7 Lighting and Thunderstorm

Whenever an electrical storm is threatening or in progress in the area of a facility where tank cleaning and entry activities are being conducted, entry supervisors shall require following actions to be taken:

- The entry and work permits shall be cancelled.
- All work inside and outside the tank shall cease and entrants shall leave the tank.
- All activity with the potential to release vapours into the air, including, but not limited to, vapor and gas freeing, degassing, ventilation, vapor recovery, product transfer, sludge and residue removal and vacuum truck operations shall stop.
- All openings into the tank shall be closed, sealed or otherwise protected, if necessary, to prevent release of flammable vapours into the air.
- Entrants, attendants, standby persons and tank cleaning workers shall leave the immediate area around the tank and move to a designated safe location.

4.8 Vapour and Gas Freeing, Degassing and Ventilating

Contractor and Vital Energy Y OSS shall establish requirements and entry supervisors shall implement safe procedures for vapor and gas freeing, degassing and ventilating tanks applicable to working around the outside of the tank, opening the tank, testing the tank's atmosphere, inspecting the tank, entering the tank, and cleaning the tank.

4.8.1 Vapor and Gas Freeing Methods

Contractor shall assure that the tank's atmosphere is freed of flammable and hazardous gas and vapours by using approved and appropriate methods that will safely displace or dilute the vapours and gas in the tank, including, but not limited to, the following:

- Vapor and gas freeing by the use of mechanical or natural ventilation.
- Displacing vapours and gas by purging the tank with inert gas, flue gas or steam. *Note: Atmospheric testing is required before permitting entry because purging also displaces the air (oxygen) in the tank.*
- Displacing the vapours or gas with water or fuel oil.
- Degassing (where required) by the use of thermal oxidation, vapor recovery, carbon absorption or other approved methods.

4.8.2 Vapor and Gas Freeing Selection

Contractor's supervisor shall be aware of the requirements and shall select specific methods for vapor and gas freeing and degassing the tank dependent upon, but not limited to, the following factors,

- The nature of the vapours or gases involved.
- Degassing and emission control requirements.
- The potential hazards of the vapor or gas.
- The area and the type, size, construction, and location of the tank.

4.8.3 Tank Location

Contractor's supervisor shall be aware that when tanks are located below the surrounding ground level, there is a potential for contaminated air from nearby internal combustion engine exhausts, vacuum truck exhausts or flammable or toxic vapours that have collected in low lying areas, to be drawn into tanks during vapor and gas freeing, degassing and ventilation operations. Entry supervisors shall identify such situations, establish safe work procedures and develop and implement preventative measures to assure fresh air is introduced into the tank.

4.8.4 Environmental Factors

During the tank pre-cleaning phase of the operation, and prior to the start of vapor and gas freeing and degassing, Contractor and Vital Energy OSS shall review applicable environmental regulations to determine if there are requirements to reduce atmospheric vapor emissions through degassing. If degassing is required, entry supervisors shall establish and implement appropriate control measures.

4.8.5 Internal Tank Cleaning

Contractor and Vital Energy OSS shall determine the potential hazards and exposures and the required flammable and toxic vapor and gas concentration levels at which workers may safely begin cleaning the tank from outside the tank opening (manhole). Entry supervisors shall designate the appropriate personal protective clothing and equipment to be used by workers (without entering the tank) and issue appropriate safe (cold) work permits. Entry supervisors shall issue an entry permit if the initial cleaning process requires that tank cleaning workers' hands and arms break the plane of the tank opening (manhole), because this is considered entry into a tank.

5 Testing the Tank Atmosphere

5.1 Atmospheric Testing Procedures

Prior to the initiation of tank cleaning activities, Vital Energy OSS or Permit Officer shall establish written procedures and requirements for testing the atmosphere around the outside of the tank and inside the tank during tank preparation, decommissioning, vapor and gas freeing, degassing, inspection, ventilation, tank cleaning and working inside the tank after cleaning. Atmospheric testing procedures and requirements shall be implemented by the entry supervisor and other supervisors and qualified persons, when issuing the confined space entry permit and other work permits. Contractors team shall prepare the Job Safety Analysis (JSA) with the team on site and have it reviewed with Vital Energy OSS, once approved, the Permit Officer will submit to the Senior Permit Officer for Safe Work Permit (SWP).

5.2 Atmospheric Testing Instruments

Vital Energy OSS or PO shall test, sample and monitor the atmosphere around and inside the tank using properly calibrated and adjusted, direct reading instruments that are either intrinsically safe or approved for use in either Zone 0, Zone 1 or Class I, Division 1, Group D.

- Reference shall be made on the entry permit by PO or the OSS identifying the appropriate MSDSs or equivalent information used to determine substances contained in specific products for which the atmosphere shall be tested in order to evaluate tank entry conditions.
- Vital Energy PO shall determine the safe exposure limits applicable to the proposed entry or work.
- Vital Energy PO shall determine the need to use specialized toxic substance testing or monitoring instruments in addition to oxygen and flammable vapor instruments.

- Vital Energy PO shall be knowledgeable of and follow manufacturers' recommendations and procedures, including, but not limited to, instrument use and limitations, calibration, adjustment, bump testing, maintenance, and repair.
- SPO and PO shall develop written instrument calibration and adjustment requirements based on the manufacturer's recommendations. Vital Energy PO and SPO shall consider the instrument's usage, the type and amount of exposure to contaminants and the history of need for re-calibration when determining the calibration and adjustment criteria for specific instruments under specific working conditions.
- Vital Energy PO shall maintain verification of instrument calibration and adjustment on record for at least 1 year (or the period of time required by applicable regulations or designated in the Vital Energy's confined space procedure).

5.3 Oxygen Monitors

Vital Energy PO shall designate approved direct reading oxygen measuring instruments (oxygen monitors), which are available as separate instruments or as part of a combination instrument (for example, a combination oxygen meter and combustible gas indicator). A qualified person shall test the atmosphere inside the tank for oxygen content using an approved oxygen monitor prior to testing for flammable vapours and entry.

- Vital Energy PO shall adjust (calibrate) the oxygen meter in fresh air to 21% oxygen.
Note: Meters, including those used to test inert spaces, shall be tested for zero % oxygen ($\pm 0.5\%$) using nitrogen.
- PO shall evaluate the oxygen levels in the tank's atmosphere for entry under permit required and non-permit required confined space requirements, safe (cold) work and hot work (see Section 8 of this standard for further information) permit requirements.

Activity	Maximum Permissible Reading
Hot Work (include use of spark producing tools)	Nil * (see Note 1)
Entry without air supplied breathing equipment (subject to conditions set out in Section 20)	Nil *
Entry with air supplied breathing apparatus	10% LEL (see Notes 2(a) & (b))
Use of portable equipment approved for Class 1 Zone 0	10%

* There should be no movement of the needle or register on the read-out above the zero mark.

Note 1

On very infrequent occasions the explosimeter reading may be below 1% LEL, but to obtain a NIL response would be difficult and time-consuming e.g. underneath the floor of a main storage tank. Under these circumstances, where hot work is required, work may be permitted with an explosimeter reading of below 1% LEL (using only an

instrument that has first been test calibrated), on the authority of the SPO or the SAFER Manager.

It must be stressed that any reading at all indicates the presence of some residual product or vapor and every effort must be made to clear up this before permitting the activity to commence.

Note 2

If the explosimeter scale reading is above 10%, the tank or vessel must be regarded as unsafe for entry or use of any portable tools or equipment.

- a) It is recognized that once sludge is disturbed by entry into a tank, vapor concentrations can begin to rise. Provided that forced ventilation continues throughout the entire operation and the disturbance is minimized, work can continue, as it is considered that the dangerous vapor concentrations are unlikely to spread beyond the immediate source of disturbance.
- b) Under very rare and special circumstances it may be necessary to enter a tank, vessel or confined space where the explosimeter scale reading is above 10%. This is only permitted on the authority of the SPO.

5.4 Flammable Vapor (Combustible Gas) Indicators

Vital Energy Permit Officer (PO) shall designate approved direct reading combustible gas indicators that measure flammable vapor-in-air concentrations as a percent- age of the lower explosive (flammable) limit, with 100 per- cent being the beginning (lower limit) of the explosive (flammable) range. Combustible gas indicators are available as separate instruments or as part of a combination instrument (for example, a combination of oxygen meter and combustible gas indicator). After determining that the oxygen level is within required parameters, a qualified person shall test the atmosphere in and around the tank for flammable vapor-in-air concentrations using approved flammable vapor (combustible gas) indicators that are properly calibrated and adjusted.

- Vital Energy PO shall adjust the indicator in fresh air and test the batteries.
- The flammable vapor (combustible gas) indicator shall be calibrated by Vital Energy PO using a suitable calibration gas of known concentration, that is appropriate for the type of hydrocarbon vapor being tested, as specified or recommended by the instrument manufacturer.
- Prior to conducting testing for entry or re-entry, the indicator shall be “bump tested” by Vital Energy PO by subjecting the instrument to a small amount of calibration test gas (or challenge gas) to verify that the sensors and alarms respond and function correctly.

- Vital Energy PO shall assure that flammable vapor-in-air levels in the atmosphere both inside and outside the tank are tested and evaluated for safe (cold) work, hot work and entry before issuing permits.
- Vital Energy PO shall assure that flammable vapor (combustible gas) indicators used to measure vapor concentrations inside and emitted from storage tanks that have been in leaded service are provided with organic lead filters to protect the instrument from contamination (in order to obtain accurate readings).
- Vital Energy PO shall assure that combustible gas indicators used to measure vapor concentrations inside and emitted from storage tanks where moisture and/or dust may be present are provided with appropriate water traps and/ or dust filters to protect the instrument and obtain accurate readings.
- The environmental, operational and other external factors that may potentially affect the atmosphere around and inside the tank.

5.5 Testing the Atmosphere Outside the Tank

Vital Energy OSS shall require that a qualified person test and monitor the atmosphere around the exterior of the tank, continuously or periodically as required, during vapor and gas freeing, degassing and ventilation operations to ensure that flammable and toxic vapours are not present above acceptable or permissible levels.

Note: Entry supervisors shall determine and implement specific procedures required when testing a tank that has been inerted or purged.

- Vital Energy PO shall assure that vapor and gas freeing, degassing and ventilation equipment is in place and operating during these tests.
- Tests shall be taken by Vital Energy PO at the point where vapours are being exhausted from the tank and in the areas around the tank where vapours could collect.
- Based on the results of the testing, Vital Energy PO and OSS shall determine the potential hazards and permit requirements so that tank cleaning work and other activities can be conducted safely in the vicinity of the tank.

5.6 Testing the Atmosphere Inside the Tank

Vital Energy PO shall ensure that a qualified person test and monitor the atmosphere inside the tank after vapor and gas freeing and degassing and during ventilation, to ensure that oxygen levels are satisfactory and flammable and toxic vapours are not present above acceptable or permissible levels.

Note: Whenever possible, it is desirable to test the tank's atmosphere from the outside without entering the tank. Qualified persons entering the tank to conduct testing shall follow the entry requirements specified in this standard.

Where entry is to be made into the confined space, attendants and entrants (or their authorized representatives) shall have the opportunity to observe the pre-entry testing.

- Based on the results of the testing, entry supervisors shall determine the potential hazards and permit requirements so that tank cleaning work and other activities can be conducted safely inside the tank.
- Vital Energy PO shall require that vapor and gas freeing, degassing and ventilating equipment is shut down for at least 15 minutes prior to atmospheric testing (based on industry experience for 150-foot diameter tanks) to allow the atmosphere inside the tank to reach equilibrium conditions. Entry supervisors shall determine the time required for the atmosphere in larger size tanks to stabilize.
- Vital Energy PO shall be performing the tests, he shall wear appropriate protective clothing and air supplied or self- contained breathing apparatus (SCBA), positive-pressure, full facepiece, respiratory protective equipment, and a harness/ lifeline, when entering the tank to conduct testing to establish entry conditions.
- Prior to permitting vertical entry into a tank (entry from the top of the tank), Vital Energy PO shall test the internal atmosphere at 4-foot (1.2 meter) verticals intervals (from top to bottom) to assure that flammable and toxic vapours have not stratified within the tank.
- Vital Energy PO who performs the tests shall ensure that the results represent the true condition of the inside of the tank, so that a decision can be made by the entry supervisor that personnel may safely enter the tank to conduct inspections or to work. In order to establish that permissible entry conditions exist throughout the tank, the entry supervisor or qualified person shall determine if there is a need to test the atmosphere at various elevations or levels inside the tank. This is required where stratification may have occurred due to tank configuration, difficulty of vapor and gas freeing, incomplete ventilation or presence of inert gases used to purge the tank.
- The contractor shall provide all the necessary BA equipment, testing and monitoring, cleaning gears and disposal wears required for the works. Contractor shall have these on site at ALL Times during the works. A SWP shall provide details of works that shall be derived from the contractor's Method Statement and Job Safety Analysis.

5.7 Monitoring the Tank's Atmosphere During Entry

Entry supervisors shall require that atmospheric testing or monitoring for oxygen levels, flammable vapours and toxic exposures be conducted periodically or continuously, as necessary, while entrants are inside the tank, to ensure that desired atmospheric conditions are maintained in accordance with the entry permit, safe (cold) work and hot work requirements. Where entry is made into an OSHA permit required confined space, entrants (or their authorized representatives) shall have the opportunity to observe the testing and monitoring.

5.8 Storage Tank Hazards

5.8.1 General

- **Hazards** - All aboveground, atmospheric, low pressure storage tanks that have contained crude petroleum, petroleum products, additives, sludge, or residue have the potential to present one or more of the following hazards during some phase of tank decommissioning, isolation, preparation, entry, testing, inspection, cleaning, repair, and recommissioning operations:
 - Oxygen deficiency or enrichment.
 - Fires and explosions.
 - Toxic substance exposures.
 - Physical and other hazards.
- **Testing** - Before workers enter a tank at the beginning of each workday or shift, the Vital Energy Permit Officer shall assure that tank's atmosphere is tested and evaluated by a qualified person for oxygen, flammable vapours and toxic exposures and inspected for physical and other hazards. The permit officer shall issue entry permits provided that all entry requirements are met. When reentering a tank following an evacuation or a break in entry causing cancellation of the permit, the tank's atmosphere shall be re-tested and re-evaluated by senior permit officer to determine that conditions have not changed, and entry requirements are still being met. The entry supervisor shall then issue a new permit or reissue the existing entry permit, before entrants are permitted to re-enter.

5.8.2 Oxygen Deficiency and Enrichment

- Before entrants (qualified/trained persons – contractor's team will need to undergo SAFER and Access to Heights & Risk training program during induction) initially enter a tank that has contained petroleum, petroleum products or hazardous materials; a clean tank that has been closed and inactive; or an empty tank; the entry supervisor

shall assure that a Vital Energy Permit Officer tests the atmosphere for oxygen content. Following testing and evaluation of test results, the entry supervisor shall issue an entry permit, provided that entry conditions are met. While entrants are in the tank, periodic or continuous oxygen monitoring shall be conducted, as necessary, to ensure that the oxygen content in the atmosphere does not change from that required by the permit. If a pertinent change in oxygen content occurs, work shall stop and all entrants shall immediately vacate the tank until a qualified person has determined the cause of the change, conditions are evaluated and corrected, and the confined entry permit (CSE) is reissued.

5.8.3 Oxygen Deficiency

A tank may be oxygen deficient for a number of reasons including, but not limited to, the following:

- Oxygen may be deficient if the tank has not been properly vapored and gas freed (degassed) and ventilated and flammable or toxic vapors, steam, water mist or inert gases are still present.
- Product or vapours may have entered the tank from a variety of sources, including vapours from sludge, deposits and residue on tank walls, floors and roofs and liquids under floors and in supports, lines and pontoons. The vapours of most hydrocarbons stored in atmospheric and low-pressure tanks are heavier than air and will displace or dilute air (oxygen).
- If a tank has been closed for an extended period of time, even if previously cleaned, oxidation (rusting) may have depleted the tank's oxygen content.
- A tank that has been purged with inert gas or flue gas will be almost devoid of oxygen. If a tank has been maintained under an inert atmosphere, extreme caution must be exercised since the tank may be in an IDLH (immediately dangerous to life and health) condition.
- When welding, cutting or other hot work is performed in an enclosed space, the air in the tank may be displaced or the oxygen in the air depleted through combustion.
- A tank whose interior has been painted, lined or coated may have an oxygen deficiency due to evaporation of solvents.

5.8.4 Oxygen Enrichment

Oxygen enrichment increases the explosive (flammable) range of hydrocarbon vapors, effectively reducing the lower explosive (flammable) limit and creating a dangerous potential for a fire to occur should a source of ignition be present. An oxygen enriched atmosphere in

a tank (oxygen content over 23.5%) should not normally occur during the cleaning of stationary storage tanks that have contained petroleum or petroleum products unless there are unusual or extraordinary circumstances. Upon any instance of oxygen enrichment that occurs within a tank, above that of the ambient air external to the tank, the following action shall be taken:

- The entry supervisor shall immediately stop operations; entrants shall leave the tank, and the entry permit shall be cancelled. The entry supervisor shall identify and control all sources of ignition in the tank area.
- Vital Energy OSS & Vital Energy Permit Officer shall investigate the cause of the oxygen enrichment (for example, oxy- gen bottles or cylinders used during welding or cutting may leak and provide a source of oxygen enrichment).
- Vital Energy PO shall conduct atmospheric testing in the tank to assure the conditions are within acceptable limits before the entry supervisor reissues the permit to allow entrants to re-enter the tank and resume work.

5.9 Fire and Explosion Hazards

Fires and explosions will occur when a source of ignition is introduced into an atmosphere where mixtures of flammable vapor and air are within the explosive (flammable) range. The potential for a fire inside or outside a tank exists during all phases of tank cleaning, from decommissioning through recommissioning, but the potential is particularly prevalent during vapor and gas freeing and degassing.

- During tank cleaning operations, entry supervisors shall control vapor exhaust and ignition sources in the vicinity of the tank to prevent possible ignition of flammable vapors.
- Vital Energy PO shall determine that the flammable vapor-in-air levels required for entry into the tank to perform specific operations are within acceptable limits, before any entry permits are issued.
- **Testing** - The contractor's supervisor shall assure that a qualified person periodically or continuously (as required by the permit) tests and monitors the atmosphere in and around the tank for flammable vapors, especially when vapor and gas freeing, degassing and ventilating is being conducted.
- **Fires and Explosion** - A source of ignition inside or near a tank may result in either a fire or an explosion depending upon a number of factors, including, but not limited to, the following (see NFPA Fire Protection Handbook, NFPA 30 and API 650 for additional information):
 - Tank design, construction, condition and integrity.

- Product(s) that have been stored in the tank.
- Flammable vapor-in-air concentration that may be present due to inadequate cleaning or ventilation, product seepage or leakage into the tank, from chemicals used to clean the tank or from the application of paint, linings or coatings.
- The number of open vents, relief devices and other tank openings.

5.10 Physical and Other Hazards

Physical and other hazards may be present or created both inside and outside the tank during tank cleaning and entry operations. Supervisors, attendants, entrants, workers and rescuers shall be aware of potential physical hazards and the symptoms of physiological and psychological hazards.

Vital Energy OSS and Vital Energy PO shall determine and evaluate the potential physical and other similar hazards with the contractor's supervisor. The entry supervisor shall conduct a safety review of the tank and surrounding area and institute necessary precautions and control measures.

5.11 Hazard Assessment for Entry Permits

Entry supervisors shall issue entry permits for all entries into tanks that have been classified as either permit required or non-permit required confined spaces, regardless of the planned activity or work to be performed.

5.11.1 Entry Conditions

- Vital Energy OSS and Vital Energy PO shall perform a hazard analysis and establish the conditions and precautionary requirements for entry into tanks that are classified as permit required confined spaces, non-permit required confined spaces and non-confined spaces.
- Vital Energy PO and Vital Energy SWP shall identify potentially prohibitive entry conditions, and establish requirements for canceling the entry permit, stopping work and vacating the tank, should such conditions arise. These requirements shall depend upon the potential hazards associated with the entry, including, but not limited to, the following:
 - Other operations affecting the work in the tank and in the area outside the tank.
 - Internal and external atmospheric test results that are not within established limits.
 - Weather conditions and emergencies occurring in the vicinity of the tank.

- Tank structural conditions, physical hazards and constraints.
- Tank cleaning operations or work to be performed inconsistent with permit authorization or requirements.
- Work shift change, permit expiration, evacuation unforeseen hazard and other consequences.
- Entry into tanks classified as non-confined spaces shall require that an entry supervisor or qualified person evaluate the situation and issue either a safe (cold) work or hot work permit depending on the activity or work to be performed. Should testing of the tank be required prior to entry by workers, the entry supervisor shall issue an entry permit for the tester to enter the tank.

5.11.2 Operating Conditions

Vital Energy OSS, Vital Energy PO, the contractor's attendants and entrants, shall be aware that one of the most important entry permit requirements is the ability to maintain safe operating and atmospheric conditions throughout the entry period.

- Attendants shall carefully monitor existing conditions throughout the entry, as necessary, to ensure conditions remain within permitted entry level requirements. If conditions change during the course of entry, the permit shall be cancelled, all work shall stop, and entrants shall exit the tank.
- Before work is allowed to resume, Vital Energy PO or Vital Energy OSS shall assess the conditions and, if acceptable, reissue the entry permit or issue a new entry permit.
- Manway attendant appointed by Contractor shall keep records of all tank entrant's and ensuring that they shall not spend more than 30mins per entry.

5.11.3 Record Retention

Employers (owners/operators and contractors) shall maintain copies of the entry permits and atmospheric testing documentation on file for at least one year, or longer (if required by employer policy or government regulation), to verify that atmospheric and physical conditions were properly evaluated and to assist in the post tank cleaning review and analysis of entry procedures.

6 Levels of Entry

6.1 General

Internal cleaning of tanks that have been gas freed may be carried out by various methods appropriate to the circumstances. This section sets out safety precautions to be observed

in this phase of the work.

- Before any person enters a tank, issue a Safety Work Permit - Confined Space Entry, ensuring the conditions of Section 1.4.8 are complied with.
- The maximum temperature inside a tank should not exceed 40°C unless special precautions are set out in the permit.
- Pumping equipment to remove slops must also be approved for hazardous location.
- If an open tank remains unattended during lunchbreaks, overnight or weekends, install suitable barriers to prevent unauthorized entry by personnel or animals and display warning notices.
- The use of cleaning jets and handheld fire hoses can give rise to hazardous electrostatic charges and the following restrictions apply:
 - Electrically bond all nozzles and jetting equipment to the tank.
 - Tanks containing gas oil or lighter products must not be jetted with water if any liquid product is present or if the atmosphere in the tank reaches 10% of the LEL. The latter requires frequent monitoring of the atmosphere in tanks even after they have been initially declared 'Gas Free'
 - Similarly jetting with product such as gas oil can be hazardous if there is free water present in the tank or if the gas oil conductivity is less than 50 pS/m. Recirculation of product used for cleaning must not be allowed if any water is present in the tank bottom.

6.2 Tank Cleaning Personnel

Tank cleaning personnel include entry supervisors, entrants, attendants and other qualified persons and workers, including, but not limited to, testers, standby persons, vacuum truck operators, tank operators, safe (cold) work and hot work permit issuers, tank cleaning workers, sludge and residue handlers and rescuers.

The Contractor shall assure us that tank cleaning personnel are familiar with Vital's tank cleaning guidelines requirements and all aspects of tank cleaning operations, including, but not limited to, the following

- Are aware of and able to recognize potential hazards.
- Types, design, configuration, physical hazards and limitations of the tanks to be entered.
- Hazards and properties of the materials (product, sludge and residue) to be removed from tanks and the materials (chemicals, etc.) used for cleaning tanks.
- Requirements for safe entry, safe (cold) work and hot work.

- Confined space classification requirements.
- Vapor and gas freeing, degassing and ventilation requirements.
- Sources of ignition and requirements for bonding and grounding.
 - **Entry Supervisor** – The Contractor shall assure that entry supervisors are trained and qualified, familiar with the design, configuration, confined space classification and condition of the tanks to be entered, the reasons for the tank entry, the potential hazards and the procedures, controls and requirements for safe entry, hot work and safe (cold) work. OIC shall verify and Contractor shall assure, and the entry supervisor shall verify that tank cleaning planning, including the required administrative controls, site specific assessments and operations plans and written documentation, is completed, prior to anyone entering the tank. The contractor shall assign qualified tank cleaning personnel who are familiar with and will assure compliance with applicable government regulations, industry standards and facility safety procedures.
 - Knows and recognizes that entry into a permit required or non-permit required confined space is considered to occur as soon as any part of the entrant's body breaks the plane of an opening into the confined space
 - Is qualified, trained and physically fit to perform work inside permit required and non-permit required confined spaces.
 - Knows the actual and potential hazards that may be encountered during tank entry, including information on the mode, signs, symptoms or consequences of exposure to hazardous or toxic substances and are aware of how to recognize potential behavioral effects of hazardous or toxic exposure on themselves.
 - Communicates with attendants as necessary to enable attendants to monitor entrant status and to enable the attendant to alert entrants of the need to stop work or evacuate the space.
 - Alerts the attendant upon recognizing any warning sign or symptom of exposure including heat or cold stress, noticing any potential hazard or when detecting a prohibited condition.
 - Properly uses personal protective clothing and equipment, respiratory protection, communication, testing and monitoring, rescue and tank cleaning equipment as required by the entry and work permits.
 - Knows when, where and how to expeditiously exit from the tank when one or more of the following items occurs:

- i. Ordered to exit by the attendant or entry supervisor or by an evacuation alarm.
 - ii. Noticing a potentially dangerous situation or symptom of a stressful condition and hazardous or toxic exposure.
 - iii. Detecting a condition that is prohibited by the permit or operating procedures.
 - iv. The attendant cannot effectively and safely perform attendant duties.
 - v. The permit expires or is cancelled.
- Is aware of emergency evacuation procedures including alarms, egress routes and assembly areas.
- **Attendants** - When the tank to be entered is classified as a permit required confined space, the contractor shall assign at least one qualified person to be stationed as an attendant outside the tank for the duration of entry operations. The entry supervisor shall include attendant's names and their duties on the entry permit. Entry Supervisor shall assure that each assigned attendant:
 - Knows the actual and potential hazards that may be encountered during tank entry and work, including information on the mode, signs or symptoms, or consequences of exposure of hazardous or toxic substances on entrants or themselves.
 - Is aware of and can recognize potential behavioral effects of hazardous or toxic exposure on entrants and themselves.
 - Communicates with entrants as necessary to monitor entrant status and to alert entrants of the need to stop work or evacuate the space.
 - Continuously maintains an accurate count of entrants within the tank and ensures that the means used to identify entrants accurately identifies those who are inside the tank.
 - Knows not to enter the tank for any reason and remains outside the entrance into the tank at all times during entry operations until relieved by another attendant or until the entry permit is expired or cancelled and all entrants have left the permit required confined space.
 - Monitors entrants activities and physical condition and is attentive of the work being performed inside the tank and the conditions inside and outside the tank that could impact on the entrants' safety or health so as to determine whether or not it is safe for entrants to remain inside and conduct work or activities in the tank. Each entrants shall not exceed more than 30mins inside the tank.

- Orders entrants to evacuate the tank immediately whenever one or more of the following occur:
 - i. 1. A condition is detected that is prohibited by the permit or operating procedures.
 - ii. Undesired behavioral effects of hazard exposure on an entrant are detected.
 - iii. A condition or potentially hazardous situation is detected inside or outside the tank that could endanger the entrants.
 - iv. The attendant cannot effectively and safely perform all assigned attendant duties.
 - v. The permit expires or is cancelled.
- Takes the following action when unauthorized persons approach or attempt to enter a tank classified as a permit required confined space or non-permit required confined space while the attendant is on duty and entry is underway:
 - i. Warns unauthorized persons that they must stay away from the tank.
 - ii. Directs the unauthorized persons to exit immediately if they have entered the tank.
 - iii. Immediately informs all entrants and the entry supervisor immediately if unauthorized persons have entered or attempted to enter the tank.
- Determines if entrants may need assistance to escape from permit required confined space hazards and, if so, summons designated rescuers or authorized emergency services immediately.
- Does not leave the assigned location until properly relieved, even to attempt a rescue. Performs non-entry rescue as specified by the employer's (owner/operator and contractor) procedures and rescue program. Attempts non-entry rescue using the retrieval line from outside the tank only when proper equipment is in place and takes appropriate precautions to assure that the rescue attempt will not present further hazards to the entrant or attendant.
- Performs rescue that requires entry only after being relieved and only when provided for in the employer's (owner/operator and contractor) permit entry program. The attendant shall be properly equipped, trained, qualified and assigned to be a rescuer.

- Performs no duties that might interfere with the primary duty to monitor the tank and adjacent area and protect the entrants.
- **Qualified Persons** – The Contractor shall only assign qualified persons to perform tank cleaning work, including, but not limited to, decommissioning, vapor and gas freeing, degassing, testing, inspection, ventilating, tank cleaning, rescue, sludge and residue removal, repair and maintenance, recommissioning and associated work and activities. Qualified persons include, but are not limited to, supervisors, testers, standby persons, attendants, entrants, vacuum truck operators, tank operators, rescuers, and tank cleaning workers.
 - Qualified persons entering permit required or non-permit required confined spaces to perform any activity shall be considered to be entrants during such entry and shall be subject to all entrants' requirements.
 - Qualified persons and workers entering tanks classified as non-confined spaces shall not be considered to be entrants.
 - Knows and recognizes that entry into a permit required confined space or non-permit required confined space is considered to occur immediately when any part of the entrant's body breaks the plane of an opening into the space.
 - Is qualified, trained and physically fit to perform work inside tanks classified as permit required confined spaces, non-permit required confined spaces and non-confined spaces.
 - Knows the actual and potential hazards that may be encountered while working inside a tank, including information on the mode, signs or symptoms, or consequences of exposure of hazardous or toxic substances and are aware of potential behavioral effects of hazardous or toxic exposure on themselves.
 - Communicates with attendants (when attendants are stationed outside the tank) as necessary to enable attendants to monitor the work status and to enable the attendant to alert workers of the need to stop work or evacuate the space.
 - Alerts other workers, assigned attendant and persons who issued the entry or work permits upon recognizing any warning sign or symptom of exposure, noticing any potential hazard or when detecting a prohibited condition.

- Properly uses tank cleaning equipment, personal protective clothing and equipment and respiratory protection, if required by the entry and work permits.
- Knows where and how to exit from the tank expediently when:
 - i. Ordered to exit by an attendant, supervisor or by an evacuation alarm.
 - ii. Noticing a potentially dangerous situation or symptom of a hazardous or toxic exposure.
 - iii. Detecting a hazardous or prohibited condition.
- Performs no duties that would interfere with their primary assigned duties.

7 Extensions of Tank Vents Adjacent to Hot Works

7.1 Preparation of Work

Vital On site team and contractor shall agree on the specifics of works that shall be done before and during the vent extension works.

7.2 Ventilation

Where possible mechanical ventilation should be used at all times to remove any flammable hazard and keep the oxygen and toxic vapours at acceptable levels for entry. This is especially important in relation to these procedures as the requirement for air-supplied breathing apparatus, previously mandatory for leaded tanks, has in some special circumstances been waived.

The rate of mechanical ventilation depends on the equipment used and the size of the tank. A rate of at least two air changes per hour should bring the tank vapour concentration quickly below flammable range.

Natural ventilation, e.g. wind sail, which is usually most effective on fixed roof tanks, may require a longer period to gas free the tank especially under still weather conditions.

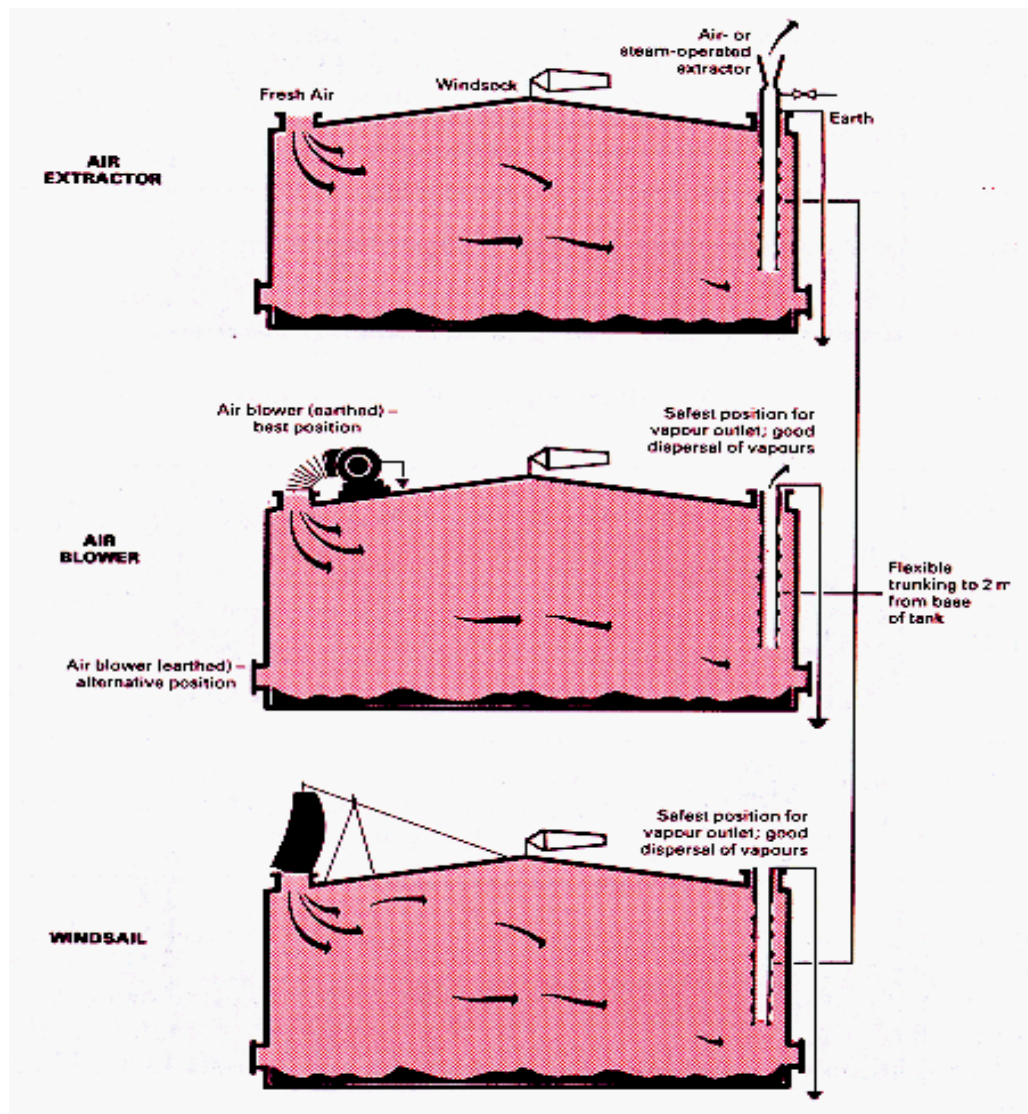


Figure 2 - Ventilation of Fixed Roof Tank

7.3 Oxygen

No person shall enter a tank without an air-supplied breathing apparatus if the oxygen level is below 20%. Under no circumstances is pure oxygen to be used to enhance the atmosphere.

Oxygen levels shall be continuously monitored as the release of vapours, oxidation of metal surfaces, combustion and welding can reduce oxygen levels. Mechanical or natural ventilation should be used to maintain a safe atmosphere (see definition of “oxygen deficiency” Section 4).

Once a tank is fully cleaned of sludge, and provided mechanical ventilation is maintained, oxygen levels need only be checked prior to entry. If however, any work is performed, such as welding, which can reduce oxygen levels then oxygen levels must be continuously checked.

7.4 Flammable Atmosphere

Despite a tank having been vapour-freed, a sludge or scale deposit may remain on the tank surfaces. Flammable vapours can still be formed when these deposits are disturbed or heated.

Vital appointer Permit Officer person must gas test for both flammable vapours and oxygen levels at several representative points before anyone can enter a tank which has been prepared for cleaning. These tests must be repeated periodically or continually depending on the prevailing circumstances, whilst work inside the tank is in progress.

Note: Combustible gas detectors must not be used as the sole means for determining levels of toxic vapours to enable entry into a tank without respiratory protection. They can however be used as a guide to selecting the level of respiratory protection required.

The table below demonstrates the use of a combustible gas detector for estimating the level of benzene inside a tank.

% LEL	Total Hydrocarbon Vapours in PPM (LEL for gasoline vapour is 1.4% or 14,000 PPM)	Benzene in PPM (based on approx. 5% in the vapour mixture)
0.2*	28	1.4
1.0	140	7
2.0	280	14
3.0	420	21
4.0	560	28
5.0	700	35

Table 1: Estimation of Vapour Levels Using Combustible Gast Tester

* approximation for the lower level of detectability

From the table a combustible gas detector reading of 1% LEL or less would indicate that the airborne benzene concentration is less than 10 PPM (7 PPM from table). Recognizing that 1 PPM is the Shell recommended exposure standard for benzene and assuming that oxygen levels were determined to be between 20% and 21% then entry is permissible with an air-purifying canister. This type of respirator is approved to provide protection to airborne contaminants at concentrations up to ten times the occupational exposure standard.

The combustible gas detector must be recently calibrated and suitable for use with leaded gasoline vapours. Also the sensitivity of some combustible gas monitors may not enable measurements less than 1%, in which case a “nil” reading is required.

Location	% LEL	Action
Fixed roof tank <ul style="list-style-type: none"> internals on top of internal floating cover <ul style="list-style-type: none"> under internal floating cover Floating roof tank: <ul style="list-style-type: none"> top of roof under roof inside pontoons 	> 10%	No entry permitted. Unsuitable as a work environment.
	>5 <10%	No entry permitted unless a continuous-monitoring suitably calibrated flammable gas detector is used at all times while persons are present, and <ul style="list-style-type: none"> oxygen content not less than 20% or more than 21%. oxygen levels checked periodically mechanical ventilation must be maintained
	< 10%	Safe for persons to enter and carry out inspection and cold work with appropriate air supplied breathing apparatus provided ; <ul style="list-style-type: none"> oxygen content not less than 20% or more than 21%. oxygen levels checked periodically mechanical ventilation must be maintained
	> 1%	Unsafe for hot work.
	≤1% (nil)	Safe for persons to enter and carry out hot work or cold work with cartridge / canister respirator provided : <ul style="list-style-type: none"> oxygen content not less than 20% or more than 21% mechanical ventilation; oxygen levels checked periodically natural ventilation; oxygen levels checked continuously tank previously treated and having contained only unleaded product.

8 Protective Equipment Requirements

8.1 General

Permit Officer shall review and analyze the atmospheric and physical conditions within and around the tank in order to determine the requirements, protective measures and precautions necessary for safe entry into tanks. Entry supervisors shall also consider the activities or work to be performed and the classification of a tank as a permit required confined space, a non-permit required confined space or a non-confined space, when determining the level of entry.

The Contractor shall provide employees with the required tank cleaning protective clothing and protective equipment specific to the tank cleaning operation and other clothing and protective equipment required by regulation or contract.

The Contractor shall provide their own personal protective equipment and work clothing

that is normally required for hot work and safe (cold) work including, but not limited to, prescription safety glasses, safety shoes and appropriate clothing, as well as any personal medical devices such as braces and belts. Refer to Vital PPE Chart for guidance as this is not limited to but the contractor shall be in better position to make more stringent PPE for his workers.

Impervious clothing, gloves and footwear, to protect the skin, that is specific to the tank cleaning operation. Entry supervisors shall review and understand the potential consequences of using impervious clothing in areas subject to heat stress. Light colored clothing to enhance visibility and to assist in identifying contamination on clothing.

Fire retardant impervious coveralls or flame-resistant clothing or coveralls to protect from a potential flash fire. A determination shall be made at the pre-cleaning tank meeting between Vital and the contractor as to the proper type of protection to be worn by tank cleaning workers and supervisors in facilities with a mandatory requirement for flame resistant or flame-retardant protective clothing.

Hard hats, head coverings, work gloves, safety shoes and boots, face shields, and goggles to minimize skin and eye exposure to hazardous substances, specifically required for the tank cleaning operation.

8.2 Toxic Contamination

Permit Officer and Contractor's Supervisor shall assure that if an entrant, standby person, attendant, rescuer or other worker's skin, eyes, clothing or equipment becomes contaminated with hazardous substances or toxic materials being removed from the tank or used to clean the tank, the appropriate response actions shall be immediately taken. Contractor's supervisors shall assure that such a response includes, but is not limited to, one or more of the following, as required:

- Decontaminating the person by providing necessary personal hygiene and showering.
- Decontaminating and/or disposing of contaminated clothing and equipment.
- Providing required first aid or medical care.
- Determining the extent of exposure and providing any required medical surveillance or testing.

8.3 Respiratory Requirements

Contractor shall establish and implement proper respiratory protection programs to protect tank cleaning workers from occupational injuries, illnesses, and diseases caused by breathing in air that is contaminated with harmful substances that cannot be controlled by vapor and gas freeing, degassing and ventilation or other methods.

Vital Team and Contractor shall ensure that the entry supervisors, and qualified persons shall review all information that is available covering materials contained in the tank or used to clean the tank, including, but not limited to, MSDSs, facility product, sludge and residue information and specific health standards, in order to determine and select appropriate respiratory protection. The Contractor shall provide workers with respirators that are appropriate and suitable for the potential exposures and the purpose intended.

Entry supervisors shall assure that appropriate respiratory protective equipment is selected, designated and worn by testers, qualified persons, entrants, attendants, rescuers and tank cleaning workers as established by the entry and work permits.

Note: Vital OIC and Contractor's Supervisor shall assure that equipment provided is not subject to deterioration or corrosion caused by product or residue in the tank, by chemicals used to clean the tank or by solvents contained in tank coatings, paint and liners.

8.4 Fitting, Testing, and Checking Respirators

Contractor shall provide every respirator user with a respirator fitting, including demonstration and practice in the correct way to wear the respirator, its proper adjustment and fit testing instructions to determine that it fits properly.

To assure proper protection, the users shall check the face piece fit each time they put on their respirators. Fit checks performed by employees shall not be confused with the qualitative or quantitative fit testing that is conducted initially (and periodically thereafter), by a qualified person, in accordance with regulatory or employer (owner/operator and contractor) requirements. Respirators shall not be worn when conditions prevent a good face seal.

8.5 Breathing Air Cylinders

Contractor shall require and have a qualified person who shall verify that breathing air supplied to respirators meets the appropriate regulatory requirements for breathing air (see the specification for Grade D breathing air as described in CGA G-7.1-1966. Entry supervisors shall assure that approved (Grade D) breathing air is supplied to respirators from approved air supply cylinders. Breathing air cylinders shall be equipped with low level indicators or an alarm system.

8.6 Breathing Air Compressors

The use of breathing air compressors shall be allowed only when permitted by the employer (owners/operators and contractors). A qualified person shall inspect and certify that breathing air compressors (or air compressors provided with approved purification system) used to supply breathing air are approved and in good operating condition, in order to ensure breathing air quality.

Note: The contractor shall establish and implement a compressor program and maintain compressor certification, inspection and maintenance records on file for review by the owner/operator.

The entry supervisor shall assure that the breathing air compressor is located upwind of the tank and the fresh air intake is located above ground level, away from potential sources of exhaust gases, fumes or flammable or toxic atmospheres from both internal (from the tank) and external (outside the tank) sources. These sources include, but are not limited to, internal combustion engine exhausts, vapours discharged from the tank, vapours emitted from vacuum operations and vapours from nearby tanks during product receipts.

Entry supervisors shall assign a qualified person to act as a standby person to monitor air compressor intake air quality, provide a constant breathing air supply and assure that the compressor is protected from physical damage. Standby persons shall immediately notify entrants to switch to emergency bottled air and leave the tank in case of compressed air supply contamination or failure.

8.7 Air Supply Lines, Hoses and Couplings

The On Site Supervisor shall assure that a qualified person inspects breathing air supply systems prior to each use and periodically during use, to ensure the integrity and good condition of the air supply lines, hoses and airline couplings. The Contractor shall provide breathing airline couplings that are not compatible with outlet connections for other air or gas systems in the facility, including, but not limited to, nitrogen, industrial air, hydrogen and oxygen. Entry supervisors shall assure that breathing air supply lines are isolated from plant utilities by use of nonmatching connectors to prevent inadvertent servicing of airline respirators with non-respirable gases or oxygen. The standby person shall assure that breathing air supply lines, hoses and couplings are not used for supplying anything other than breathing air

9 Entering and Working Inside the Tank

9.1 General

The Contractor's entry supervisors and permit officer shall review appropriate regulations, industry standards and facility procedures to determine the applicable requirements before issuing permits for entering into and working inside and around tanks and these steps and controls shall be captured in the Confine Space Entry Permit. (See API 653, 2009, 2016, 2026, 2027, 2207, 2217A and 2219; ANSI Z117.1; ISGOTT; NFPA 30, 51B, 77and 326; NIOSH Criteria and OSHA 29 CFR 1910.38, 1910.95, 1910.106, 1910.120, 1910.146, 1910.147, 1910.251 and 1910.1200 for additional information).

9.2 Confine Space Entry Permits

Permits shall be issued for entry into a permit required confined space tank and for all safe (cold) and hot work conducted inside the tank. Work permits shall also be issued by entry supervisors or qualified persons for all work performed outside the tank associated with the tank cleaning operations. Entry supervisors shall assure that entry into the tank and all work performed in and around the tank is conducted in accordance with the contractor's safe (cold) and hot work permit program and confined space entry permit requirements.

Note: Confine Space Entry permit shall be issued, and this shall be reviewed and signed by all those working on the site and specifically doing tank entry.

- A copy of the written permit shall be posted at the tank entry point or available at the tank cleaning work site
- Any problems arising during a tank entry shall be noted on the permit by the entry supervisor.
- Employers (owners/operators and contractors) shall maintain copies of entry permits on file for at least one year (or longer if required by employer policy or regulation) for analysis and review in order to facilitate appropriate permit program revisions.
- The measures used to isolate the permit required and non-permit required confined spaces and to eliminate or control hazards before and during entry (and reentry, upon reissue of the permit), including, but not limited to, the following:
 - Lockout and tag out.
 - Blinding and blanking or blocking and bleeding,
 - Purging, vapor and gas freeing, inerting, flushing, degassing, and ventilating.
- The conditions that shall require the permit to be cancelled, work to stop and entrants to leave the tank, including, but not limited to, the following:
 - Approaching electrical storms, tornadoes or other bad weather conditions.
 - Emergencies occurring either inside or outside the tank.
 - Flammable liquids receipt into a nearby tank with the potential to emit vapours into the tank cleaning work area.
 - Hydrocarbon or toxic atmospheres within the tank at levels above those permitted for safe entry.
 - Entry by an unauthorized person.
- Required tank cleaning equipment, including, but not limited to:
 - Personal protective clothing and equipment and respiratory protection.
 - Atmospheric testing equipment.
 - Alarms and fire protection equipment.
 - Vapor and gas freeing, degassing, ventilation and air supply equipment.
 - Tank cleaning materials and equipment.
 - Product, sludge and residue removal and disposal equipment.

- Emergency rescue equipment specific to the tank and the potential hazards
- Any other permits, including, but not limited to, hot work and safe (cold) work permits or work authorizations issued to perform work in or around the tank during entry.
- Required warnings, including, but not limited to, posted permits, signs and notices, barriers and lockout/tagout tags.
- The means of protecting tank openings with temporary barriers or covers to prevent entrants from falling into openings and to keep foreign objects and undesirable persons from entering the tank both during operations and when operations are not in progress.
- The individual, by name, currently designated to be the entry supervisor, with a space for the signature or initials of the entry supervisor who originally authorized entry and the entry supervisor(s) who may subsequently authorize re-entry, if the permit was reissued.

9.3 Protection from Hazards

- Entry or permit supervisors shall determine the potential hazards involved with safe (cold) work inside tanks and assure that appropriate requirements are indicated on the safe (cold) work permits.
- Contractor's Supervisors shall assure that tanks cleaning workers follow all permit requirements to protect against flammable, toxic or other harmful atmospheres and maintain safe (cold) working conditions.
- Contractor's Supervisors shall recognize that entry into all tanks classified as confined spaces or non-confined spaces, to perform certain types of repairs, maintenance and tank cleaning work, requires specific safe (cold) work procedures and safe (cold) work permits.
- Contractor's Supervisors shall determine the personal protection appropriate to the entry. The appropriate personal protective clothing, equipment or respiratory protection depends on the work to be performed, the substances, concentrations and circumstances involved and other work being conducted in the area at the same time.
- The requirements for safe (cold) work and entry shall be evaluated and determined by the Vital OSS during the planning phase of the tank cleaning operation.

9.4 Undesirable Product, Sludge, And Residue Disposal

The Contractor shall assure that disposal of undesirable product, sludge, residue and cleaning materials from tank cleaning operations and all contaminated tank appurtenances removed from service complies with applicable to industry standard since most locations don't have decomposition and treatment facility. All disposable materials had been treated and clearance issued for disposal, the contractor shall past the certification confirming that the materials was treated and disposed according to their regulation by EPA.

Vital On-Site Supervisors shall determine the potential hazards associated with the handling, removal and containment of undesirable product, sludge, residue, cleaning materials and contaminated appurtenances and indicate the requirements for safe handling and personal protective equipment on the entry and work permits.

10 Hot Work and Tank Repairs

10.1 General

Hot work is any work that has the potential to produce enough energy to be a source of ignition in an area where the potential for a flammable vapor-in-air atmosphere exists. Examples of hot work associated with tank cleaning include, but are not limited to, welding, cutting, burning, grinding, drilling, heating, spray washing, steam cleaning, vacuum truck operations, abrasive blasting, and use of internal combustion engines and non-explosion proof or improperly classified electric equipment.

10.2 Hot Work Requirements

Vital On-Site Supervisors and Permit Officer shall assure that hot work operations inside of tanks complies with all Vital's HSSE Policy and SAFER System, applicable industry and regulatory and facility procedures for safe entry and work inside tanks.

10.3 Hot Work Permit

Senior Permit Officer shall issue hot work permits for hot work in or around any tank, regardless of the classification of the tank and he is responsible for issuing ALL kinds of permits required for hot and cold works. All regulatory permits will be obtained by the contractor.

10.4 Permit Conditions

Hot work permit issuers shall determine the potential hazards and assure that appropriate controls and precautions are taken to protect entrants and workers from flammable and toxic vapours, toxic fumes and other harmful exposures when hot work is conducted inside tanks, outside of tanks and in the vicinity of tanks. Senior Permit Officer (SPO) shall:

- Determine and indicate on the permits all conditions under which the hot work permit will be cancelled, work is to stop, and workers are to exit the tank.
- Specify the requirements for any local exhaust ventilation, types of respiratory protection and/or atmospheric exposure monitoring on the entry and hot work permits.

- Require the tank atmosphere to be tested at the start of work and retested (following extended breaks or work stoppage) before the hot work permit is reissued and work resumes.

10.5 Permit Requirements

During hot work operations, On Site Supervisor or Permit Officer monitoring hot work permits shall assure that the flammable vapor-in-air atmosphere in the tank is not in excess of 0% of the lower explosive (flammable) limit, that the oxygen level does not exceed 23.5% and that the permitted exposure limits for toxic vapours, fumes and substances are not exceeded.

- SPO issuing hot work permits for work in tanks classified as permit required confined spaces or non-permit required confined spaces shall assure that ventilation is continued during hot work to minimize any accumulation of flammable and toxic vapours or toxic fumes emanating from such sources. This shall be confirmed by the Permit Officer if the SPO is off site.
- SPO issuing hot work permits shall determine the need for local ventilation (a flexible hose with an air blower) to improve atmospheric levels at specific work locations (for example, at the spot where welding or cutting occurs) in tanks classified as permit required and non-permit required confined spaces. This shall be confirmed by the Permit Officer if the SPO is off site.
- SPO issuing hot work permits shall determine if periodic or continuous atmospheric monitoring is required when hot work operations are conducted in tanks classified as permit required confined spaces, non-permit required confined spaces and non-confined spaces in order to assure that permit limits are not exceeded. This shall be confirmed by the Permit Officer if the SPO is off site.
- SPO issuing hot work permits shall determine if there is a need for ventilation, either general or local, when hot work operations are conducted in tanks classified as non-confined spaces. This shall be confirmed by the Permit Officer if the SPO is off site.

10.6 Hot Work Hazards

The Contractor's Supervisor and Vital OSS shall be aware that the potential exists for hazardous vapours and fumes to be generated through the application of heat and provide for appropriate protective measures when issuing the hot work permit.

- The SPO issuing the hot work permit shall require that any tank surfaces to be heated, including, but not limited to, internal and external roofs, internal and external structural supports, columns, piping, scaffolding, decking, and pontoons, are free of

flammable and combustible liquids and vapor, ignitable rust and scale, waxes and other combustible deposits.

- The entry supervisor or qualified person issuing the hot work permit shall determine the quantity and potential composition of fumes generated during hot work by investigating the materials being welded or worked on including, but not limited to, any deposits, residue, coatings, or paint being heated or burned and the products of combustion of welding rods.

10.7 Hazard Awareness

Workers performing hot work in and around tanks shall be aware of the following potential hazards:

- Deposits are sometimes hidden on the upper surfaces of roof rafters and similar locations within the tank and wooden roof supports may be coated or saturated with hydro- carbons.
- Flammable and toxic liquids and vapours may enter a tank through leaks in the tank bottom or may evolve from other spaces including, but not limited to, pipe-column roof supports, chambers, swing lines, pontoons, and sumps.
- Repairs to tank bottoms may create a potential fire or explosion hazard, a toxic exposure hazard or there may be a reduction in the oxygen content of the atmosphere as a result of inerting the space below the tank floor.
- Flammable and toxic vapours may be produced by the application of heat and testing or monitoring instruments may not detect the presence of flammable or toxic vapours until hot work commences.
- Toxic atmospheres may originate from welding fumes or from the material on which hot work is being performed.
- The tank may have been painted with lead-based paint on the outside and/or coated on the inside with an epoxy or special material to prevent corrosion, any of which will create toxic vapours or fumes upon being heated.
- An oxygen-enriched atmosphere may be created inside the tank from leaking hoses, torches, or cylinder valves when using oxy/acetylene/ propane burning equipment.
- Conditions may occur outside the tank that will require all hot work to stop and workers to exit the tank.

10.8 Equipment Hazards

The SPO or OSS shall be aware of potential hazards associated with the use of hot work equipment and establish safe (cold) work procedures, including, but not limited to, the following:

- Prohibit oxygen, flammable gas and inert gas cylinders from being taken into tanks classified as permit required or non-permit required confined spaces.
- Require that workers disconnect hoses and torches associated with oxygen and gas cylinders during extended work break period (exceeding 1 hour) and when leaving the vicinity of the tank and disconnect and remove cylinders from the tank area at the end of the work shift.
- Require that workers disconnect hoses and torches associated with oxygen and gas cylinders during extended work break period (exceeding 1 hour) and when leaving the vicinity of the tank and disconnect and remove cylinders from the tank area at the end of the work shift.
- Assure that electrical welding equipment is approved for use in the tank, intrinsically safe, inspected before and during use and properly grounded (earthed).

10.9 Fire Prevention

When hot work is permitted inside a tank, entry supervisors and qualified persons issuing hot work permits shall determine and indicate the required fire protection equipment on the entry and hot work permits. Incipient first aid fire protection equipment, including, but not limited to, charged fire extinguishers and/or pressured fire hoses, shall be in working order and available inside and/or outside the tank, as specified on the permit.

- Contractor and OSS shall assure that all workers are instructed in the use of the incipient fire protection equipment provided.

11 Emergency Response Plan

The Contractor shall develop and implement an emergency response plan that includes procedures for rescue of entrants in the event that an emergency occurs within the tank or an emergency occurs within the vicinity of the tank or elsewhere within or outside of the facility, that impacts on tank entrants.

11.1 Plan Elements

- The plan shall consider emergencies including, but not limited to, hazardous and toxic exposures in excess of permit limits, entrant injury or illness, entrant entrapment,

fires and explosions, flammable and toxic liquid, vapor or gas releases and other emergencies from sources external and internal to the tank.

- The plan shall be tank specific and include, but not be limited to, procedures for summoning rescuers and other emergency responders and conducting rescue of entrants from tanks being cleaned that are classified as permit required and non-permit required confined spaces.
- The plan shall identify the specific rescuers, including, but not limited to, the following:
 - Designated employees or attendants who are trained and equipped for rescue activities.
 - Facility emergency response brigade.
 - Designated and qualified outside rescue service.
 - The entrant's capability for self-rescue.
- Refer to Emergency Response Procedure prior to starting the works.

SECTION 2.3

Vital Standards

Appendix O Vital's Payment Process

Appendix P Vital Energy Tank Work Breakdown Structure

Appendix Q FSMPC GP External and Internal Painting of Bulk Tanks

Appendix R OOSI Flow Process

Appendix S OOSI-R Flow Process

Appendix T Inspection Test Plan – Sample

Appendix U Project Reporting Forms (Daily & Monthly)

Appendix V Project QC Forms for Tanks

Appendix O

Vital's Payment Process

CIIP PROJECT PAYMENT PROCESS

Project Stage

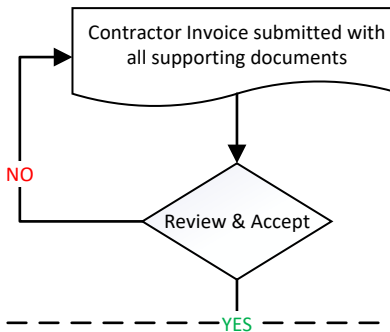
Activity

Responsibility

PAYMENT SUBMISSION

Contractor Inv checklist

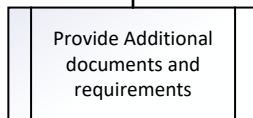
- Milestone Payment #
- Project Progress Report
- 3rd Inspection Report
- Materials Cert
- Others – Refer to Contract



CONTRACTOR

PROJECT MANAGER

APPROVAL

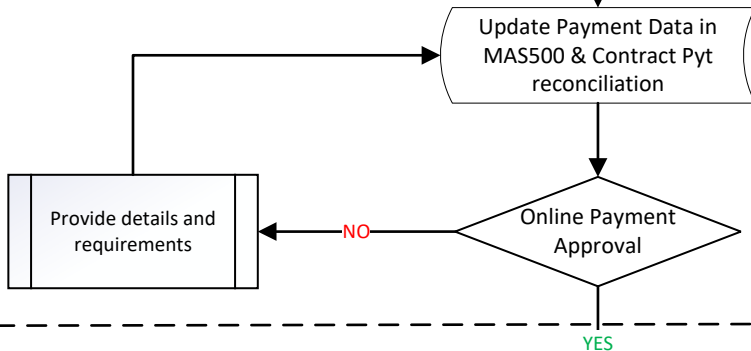


PROJECT MANAGER

PROJECT SPONSOR

PROJECT MANAGER

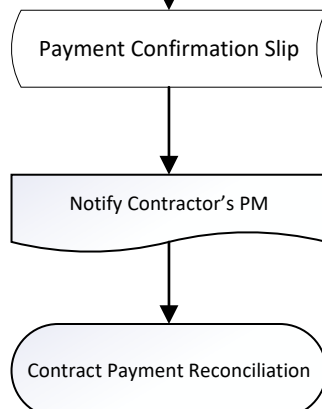
PROCESSING & DISBURSEMENT



PROJECT ACCOUNTANT

CHIEF FINANCIAL OFFICER

PAYMENT CONFIRMATION



PROJECT ACCOUNTANT

CONTRACTOR

PROJECT MANAGER

Appendix P

Vital Tank Work Breakdown Structure

Contractor to follow the the attached WBS when developing the work schedule.
Activities can be added and task that is not applicable shall be made inactive.

API653 Compliance Program

This template shall be used for the development of the Project Schedule by the Vital Project Manager and Appointed Contractor. The works steps to be added for some Activities and Tasks, if the task is not required, this can be marked as “inactive” in the MS Project Scheduling Tool.

Task	Duration	Deliverables	Milestone	Responsible
API653 Compliance - OOSI Works			No	
1. Phase: Initiation	41		No	
1.1. Business Case & ATOM Form	11		No	Project Manager
1.1.1. Develop Business Case	5	Business Case Document	No	Project Manager
1.1.2. Develop ATOM Form	2	ATOM Form	No	Project Manager
1.1.3. Documents Reviewed by P&P	3	Review and Comment on Document	No	Tank Engineers
1.1.4. Upload Document to SET V2 for PMO to review and submit	1	Document Uploaded to SETv2 & Review Done	No	Project Manager
1.1.5. Business Case & ATOM Submitted to CoRE or FM's	2	Review/ Approval by FM's	No	PMO
1.1.6. Project Initiation Document Approved	1	Initiation Document Approved	No	FM's or CoRE
1.1.7. Business Case & ATOM Complete	0	Approved Document Uploaded in SET V2	Yes	PMO
1.2. Identified Stakeholders	9		No	
1.2.1. Project Kick Off Meeting	1	Gather Information	No	Project Manager
1.2.2. Identify Project Stakeholders	2	List of Stakeholders	No	Project Manager
1.2.3. Conduct Stakeholder Analysis	2	Stakeholder Analysis Grid	No	Project Manager
1.2.4. Develop Stakeholder Register	1	Stakeholder Register	No	Project Manager
1.2.5. Upload Stakeholder Matrix to SET V2	1	Document Uploaded to SETv2 & Review Done	No	PMO
1.2.6. Stakeholder Matrix Approval by CoRE or FM's	2	Review/ Approval by FM's	No	FM's or CoRE
1.2.7. Stakeholder Matrix Approved	1	Initiation Document Approved	No	FM's or CoRE
1.2.8. Stakeholder Analysis Complete	0	Approved Document Uploaded in SETv2	Yes	PMO
1.3. Project Charter	21		No	
1.3.1. Identify Goals and Objectives	2	Goals and Objectives, List of Constraints	No	Project Manager
1.3.2. Develop Strategies and Plans	3	Strategies and Plans	No	Project Manager
1.3.3. Research Previous Experience	2	Sample Previous similar Projects	No	Project Manager
1.3.4. Develop Project Charter	5	Project Charter	No	Project Manager
1.3.5. Project Charter Review by P&P	3	Review and Comment on Document	No	Tank Engineers
1.3.6. Upload Project Charter to SET V2	2	Document Uploaded to SETv2 & Review Done	No	PMO
1.3.7. Project Charter Approval by CoRE or FM's	3	Review/ Approval by FM's	No	FM's or CoRE
1.3.8. Project Charter Approved	1	Initiation Document Approved	No	FM's or CoRE
1.3.9. Project Charter Complete	0	Approved Document Uploaded in SETv2	Yes	PMO
2. Phase: Planning	10		No	

2.1. Management of Change			No	
2.1.1. Project Meeting	1	Gather Information for MoC	No	Facility Manager
2.1.2. Identify Change using the Change Trigger Checklist	2	MoC Trigger Checklist in PetroX	No	Facility Manager
2.1.3. Complete a Management of Change (MoC) for identified Changes	5	MoC Developed in PetroX	No	Facility Manager
2.1.4. MoC's Completed and Submitted	2	MoC Ready for Review	No	Facility Manager
2.1.5. MoC Review by Reviewer	2	MoC Approval or Rejection	No	MoC Reviewer
2.1.6. MoC's Approved	1	MoC Approved	No	MoC Reviewer
2.1.7. Management of Change Approved	1	Approved Document Uploaded SETv2	No	PMO
2.1.8. MoC review by P&P Team for Scope Development	1	Information for Scope Development	No	Tank Engineers
2.1.9. MoC Complete			No	
2.2. Project Scope Statement			No	
2.2.1. Drone Report from Site – P&P Template				
2.2.1.1. Initiate PO for Drone Contractor	3	PO Issued to Drone Contractor	No	Procurement Team
2.2.1.2. JSA for Drone use inside facility	1	JSA Developed by Team	No	On Site Supervisor
2.2.1.3. SWP for Drone Report	2	Safe Work Permit raised in PetroX	No	Facility Manager
2.2.1.4. SWP Review and Approval	2	SWP Approved	No	Senior Permit Officer
2.2.1.5. Gast Testing Site Clearance	0.5	Gas Test Certificate and Site Clearance issued	No	Gas Testing Officer
2.2.1.6. Drone Team on site	2	Drone Video and Photos	No	Drone Contractor
2.2.1.7. Site Report on P&P Template	2	Drone Report	No	On Site Supervisor
2.2.1.8. Review and Comments from P&P Team	2	Finalized Report	No	Tank Engineers
2.2.2. Develop Scope Management Plan	10	Scope Management Plan	No	Tank Engineers
2.2.3. Define Project Scope	10	Definition of Project Scope	No	Tank Engineers
2.2.4. Specify Deliverables and Acceptance Criteria	5	Deliverable Specifications	No	Tank Engineers
2.2.5. Identify Project Exclusions	3	Project Exclusions	No	Tank Engineers
2.2.6. Document Assumptions and Constraints	3	List of Assumptions	No	Tank Engineers
2.2.7. Develop Project Scope Document	3	Project Scope	No	Tank Engineers
2.2.8. Upload Project Scope Document to SETv2	2	Document Uploaded to SETv2 & Review Done	No	PMO
2.2.9. Project Scope Document Approval by CoRE or FM's	2	Review/ Approval by FM's	No	FM's or CoRE
2.2.10. Project Scope Statement Approved	1	Initiation Document Approved	No	FM's or CoRE
2.2.11. Scope Document Complete	0	Approved Document Uploaded in SETv2	Yes	PMO
2.3. Work Break Structure & WBS Dictionary				
2.3.1. Build Project WBS – Refer to OOSI Template for Guidance	2	Detailed WBS – Template	No	Tank Engineers
2.3.2. Develop WBS Dictionary	1	Work Breakdown Structure Dictionary	No	Tank Engineers
2.3.3. WBS review by Sponsor	1	WBS Approved by Sponsor		
2.3.4. WBS Complete	0	WBS Approved Uploaded in SETv2	Yes	PMO
2.4. Project Schedule			No	
2.4.1. Document Schedule Management Plan	1	Schedule Management Plan – Template	No	PMO
2.4.2. Define Project Activities	2	Activity List – Template	No	PMO

2.4.3. Sequence Project Activities	2	Project Schedule Network Diagram - Template	No	PMO
2.4.4. Estimate Activity Resources	2	Resource Requirements	No	PMO
2.4.5. Estimate Activity Durations	2	Activity Durations Estimates	No	PMO
2.4.6. Develop Project Schedule	1	Project Schedule	No	PMO
2.4.7. Project Schedule Complete	0	Approved Schedule Uploaded to SETv2	Yes	PMO
2.5. Project Sanction			No	
2.5.1. Document Cost Management Plan	2	Cost Management Plan	No	Tank Engineers
2.5.2. Project Bill of Materials	5	BOM List – Template	No	Tank Engineers
2.5.3. Estimate Project Costs ±10%	3	Cost Estimates within ±10%	No	Tank Engineers
2.5.4. Determine Project Budget	2	Project Budgeting - Template	No	Tank Engineers
2.5.5. Develop Project Cash Flow	1	Project Cashflow – Template	No	Project Manager
2.5.6. Develop Project Sanction	1	Project Sanction – Template	No	Project Manager
2.5.7. Upload Project Sanction to SET V2	2	Document Uploaded to SETv2 & Review Done	No	PMO
2.5.8. Project Sanction Approval by CoRE or FM's	1	Review/ Approval by FM's	No	FM's or CoRE
2.5.9. Project Sanction Approved	1	Initiation Document Approved	No	FM's or CoRE
2.5.10. Update Project Budget in MAS500	1	Create Project Budget in MAS500	No	Asset Officer
2.5.11. Project Sanction Complete	0	Approved Document Uploaded in SETv2	Yes	PMO
2.6. Quality Plan	4		No	
2.6.1. Project Quality Plan	15	Quality Management Plan	No	Tank Engineers
2.6.2. Compile HSSE & QAQC Documents	0.5		No	
2.6.2.1. Develop Inspection Test Plan – Template	0.5	Inspection Test Plan	No	Tank Engineers
2.6.2.2. Working at Height – Checklist Template	0.5	Checklist Form	No	Vital Template
2.6.2.3. Confine Space Entry – Checklist Template	0.5	Checklist Form	No	Vital Template
2.6.2.4. Hot Works – Checklist Template	0.5	Checklist Form	No	Vital Template
2.6.2.5. Tank Inspection & Data Forms ^A (Use Only Required Forms)	0.5		No	
2.6.2.5.1. EF-P903-Tank Cleaning Checklist Rev1	0.5	Checklist Form	No	Vital Template
2.6.2.5.2. EF-P907 Tank Commissioning Checklist	0.5	Checklist Form	No	Vital Template
2.6.2.5.3. EF P941 Change of Service Review Checklist	0.5	Checklist Form	No	Vital Template
2.6.2.6. JIG 12 XOM Forms ^B (Use Only Required Forms)	0.5		No	
2.6.2.6.1. AGD-F-M100 - Fixed Tank Summary	0.5	Checklist Form	No	XOM Template
2.6.2.6.2. AGD-F-M003 - Fixed Tank Inspection and Cleaning and Internal Maintenance	0.5	Checklist Form	No	XOM Template
2.6.2.6.3. AGD-P-Z815 - Storage Tank Visual Inspection and Tank Cleanliness Assessment	0.5	Checklist Form	No	XOM Template
2.6.2.6.4. AGD-F-M100 -Inspection& Maintenance of Pipes	0.5	Checklist Form	No	XOM Template
2.6.2.7. HSSE Forms	0.5		No	
2.6.2.7.1. JSA Forms	0.5	Checklist Form	No	Checklist Form
2.6.2.7.2. Daily Toolbox Form	0.5	Vital Template	No	Vital Template

2.6.2.7.3. Daily Site Diary	0.5	Checklist Form	No	Checklist Form
2.6.3. Project Quality Plan Complete	0	Approved Quality Management Plan	Yes	PMO
2.7. Communication Plan			No	
2.7.1. Develop Project Communication Plan	2	Communication Management Plan	No	Project Manager
2.7.2. Project Reporting Structure	2	Reporting Structure	No	Project Manager
2.7.3. Approved Communication Plan	0	Approved Communication Plan	Yes	Project Manager
2.8. Risk Management Plan				
2.8.1. Develop Risk Management Plan	3	Risk Management Plan	No	Project Manager
2.8.2. Identify Project Risks	2	Risk Register	No	Project Manager
2.8.3. Perform Qualitative Risk Analysis	2	Risk Register	No	Project Manager
2.8.4. Perform Quantitative Risk Analysis	2	Risk Register	No	Project Manager
2.8.5. Plan Risk Responses	2	Risk Management Action Plan, Risk Register	No	Project Manager
2.8.6. Risk Review by P&P	3	Review Risk Document	Yes	Tank Engineers
2.8.7. Upload Project Risk to SET V2	1	Document Uploaded on SETv2	No	PMO
2.8.8. Project Risk Plan Approval by CoRE or FM's	2	Risk Plan and Register Reviewed	No	Project Manager
2.8.9. Project Scope Statement Approved	1	Risk Plan and Register Approved	No	Project Manager
2.8.10. Risk Management Plan Complete	0	Upload Risk document on SETv2	Yes	PMO
2.9. Procurement Management Plan				
2.9.1. Develop Procurement Plan	2	Procurement Plan	No	Project Manager
2.9.2. BoM and Sequence of purchase issued to Procurement	1	Bill of Materials with Vendors	No	Project Manager
2.9.3. Procurement Plan Complete uploaded to SETv2	1	Upload document to SETv2	No	PMO
2.9.4. Project Procurement Plan complete	0	Approved Plan	Yes	PMO
3. Phase: Execution			No	
3.1. Project Work Authorization			No	
3.1.1. Product Transfer & Isolation– Terminal & Contractor			No	
3.1.1.1. JSA for Decommissioning & Degas	2	Approved JSA	No	Project Site Team
3.1.1.2. SWP Generation in PetroX	2	SWP for Approval	No	Facility Manager
3.1.1.3. SWP Review and Approval	5	Approved SWP	No	Senior Permit Officer
3.1.1.4. Site Clearance for Mobilisation	0.5	Gas Test Certificate and Site Clearance	No	Gas Testing Officer
3.1.1.5. Site Team Induction (if CPP Training is required, this will be added to specific project schedule)	2	Site Induction by Facility Manager or Safety Manager	No	Facility Manager or Safety Manager
3.1.1.6. Complete EF-P903-Tank Cleaning Checklist Rev1	0.5	Completed EF-P903-Tank Cleaning Checklist Rev1	No	On Site Supervisor or Facility Manager
3.1.1.7. Complete AGD-F-M100 - Fixed Tank Summary	0.5	Completed AGD-F-M100 - Fixed Tank Summary	No	On Site Supervisor
3.1.1.8. Work Authorization Complete	0	Documents Uploaded on SETv2	Yes	PMO or Project Manager
3.2. Procurement and Logistics (ref to BoM file)			No	
3.2.1. Scaffolding Works			No	

3.2.1.1. Import Required Scaffolding to Site	5	Check and arrange for other sites if required	No	Procurement Team
3.2.1.2. Shipping to Site	45	Origin site to load and ship to site	No	Procurement Team
3.2.1.3. Clearance and Delivery to Site	5	Scaffolding on Site	No	Procurement Team
3.2.2. Blasting Abrasive			No	
3.2.2.1. Procure Garnet for Blasting	5	PO and Payment Secured with vendor	No	Procurement Team
3.2.2.2. Shipping to Site	45	On board and shipping to site	No	Procurement Team
3.2.2.3. Clearance and Delivery to Site	5	Garnets on site or inventory stores	No	Procurement Team
3.2.3. Sludge Treatment & Disposal			No	
3.2.3.1. Order EnerTech Sludge Treatment Materials	5	PO and Payment Secured with vendor	No	Procurement Team
3.2.3.2. Shipping to Site	50	On board and shipping to site	No	Procurement Team
3.2.3.3. Clearance and Delivery to Site	5	Sludge materials on site or inventory stores	No	Procurement Team
3.2.4. NDT Inspection & Testing Equipment's			No	
3.2.4.1. Inspection and Testing Equipment Freight	20	Equipment Shipping to Site	No	Procurement Team
3.2.4.2. Travel for OOSI Technicians	5	Travel Approval for Technician	No	Project Manager
3.2.4.3. Clearance of Testing Equipment's	3	Equipment on Site	No	Procurement Team
3.2.5. Procurement Complete	0		Yes	
3.2.6. OOSI Process			No	
3.2.7. Tank Isolation Process			No	
3.2.7.1. Update Tank Master File	0.5	Tank Master File Updated	No	Project Manager
3.2.7.2. Gas Test and Site Clearance	0.5	Gas Test Certificate for Day Works	No	Gas Testing Officer
3.2.7.3. Product Transfer into Nominated Tank	3	Tank is Empty and ready for cleaning	No	Facility Staff
3.2.7.4. Pipeline Draining	0.5	Pipe connected to Tank ready for isolation	No	Facility Staff/ Contractor
3.2.7.5. Stock reconciliation in PetroX	0.5	Transferred Stock Updated in PetroX	No	Facility Manager
3.2.7.6. Open all tank fittings for degassing	2	Tank Open and allowed for degas	No	On Site Supervisor
3.2.7.7. Product Transferred and Isolated	0	Tank Ready for Internal cleaning	Yes	
3.2.8. Tank Cleaning Process				
3.2.8.1. JSA for Internal Blasting	1	JSA completed for Internal Blasting	No	On Site Team
3.2.8.2. SWP for Internal Blasting & Cleaning	2	SWP Submitted for Review	No	Facility Manager
3.2.8.3. SWP Approved for Blasting & Painting	2	SWP Approved	No	Senior Permit Officer
3.2.8.4. Gas Testing & Site Clearance	0.5	Site Clearance Issued	No	Gas Testing Officer
3.2.8.5. Equipment for Tank Cleaning	2	Equipment's place on site	No	On Site Supervisor
3.2.8.6. Clean Sludge and Dispose for treatment	10	Tank Sludge Removed	No	On Site Supervisor
3.2.8.7. Sludge Treatment and Disposal	120	Sludge disposed in Landfill	No	On Site Supervisor
3.2.8.8. Complete EF-P903-Tank Cleaning Checklist Rev1	1	Form Completed	No	On Site Supervisor
3.2.8.9. AGD-F-M003 - Fixed Tank Inspection and Cleaning and Internal Maintenance	1	Form Completed	No	On Site Supervisor
3.2.8.10. Tank Cleaning Complete	0	Tank Cleaned and Ready for Blasting	Yes	
3.2.9. Internal Blasting and Cleaning			No	

3.2.9.1. JSA for Internal Blasting	1	JSA completed for Internal Blasting	No	On Site Team
3.2.9.2. SWP for Internal Blasting & Cleaning	2	SWP Submitted for Review	No	Facility Manager
3.2.9.3. SWP Approved for Blasting & Painting	2	SWP Approved	No	Senior Permit Officer
3.2.9.4. Gas Testing & Site Clearance	0.5	Site Clearance Issued	No	Gas Testing Officer
3.2.9.5. Blasting Equipment Mobilisation to Site	2	Blasting Equipment on Site	No	On Site Supervisor
3.2.9.6. Tank Internal Blasting – Floor & Strake 1	10	Tank Floor and 1 st Strake Blasted	No	On Site Supervisor
3.2.9.7. Tank Cleaning and Garnet Disposal/ Re-use	10	Tank Cleaned and ready for OOSI Technician	No	On Site Supervisor
3.2.9.8. Tank Report for Internal Blasting to P&P	2	Blasting Report Completed	No	On Site Supervisor
3.2.9.9. Tank Clean and Ready	0		Yes	
3.2.10. Erect Scaffolding – Tank External				
3.2.10.1. JSA for Internal Blasting	1	JSA completed for Internal Blasting	No	On Site Team
3.2.10.2. SWP for Internal Blasting & Cleaning	2	SWP Submitted for Review	No	Facility Manager
3.2.10.3. SWP Approved for Blasting & Painting	2	SWP Approved	No	Senior Permit Officer
3.2.10.4. Gas Testing & Site Clearance	0.5	Site Clearance Issued	No	Gas Testing Officer
3.2.10.5. Erect Scaffolding on the tank outside	20	Scaffolding Completed and Certified	No	On Site Supervisor
3.2.10.6. Scaffolding Completed			Yes	
3.2.11. NDT Inspection and Report			No	
3.2.11.1. JSA for Internal NDT	1	JSA completed for Internal Blasting	No	On Site Team
3.2.11.2. SWP for Internal NDT	2	SWP Submitted for Review	No	Facility Manager
3.2.11.3. SWP Approved for NDT	2	SWP Approved	No	Senior Permit Officer
3.2.11.4. Gas Testing & Site Clearance	0.5	Site Clearance Issued	No	Gas Testing Officer
3.2.11.5. NDT Equipment's on Site	1	NDT Equipment's arrived on site	No	On Site Supervisor
3.2.11.6. NDT Technicians arrive on Site	2	Inspection Team on Site	No	NDT Team
3.2.11.7. Tank Inspection by NDT Team	5	Tank Inspection and Reports	No	NDT Team
3.2.11.8. Draft OOSI Report for Review	10	Draft OOSI Report	No	NDT Team
3.2.11.9. Final OOSI Report	20	Final OODI Report	No	NDT Team
3.2.11.10. NDT Completed	0		Yes	
3.2.12. Repair Options Decision Analysis?			No	
3.2.12.1. NDT Team Report Review & PM's recommendation	3	PM's recommendation Report	No	Project Manager
3.2.12.2. Plant and Platform Consultant Recommendation	3	P&P's recommendation Report	No	Tank Engineers
3.2.12.3. FM's or CoRE to decide on the Option to repair or mothball	5	Management to decide on next step	No	Function Manager's
3.2.12.4. Option Decision by Management?	0	OOSR, Mothball or Decommission Tank	Yes	Function Manager's
3.2.12.4.1. Option 1 – Mothball	0			
3.2.12.4.2. Option 2 – OOSR Works	0			
3.2.12.4.3. Option 3 – Decommission Tank	0			
OPTION 2 – OOSR Proceeds				
3.2.13. Scope Management Processes				
3.2.13.1. Project Kick Off Meeting with stakeholders	1	Updated Project Meeting Notes	No	

3.2.13.2. Perform Scope Planning – PnP Template	1	OOSR Scope	No	
3.2.13.3. MoC development and Approval	4	Approved MoC	Yes	
3.2.13.4. Repair Methodology	3	Method Statement for Works	No	
3.2.13.5. Prepare Engineering Drawings	10	Project Drawings	No	
3.2.13.6. Review and Update Inspection Test Plan (ITP) – PnP Template	2	Approved ITP for the Project	Yes	
3.2.14. Work Planning				
3.2.14.1. Define Sequences of Works	4	Step by Step work sequence for Site Team	No	
3.2.14.2. Allocate Resources for Task	2	Updated Resource Matrix	No	
3.2.14.3. Update Project Schedule work packages in Sensei	2	OOSR Project Schedule	No	
3.2.15. Cost Planning			No	
3.2.15.1. Review Works recommendation from OOSI Report	2	Task Cost Breakdown Analysis	No	
3.2.15.2. Review Management of Change and cost impact	2	Updated MoC	No	
3.2.15.3. Update Project Costing Sheet & Amend Sanction	3	Updated OOSR Sanction	No	
3.2.15.4. Cost Submission to FM's review	1	Review and Comments from FM's	No	
3.2.15.5. Consideration of Project? Proceed/ Hold	2	Approval/ Rejection of Sanction	No	
3.2.15.6. OOSR Budget Approved	1	MAS500 Budget Update	No	
3.2.15.7. OOSR Sanction Approved	0	Budget ready to Use	Yes	
3.2.16. Site Works as per OOSR Repair Scope				
3.2.16.1. Drawings and Layouts				
3.2.16.1.1. Upgrading Works Drawing		Complete Drawings for Site Works	No	
3.2.16.1.2. Drawing Review by Team		Team Input and agreement	No	
3.2.16.1.3. Draft Drawing for Review & Approval		Approved Drawing for Site Works	No	
3.2.16.1.4. HAZOP Assessment & Approval		Approved HAZOP	No	
3.2.16.1.5. BOM & Confirm with Inventory		Final Bill of Materials for Ordering	No	
3.2.16.1.6. Issue BoM to Procurement		BoM sent to Procurement	No	
3.2.16.1.7. Issue Drawing and BoM to OSS		Site Team issued with Drawing Pack	Yes	
3.2.16.2. Procurement & Logistics				
3.2.16.2.1. Update BoM from PM		Procurement Team has BoM	No	
3.2.16.2.2. Ordering of required materials from BoM		Quote/Specs Approved	No	
3.2.16.2.3. Materials Delivery to Warehouse in Location		Material Received in Location Warehouse	No	
3.2.16.2.4. Issue to Site Team		Material Released to Site Team	No	
3.2.16.2.5. Material Receiving Reports closed		Items Checked and Reports closed	No	
3.2.16.2.6. PO Closed In MAS500		Purchased Order Closed	Yes	
3.2.16.3. External Works				
3.2.16.3.1. Vital HSSE				
3.2.16.3.1.1. Safety Forms – Work at Heights/ Hot Works		Safety Checklist Completed	No	
3.2.16.3.1.2. Develop JSA for External Works		Agreed JSA for SWP	No	
3.2.16.3.1.3. Develop SWP for Review/ Approval		SWP for Review by SPO	No	

3.2.16.3.1.4.	SWP Approval		Approved SWP	No	
3.2.16.3.1.5.	Site Induction and if Training Required		Team Inducted to Site	No	
3.2.16.3.1.6.	Site Gas Testing and Clearance to work			No	
3.2.16.3.1.7.	Site Barricade and Safety Signage			No	
3.2.16.3.1.8.	Site Ready for Works			Yes	
3.2.16.3.2.	Tank Bunding (ITP)				
3.2.16.3.3.	Access to Tank area (ITP)				
3.2.16.3.4.	Tank Bund House Keeping (ITP)				
3.2.16.3.5.	Tank Foundation and Berm				
3.2.16.3.5.1.	Vegetation				
3.2.16.3.5.2.	Foundation and Annular Plate Sealing				
3.2.16.3.5.3.	Drainage System				
3.2.16.3.6.	Inlet Pipe-works (Task to be added as required)				
3.2.16.3.7.	Outlet Pipe works (Task to be added as required)				
3.2.16.3.8.	Ancillary Connections (Task to be added as required)				
3.2.16.3.9.	Shell Nozzles (Task to be added as required)				
3.2.16.3.10.	Roof Nozzles (Task to be added as required)				
3.2.16.3.11.	Fire Systems (Task to be added as required)				
3.2.16.3.12.	Foam System (Task to be added as required)				
3.2.16.3.13.	Stairways (Task to be added as required)				
3.2.16.3.14.	Handrails (Task to be added as required)				
3.2.16.3.15.	Tank Shell (Task to be added as required)				
3.2.16.3.16.	Tank Roof (Task to be added as required)				
3.2.16.4.	Internal Works				
3.2.16.4.1.	Vital HSSE				
3.2.16.4.1.1.	Safety Forms – CSE/ Hot Works/ Work at Heights				
3.2.16.4.1.2.	Develop JSA for External Works				
3.2.16.4.1.3.	Develop SWP for Review/ Approval				
3.2.16.4.1.4.	SWP Approval				
3.2.16.4.1.5.	Site Induction and if Training Required				
3.2.16.4.1.6.	Site Gas Testing and Clearance to work				
3.2.16.4.1.7.	Safe Work Permits				
3.2.16.4.2.	Floors Repairs (Task to be added as required)				
3.2.16.4.3.	Internal Pipes and Nozzles (Task to be added as required)				
3.2.16.4.4.	Tank Shell Repairs (Task to be added as required)				
3.2.16.4.5.	Tank Internal Coating				
3.2.16.4.5.1.	JSA for Blasting & Coating				

3.2.16.4.5.2.	SWP For Blasting & Coating			
3.2.16.4.5.3.	Abrasive Blasting Strake 1 and Floor			
3.2.16.4.5.4.	Strake 1 Coating – 1st Coat @150microns			
3.2.16.4.5.5.	Strake 1 Coating – 2nd Coat @ 150microns			
3.2.16.4.5.6.	Tank Floor Coating – @150microns per coat			
3.2.16.4.5.7.	Holiday Test Critical Areas			
3.2.16.4.5.8.	Coating Report			
3.2.16.4.5.9.	Coating Approved			
3.2.16.4.6.	Post Repair Inspection			
3.2.16.4.6.1.	Inspection Team Mobilisation			
3.2.16.4.6.2.	SWP for Inspection Team			
3.2.16.4.6.3.	Inspection of Repairs			
3.2.16.4.6.4.	Report and Recommendation			
3.2.16.4.6.5.	Complete Repairs if Required			
3.2.16.4.6.6.	Hydro Test – if required			
3.2.16.4.6.7.	Fitness for Certificate Issued			
3.2.16.4.7.	Tank External Coating			
3.2.16.4.7.1.	JSA for Blasting & Coating			
3.2.16.4.7.2.	SWP For Scaffolding/ Blasting & Coating			
3.2.16.4.7.3.	Erect Scaffolding around tank external			
3.2.16.4.7.4.	Abrasive Blasting			
3.2.16.4.7.5.	Tank Coating – 1st Coat @150microns			
3.2.16.4.7.6.	Tank Coating – 2nd Coat @ 150microns			
3.2.16.4.7.7.	Tank Final Coat – @150microns			
3.2.16.4.7.8.	Holiday Test Critical Areas			
3.2.16.4.7.9.	Coating Report			
3.2.16.4.7.10.	Coating Approved			
3.2.16.4.8.	Tank Internal Coating			
3.2.16.4.8.1.	JSA for Blasting & Coating			
3.2.16.4.8.2.	SWP For Blasting & Coating			
3.2.16.4.8.3.	Abrasive Blasting Strake 1 and Floor			
3.2.16.4.8.4.	Strake 1 Coating – 1st Coat @150microns			
3.2.16.4.8.5.	Strake 1 Coating – 2nd Coat @ 150microns			
3.2.16.4.8.6.	Tank Floor Coating – @150microns per coat			
3.2.16.4.8.7.	Holiday Test Critical Areas			
3.2.16.4.8.8.	Coating Report			
3.2.16.4.8.9.	Coating Approved			
3.2.16.4.8.10.	Tank Internal Coating			

3.2.16.4.9. Tank Close Up and Commissioning				
3.2.16.4.9.1. Completed ITP				
3.2.16.4.9.2. Post Inspection Report				
3.2.16.4.9.3. Tank Calibration and Chart – if required				
3.2.16.4.9.4. Tank Commissioning Forms Completed				
3.2.16.4.9.5. JIG Forms Completed				
3.2.16.4.9.6. Pipework Connections & Tested				
3.2.16.4.9.7. Tank Receive Product				
3.2.16.4.9.8. Soak Testing & Results Review				
3.2.16.4.9.9. 90% Product Receipt				
3.2.16.4.9.10. Close MoC				
3.2.16.4.9.11. Close SWP's				
4. Phase: Monitoring & Control				
4.1. Project Change Request				
4.1.1. Change Request Scope	3	Scope of the change request completed	No	Project Manager
4.1.2. Change Request Form Completed	1	Change Request Completed	No	Project Manager
4.1.3. Upload Change Request in SET V2	1	FM's review	No	PMO
4.1.4. Change Request Reviewed by FM's	2	FM's Approved	No	FM's
4.1.5. Change Request Approved by FM's	1	Document Uploaded on SETv2	No	FM's
4.2. Project Acceptance Documents			No	
4.2.1. Approvals of Documents from FM's or CoRE		Approved Document Tracking	No	PMO
4.2.2. Upload on SETv2		Approvals Uploaded	No	PMO
4.3. Project Site Reports			No	
4.3.1. Daily Site Diary	2	Daily Site Diary Completed	No	On Site Supervisor
4.3.2. Daily Tool-Box Meeting	1	Daily Toolbox Meeting Documented	No	On Site Supervisor
4.3.3. Periodic Site Report	2	Site Report Completed	No	Project Manager
4.3.4. Materials Receiving Reports Completed			No	
4.4. Project Schedule Updates - Sensei			No	
4.4.1. Work Performance	1	Project Tracking Document	No	PMO
4.4.2. Maintain Project Schedule	1	Project Schedules	No	PMO
4.4.3. Maintain Work Plans	1	Work Plans	No	PMO
4.4.4. Update Actions Items	1	Actions Item Updated	No	PMO
4.5. Project Budget Reports			No	
4.5.1. Report from Asset Officer	1	MAS500 report	No	Asset Officer
4.5.2. Updates in Project Reports and Schedules	1	Cost Updated in Sensei	No	PMO
4.5.3.			No	
4.6. Quality Control Reports			No	
4.6.1. Tank Inspection Forms			No	Project Manager

4.6.2. JIG 12 XOM Forms			No	Project Manager
4.6.3. HSSE Forms			No	Project Manager
4.6.4. QAQC Forms			No	Project Manager
4.6.5. Inspection and Test Plan Report				
4.7. Project Status Reports			No	
4.7.1. Weekly Project Updates			No	Project Manager
4.7.2. Periodic Status Reports			No	PMO
4.8. Project Risk & Issues Log			No	
4.8.1. Update Risk and Issues in Sensei			No	
4.8.2.			No	
4.9. Stakeholder Engagements			No	
4.9.1. Project Kick Off Meeting			No	
4.9.2. Reports from Tank Engineers s			No	
4.9.3. Project Documents Update			No	
4.9.4. MoC Updates in PetroX			No	
5. Phase: Project Closing			No	Project Manager
5.1.1. Updates Assets in CARL System			No	Project Manager
5.1.1.1. Asset Information Uploaded			No	Project Manager
5.1.1.2. Asset Drawings & Reports			No	Project Manager
5.1.1.3. Asset Maintenance Schedule Rolled Out			No	Project Manager
5.1.2. Tank Master File Updated			No	Project Manager
5.1.3. Project Closure Report			No	Project Manager
5.1.3.1. Obtain Final Project Acceptance			Yes	Project Manager /
5.1.3.2. Operational Readiness Confirmed			No	Project Manager
5.1.3.3. Assess Stakeholder Satisfaction			No	Project Manager
5.1.3.4. Summarize Project Results and Lessons Learned			No	Project Manager
5.1.3.5. Review and Recognize Team Performance			No	Project Manager
5.1.3.6. Close Out the Project Records			No	Project Manager
5.1.3.7. Review and Reconcile Financial Performance			No	Project Manager
5.1.3.8. Financial Updated in MAS500			No	Project Manager
5.1.3.9. Closure Report Reviewed by FM's			No	Project Manager
5.1.3.10. Closure Report Approved by FM's			No	Project Manager
5.1.3.11. Upload Closure Report in SET V2			No	Project Manager
5.1.3.12. Project Closed in Sensei			No	PMO
5.1.3.13.				



Acronyms

ATOM	– Active Threat and Opportunity Management
API	– American Petroleum Institute
BOM	– Bill of Materials
FM's	– Function Manager's
JSA	– Job Safety Analysis
CSE	– Confine Space Entry
SWP	– Safe Work Permit
CoRE	– Committee on Resource Effectiveness
MoC	– Management of Change
PetroX	– Vital's Operations and HSSE Management Database Tool
NDT	- Non-Destructive Testing

Appendix Q

FSMPC GP External and Internal Painting of Bulk Tanks

FSM PETROLEUM CORPORTION GENERAL CODE OF PRACTICE CONSTRUCTION STANDARD FOR INTERNAL & EXTERNAL PAINTING OF STEEL SURFACES

CONTENTS

Section 1	Scope
Section 2	Reference Standards
Section 3	Safety
Section 4	Equipment
Section 5	Exposure Conditions
Section 6	Selection and Application of Paint Coating System
Section 7	Surface Preparation
Section 8	Supervision and Inspection
Section 9	Colour Scheme and Areas of Application
Section 10	Paint Coating Systems

1. SCOPE

This Standard specifies the general requirements of FSMPC for the protection of iron, steel and galvanised steel surfaces from corrosion by the use of paint coatings, including the standard to which the materials and work must conform, and the procedures to be followed for the on-site application of external paint coating systems to new equipment, for given exposure conditions. The equipment and exposure conditions are detailed in Sections 4 and 5 respectively.

This standard is to be used for new work or for maintenance work where the full surface is to be blasted clean of the existing coating.

In all applications covered by this Standard, iron surfaces shall be treated in an identical manner to steel surfaces subjected to the same conditions.

The general painting of building surfaces such as timber, plaster and building boards is not covered in this standard. Also excluded is the protection of buried or subsea pipelines by asphalt, coal tar enamels or tapes.

2. REFERENCE STANDARDS

AS1470 Health and Safety at Work - Principles and Practices

AS1580 Methods of Test for Paints and Related Materials

AS1627 Code of Practice for the Preparation and Pre-treatment of Steel Surfaces

AS1715&16 Respiratory Protective Devices

AS2310 Glossary of Paint and Painting Terms

AS2312 Guide to the Protection of Iron and Steel against Exterior Atmospheric Corrosion

AS3894 Site Testing of Protective Coating

3. SAFETY

Before tendering, the Contractor shall thoroughly familiarise himself with the safety requirements that apply to the site and FSMPC's Safe Work Permit. Particular reference is made to any work within a facility containing hazardous/flammable materials where there will be restrictions on hot work and the type of equipment which can be used.

Prior to commencement of work on site the Contractor shall obtain a Work Permit from the Superintendent and shall fully meet all the Work Permit Conditions specified during the execution of the work.

Where abrasive blasting or spray painting is performed, spray guns, sand blasting equipment and accessories shall be electrically earth bonded to the tank shell and the bond tested to ensure it is earthing adequately. Suitable respiratory protection shall be worn by operators at all times. Paints containing isocyanates shall only be applied when using positive pressure air supplied breathing equipment. When undertaking this work, the Contractor must ensure that no damages will be affected to FSMPC property, FSMPC personnel and/or any Third Parties, plant, equipment or personnel. The Contractor shall be held responsible for any such damages.

The Contractor shall ensure that the site is free of obstructions and safety hazards and kept clean. When work is completed all areas used by the Contractor shall be cleaned and returned to the condition prior to commencement of work.

All scaffolding shall be to the standard approved by the local statutory authority. Suspended scaffolds shall be manned by two persons at all times and only air driven winches are to be used.

The Contractor shall demonstrate that he has experience with the processes and materials selected and that he is familiar with the various government regulations which apply to the handling and storage of paint. The manufacturers Material Safety Data Sheets for all materials including thinners and solvents shall be reviewed with the Superintendent, and the Contractors procedures for handling each aspect shall be presented, including proposed methods for ensuring compliance by all employees and subcontractors.

4. ITEMS OF EQUIPMENT

The items of equipment covered by this standard are categorised as follows:

4.1 BULK TANKS

Constructed of mild steel materials and includes cone roof, floating roof, vertical and horizontal (service) tanks.

4.2 PIPELINES

This section includes pipes, pipe supports, pipe bridges, valves and fittings. The pipe material will be black steel.

4.3 STRUCTURES

This category of equipment focuses on the steel work incorporated into road and rail gantries, drum platforms, the supporting structures for elevated tanks and associated steel work for these items of equipment.

4.4 GALVANISED SECTIONS

Included in this category are galvanised pipe, galvanised fittings and steel galvanised gratings. All would be produced in accordance to ASTM 123 or equivalent with galvanising to approximately 75 microns.

5. EXPOSURE CONDITIONS

The terms for exposure conditions, as used in this standard are defined in this Section in order of severity.

CLASSIFICATION CHARACTERISTICS			TYPICAL GEOGRAPHY
5.1	Mild	Rural areas	Most country/rural regions
		Arid areas	Areas 2 Miles inland from coast
5.2	Severe	Chemically free to mild atmospheres	Areas 5 Miles inland from coast
		High Humidity	All Terminal Locations
		Intense Sunlight	All Terminal Locations
		Tropical Regions	All Terminal Locations
		Coastal Regions	All Terminal Locations
		Rain	Pohnpei / Kosrae
		Salt Atmosphere	All Terminal locations

6. SELECTION AND APPLICATION OF PAINT COATING SYSTEM

The Contractor shall select a compatible system of paint coatings from one of the approved systems listed in Section 10 of this Standard.

The Contractor shall obtain from the manufacturer a comprehensive specification fully detailing methods and procedures, and ensure that they are followed by the applicator of the particular coating. The manufacturer's specification shall include reference to all relevant factors covered in Section 8 of AS2312.

A copy of the manufacturer's specification shall be approved by the Superintendent prior to commencement of the work. A copy shall be kept at the work site.

The Contractor may elect to use either a roller/brush application method or a spray application method. Section 10 of this Standard provides details for both methods, where the spray application method consists of;

- External coating method,
 - Spray System - 3 coat paint system, achieving 450microns
 - Roller/ Brush - 4 coat paint system, achieving 450microns
- Internal Coating Method,
 - Spray System - 2 coat paint system, achieving 300microns
 - Roller/ Brush - 3 coat paint system, achieving 300microns.

The Contractor shall take all reasonable precautions to prevent damage by drifting spray to both the Company's and adjoining property owner's property, buildings, and vehicles. Any such damage shall be fully repaired at the Contractor's expense.

7. SURFACE PREPARATION

The preferred surface preparation shall be by abrasive wet sand blast using the "CLEMO WET BLASTING SYSTEM" or similar process including accurately metered quantities of polyphosphate inhibitor injected in the correct ratio. The blasting medium shall be a clean dry angular abrasive such as garnet or basalt aggregates, or other as approved by the Superintendent, and as allowed by the relevant Statutory Authority. The abrasive shall be certified as clean and free from water soluble salts or other contaminants. Surface profiles shall be measured to the satisfaction of the Superintendent.

Blast cleaning shall be in accordance with AS1627 Class 2½ minimum finish. Surface profile height shall be not less than 30 microns or as stated in the paint specification data sheet. All weld spatter, sharp edges and surface defects likely to affect the life of the coating shall be removed.

The blasted surface shall be regularly checked at a sufficiently representative number of spots with a ferricyanide paper test to confirm that all residual soluble ferrous salts have been removed.

Blast cleaned surfaces shall be coated with primer as soon as possible after treatment and drying and before being subject to rain or moist air exposure. A blast cleaned surface shall not remain uncoated for a period exceeding 4 hours without the approval of the Superintendent.

It shall be the Contractor's responsibility to protect all equipment such as valve handles and spindles, instrumentation and sight glasses from accidental over blasting.

For bulk tanks and with the prior approval of the Superintendent, the Contractor may elect to blast and prime shell and roof plates off site. The blasting and priming shall be carried out after all rolling of plates is completed. Weld margins of 50mm will be left. After completion of tank erection all weld areas and areas of damage to the primer shall be blasted and then primed with Amercoat 240 prior to application of the intermediate coat.

For the instance where the equipment is painted prior to site delivery and installation, only the prime coat is to be applied in accordance of this standard, and a 50mm weld margin is to be left unpainted.

Under some circumstances dry blasting may be required. If this is the case then the procedure shall be submitted by the Contractor to the Superintendent for approval and shall fully detail personnel and safety precautions. The Contractor shall obtain written approval from the relevant statutory authorities.

For galvanised pipe sections, the surface preparation shall consist of a high pressure water blast at 28000 kPa minimum (4000 psi) to remove all poorly adhering coating, dirt, grime and oxidised deposits. In the case when high pressure water blast will not remove the existing protective coating, the Contractor is to consult with the Superintendent.

After surface preparation the prime coat is to be applied as per AS1627; i.e. within 4 hours of commencement of preparation or before visual deterioration becomes evident.

8. SUPERVISION AND INSPECTION

The Contractor shall employ on site at all times during the execution of the work a Representative capable of providing an adequate level of supervision and undertaking the necessary quality control checks and thickness testing. The Contractors daily log shall also include the following:

- Area treated
- Equipment used
- Paint quantity used
- Temperatures and relative humidity of the commencement and completion of work and maximum during the working day
- Manpower employed
- Accidents or injuries which arise out of the work

These requirements may be varied with agreement by the Superintendent.

The Contractor shall state clearly in the tender whether his Representative is to be performing site works other than supervision.

The Contractor shall provide the necessary approved scaffolding and access for the Superintendent and/or his/her appointed inspector, to carry out regular inspection and film thickness testing during both surface preparation and coating applications.

Wet film thickness gauges may be used as a guide during coating application but final dry film thickness shall be determined using an approved magnetic film thickness gauge calibrated and checked daily. Determination of dry film thickness shall be as specified in AS2312 Section 11, Inspection and Testing, with the number of measurements to be agreed between the Contractor and the Superintendent prior to commencement of work (a grid 1m square is suggested). Application of the intermediate coat shall not commence until the primer coat has been inspected and released by the Superintendent.

Holiday test shall be carried out for all internal coatings using approved holiday test equipment (Elcometer) by trained and authorised person. Determination of irregularities shall be as specified in AS2312, Inspection and Testing. Application of the intermediate coat shall not commence until the primer coat has been inspected and released by the Superintendent.

All coatings shall be of uniform thickness without coating defects. All repairs shall be carried out according to the manufactures recommendation.

The Superintendent may elect to have an adhesion test performed on the prime coat if he deems it necessary.

All coating Inspection and Test Plan must be completed and approved by all involved parties for every layer of coating applied.

9. COLOUR SCHEME AND AREAS OF APPLICATION

The colour scheme to be adopted for the areas of application is detailed below for the various items of plant.

9.1 BULK TANKS – EXTERNAL

The external surfaces including all appurtenances shall be painted in the colours specified in the following table according to whether the tank is designated as a "White Product" or a "Black Product" tank. *(Refer to Bulk Tank General Arrangement Drawing)*

AREA TO BE PAINTED	WHITE PRODUCT TANK
Roof, Shell, Flanged Stools and all attached pipes over the full height of the tank.	1 st Coat Amercoat 240 Buff @150 microns. 2 nd Coat Amercoat 240 White @150 microns 3 rd Coat Amercoat 450 HS White @150 microns
Tank Identification Numbers	Amercoat 450 HS Signal Red @100 microns
Stairway and Walkway stringers and handrails. Light stanchions.	Amercoat 450 HS Golden Yellow @ 100microns
Stair treads- galvanised - ungalvanized	Leave uncoated White

Note: The Tank Identification Numbers are to be 300mm high.

The manhole cover to each tank shall have the following information stencilled in 50mm high lettering. The choice of manhole cover shall be determined by the Superintendent:

Date Painted:
 Paint Contractor:
 Date Inspected:
 Date Cleaned:

9.2 BULK TANKS – INTERNAL

The internal surfaces including all pipes and flanges shall be painted in the colours specified in the following table according to the table below. (*Refer to Bulk Tank General Arrangement Drawing*)

AREA TO BE PAINTED	ALL PRODUCT TANK
Internal Shell, Internal Roof, Roof Trusses, Flanged Stools, and all attached pipes over the full height of the tank.	1 st Coat Amercoat 240 Buff @150 microns. 2 nd Coat Amercoat 240 White @150 microns

9.2 PIPELINES

The external surface of pipelines and associated equipment shall be painted in the colours specified in the following table.

AREA TO BE PAINTED	
Product Pipelines	White
Fire Water Pipeline	Red
Foam Concentrate Pipelines	Dark Blue (No 1)
Foam Mixture Pipelines	Light Blue (No 3)
Pipe Supports	White/ Galvanised
Pipe Bridges	White/ Galvanised
Valves - Bodies	White
Valves - Handles	Black

9.3 STRUCTURES

The colour scheme to be adopted for structures should be similar to the rest of the structure. The suggested colour for this is White.

9.4 SIGNWRITING

All sign writing and the FSMPC company identifier shall be in accordance with the Project Scope of Work. Refer also to the FSMPC Visual Standards Manual. This manual can also be used as a reference for the formulation of the above colours.

9.5 STAIR TREADS AND ROOF WALKWAYS

All trafficable areas including stairway treads and roof tracks or walkways shall be painted with a non slip coating consisting of a suitable base coating with the addition of a non skid aggregate. The coating is to be applied over the primed surface to the manufacturer's specification. PPG is the acceptable products for all mild steel surface coatings.

10. PAINT COATING SYSTEMS

The Contractor shall use one of the following approved paint coating systems.

10.1 SPRAY APPLICATION METHOD

10.1.1 PPG Products

		TANKS	PIPELINES	STRUCTURES	GALVANISED SECTIONS
		Internal			
		Amercoat 240 Buff DFT 150um. Amercoat 240 White DFT 150um.			
		External			
E X P O S U R E C O N D I T I O N S	M I L D	Amercoat 240 Buff DFT 150um.	Amercoat 240 Buff DFT 150um.	Amercoat 240 Buff DFT 150um.	Galvanised from primers, DFT 10um.
		Amercoat 240 White DFT 150um.	Amercoat 450 White DFT 150um.	Amercoat 450 White DFT 150um.	
		Amercoat 450 White, DFT 150um.			
	S E V E R E	Amercoat 240 Buff DFT 150um.	Amercoat 240 Buff, 150um.	Amercoat 240 Buff, 150um.	Amercoat Galvanized Primer DFT 100um.
		Amercoat 240 White, DFT 150um.	Amercoat 450 White, 150um.	Amercoat 450 White, 150um.	Amercoat 450 HS White, DFT 150um
		Amercoat 450 HS White, 150um.			

10.2 BRUSH OR ROLLER APPLICATION METHOD

10.2.1 PPG Products

		TANKS	PIPELINES	STRUCTURES	GALVANISED SECTIONS
		Internal			
		Amercoat 240 Buff DFT 150um. Amercoat 240 White DFT 150um.			
		External			
E X P O S U R E C O N D I T I O N S	M I L D	Amercoat 240 Buff DFT 150um.	Amercoat 240 Buff DFT 150um.	Amercoat 240 Buff DFT 150um.	Galvanised from primers, DFT 10um.

S U R F A C E		Amercoat 240 White DFT 150um.	Amercoat 450 White DFT 150um.	Amercoat 450 White DFT 150um.	
		Amercoat 450 White, DFT 150um.			
C O N D I T I O N S	S	Amercoat 250 Buff DFT 150um.	Amercoat 250 Buff, 150um.	Amercoat 250 Buff, 150um.	Amercoat Galvanized Primer DFT 100um.
	E	Amercoat 240 White, DFT 150um.	Amercoat 450 White, 150um.	Amercoat 450 White, 150um.	Amercoat 450 White, DFT 150um
	E	Amercoat 450 White, 150um.			

10.3.1 AVAILABILITY

With the exemptions detailed below, the products nominated above are freely available through the manufacturers and/or their distributors in Guam, Hawaii and Australia.

Protective Coatings Supply, Inc.

Suite 500 Airport Industrial Center
165 Skyline Dr., Tamuning, GU 96913
PH: 671-649-4627 Fax: 671-649-4647
Cell: 671-482-7241
Email: pcs@pcspgguam.com

Pacific Islands International

1/12 North Link Circuit,
Shaw, Townsville, QLD 4818, Australia
Phone. (+61) 7 4412 6800
m. (+61) 0421 835 375 (AUS) | (+677) 779 1547 (SB) | (+675) 7993 8391 (PNG)
Email: sales@pacificislands.com.au

Appendix R

OOSI Flow Process

Appendix S

OOSI-R Flow Process

Appendix T

Inspection Test Plan - Sample Only

Note: Contractor to follow this and develop the ITP

INSPECTION AND TEST PLAN	VITAL ENERGY	PROJECT:
---------------------------------	---------------------	-----------------

DESCRIPTION	LOCATION	REV 0	REV DESCRIPTION	APPROVED	DATE

LEGEND: P= Perform, W= Witness Activity, R=Review Doc, H=Hold Point, M=Monitor	ITP #. 1
--	----------

ITEM No	WORK OPERATION DESCRIPTION	PROCEDURES & DOCUMENTS	ACCEPTANCE CRITERIA	Trademan		Supervisor		Project Engineer		Consultant	
				Key	Sign / Date	Key	Sign / Date	Key	Sign / Date	Key	Sign / Date
1											
2											
3											
4											
5											
6											
7											
8											

	Contractor	QAQC Inspection	Project Engineer	Client/ Consultant
DATE				
PRINT NAME				
SIGN				

Appendix U

Project Reporting Forms (Daily & Monthly)

GENERAL DAILY PROGRESS REPORT / DIARY



PROJECT INFORMATION

Project Name		Project ID	
Location		Date	
Contractor		Day of Week	Monday ▼

Weather

Clear	Fair	Cloudy	Rain	Shower	Snow
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TEMP		10-15	15-20	20-25	25-30
<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WIND		Still	Light	Strong	Gale
<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
HUMIDITY		Dry	Low	Medium	High
<input type="checkbox"/>		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Number of Resources (Personal & Major Equipment)

Personnel						Major Plant and Equipment																															
																		TOTAL PERSONNEL	TOTAL PLANT																		

Vital/Contractor / Subcontractors	Hours

Location / Area	Activity / Description of Work	Quantity	% Prog	Comment
			0 %	
			%	
			%	
			%	
			%	
			%	
			%	
			%	
			%	
			%	

Hinderance / Effect to Normal Progress (weather, accidents, breakdowns, delays, etc)

Official Visitors

Name Surname	Representing	Time


General Comments

Signature

Site Supervisor

Signature

Project Manager

		PROJECT CONSTRUCTION SITE REPORT	
PROJECT NAME:		REPORTING PERIOD	Select date.
SUB-PROJECT WORK:			Select date.
PROJECT TEAM			
PROGRAM MANAGER			
PROJECT MANAGER			
SITE CONSTRUCTION MANAGER			
ON SITE SUPERVISOR			
ON SITE SAFETY OFFICER			
QAQC OFFICER			
OFFICIAL VISITORS			
NAME	REPRESENTING	DATE	PURPOSE
		Select date.	
		Select date.	
		Select date.	
		Select date.	

1. HEALTH, SAFETY & ENVIRONMENT

INCIDENT REPORTING	# OF NEAR MISSES RECORDED	# OF INCIDENTS RECORDED	# OF ACCIDENTS/ SPILLS RECORDED
WORKS READY STATUS	ALL ACTIONS ON TARGET	# OF MINOR ELEMENTS BEHIND	# OF MAJOR ITEMS BEHIND
RESOURCES	ALL RESOURCES AVAILABLE	SOME ROLE ISSUES EVIDENT	DELAYS FROM RESOURCING ISSUES
WEATHER	# OF RAIN DAYS THIS WEEK	# OF TOTAL HRS DELAYED	% OF WORK LOSS

2. CONSTRUCTION ACTIVITIES

2.1. TASK FOR THIS WEEK:

2.2. TASK SCHEDULE TO START AND DID NOT START

2.3. TASK FINISHED THIS WEEK

2.4. WORK/ TASK BEHIND SCHEDULE

2.5. REASON FOR TASK NOT FINISHING

3. CHANGE REQUEST & APPROVALS

3.1. CHANGE REQUEST AND COMMUNICATION

CHANGE REQUEST OR RFI TITLE	DOC. #	DATE SUBMITTED	APPROVAL DATE	PRIORITY

3.2. DESIGN INFORMATION OR COORDINATION

CRITICAL INFORMATION REQUIRED			
DATE SUBMITTED	DESCRIPTION	DUE DATE	# OF DAYS

4. PROCUREMENT & SUBCONTRACTOR

4.1. MATERIALS ON ORDER

4.2. MATERIALS FORECAST

4.3. MATERIALS RECEIVED ON SITE

4.4. SUBCONTRACTORS

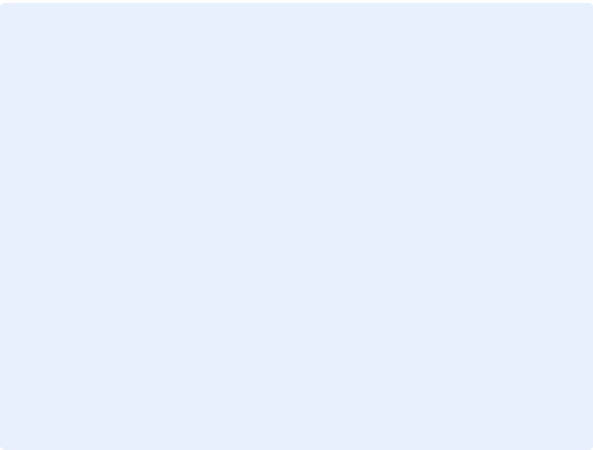
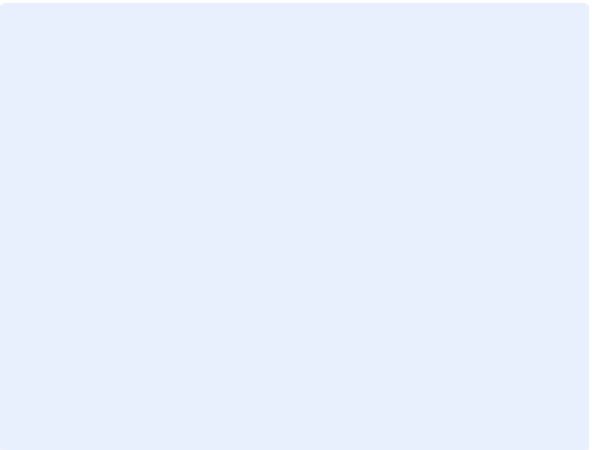
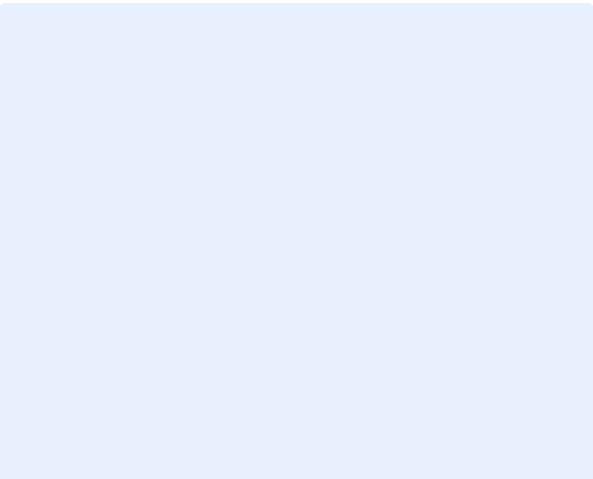
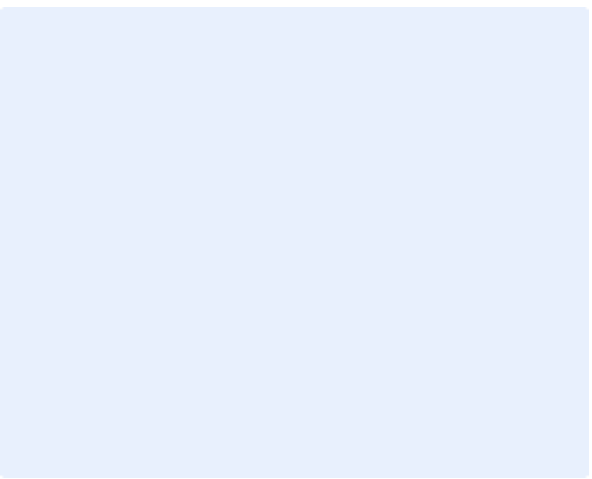
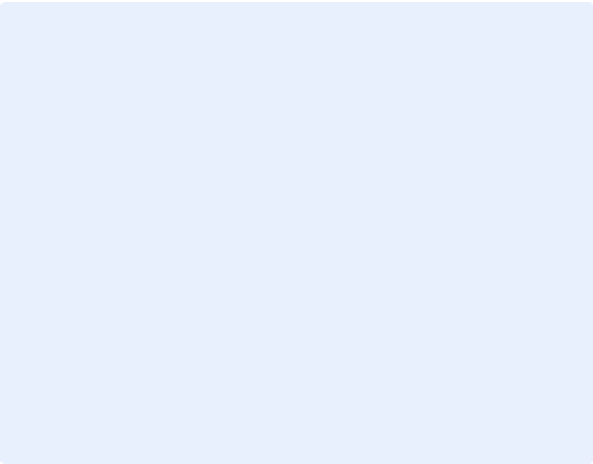
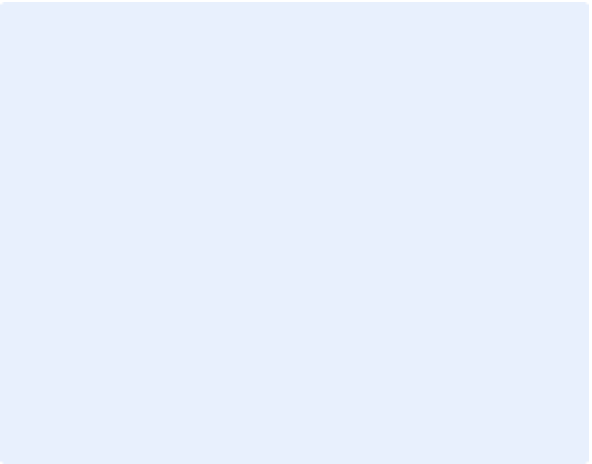
5. QUALITY ASSURANCE AND CONTROL

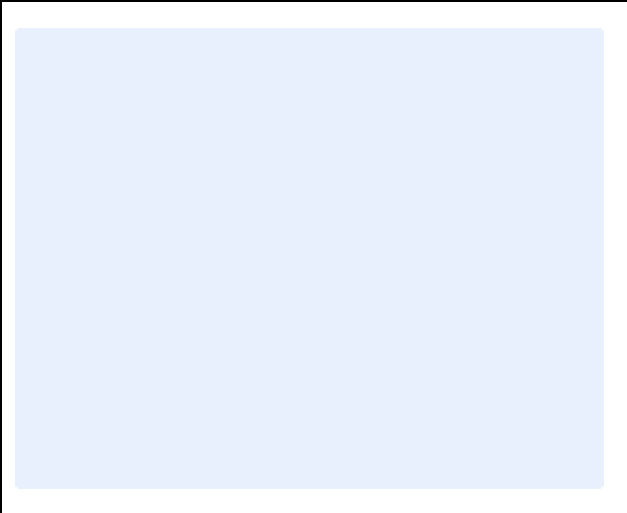
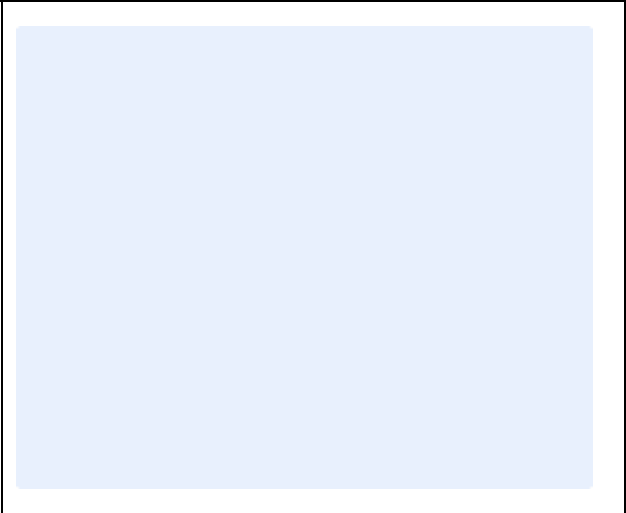
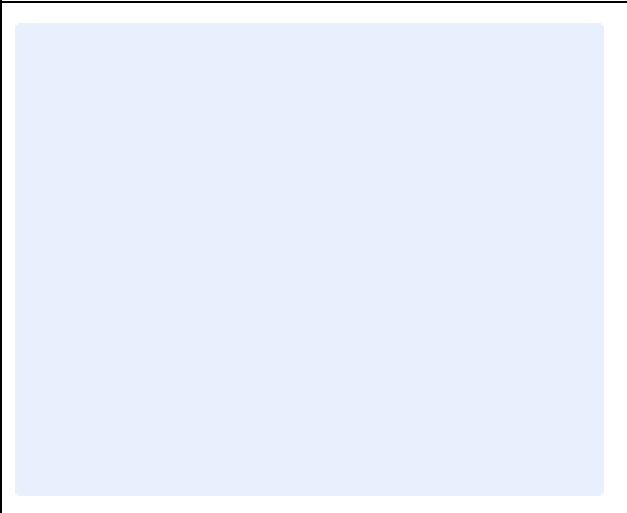
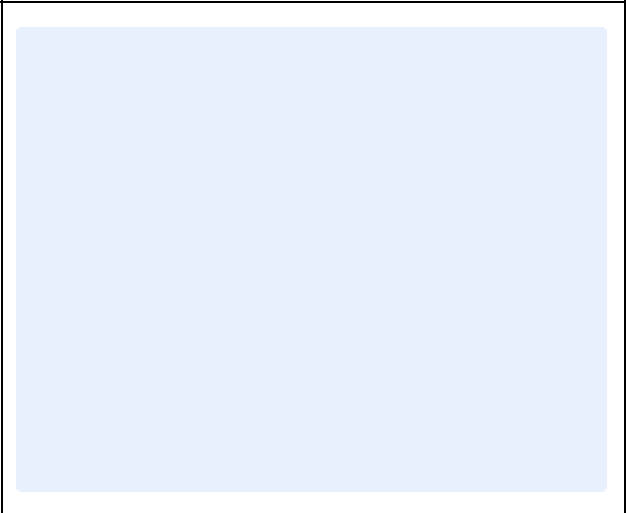
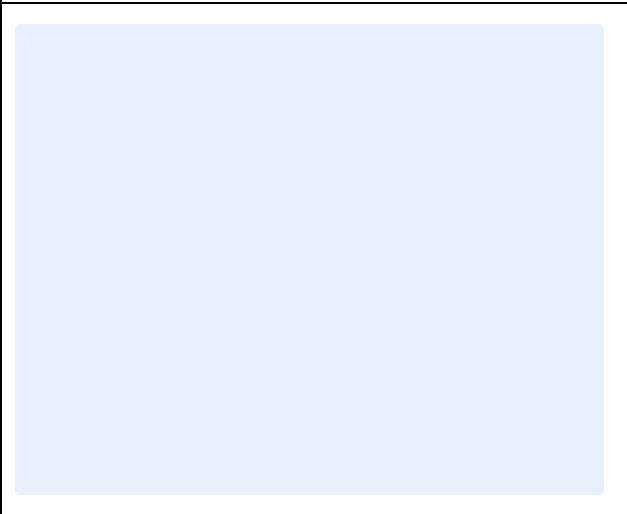
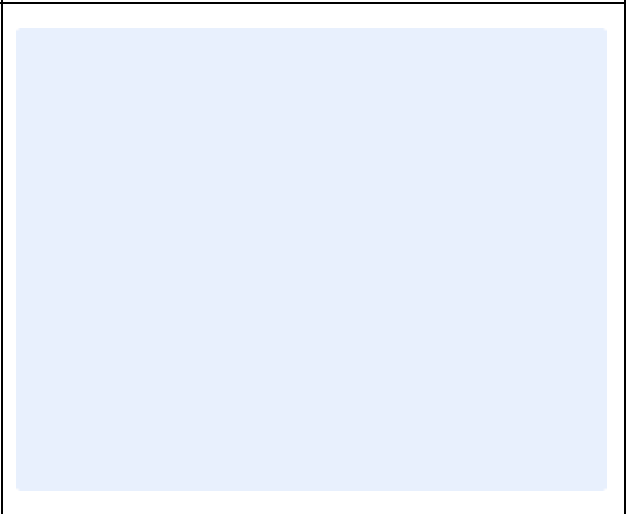
5.1. QUALITY INSPECTION ISSUES

5.2. CORRECTIVE ACTION PLAN

6. LOGISTICS

7. SITE PHOTOS

Appendix V

Project QC Forms for Tanks

Tank Re-commissioning Checklist

WHO?	Maintenance Coordination/ Operations
WHEN?	During Re-commissioning of A/G Tanks
WHY?	To ensure Safe and Effective re-commissioning of tanks

Tank #	
Location	
Date	
Person Involved in	Engineering/ Maintenance:
Completing the checklist	Terminal Operations:

SECTION 1: TANK MAINTENANCE COMPLETION

No.	Description of Check	Comp (v) (x) (na)	Sign	Comment
1.	Inspection and Test Plan (ITP) – all signatures present			
2.	Tank Internal Clean and free of Debris/ Water			
3.	Details of dimensions of tank internal nozzles and pipe-work recorded.			
4.	Drawing/Sketch showing locations of internal and external repairs or modifications.			
5.	Photographs of tank internals			
6.	Punch List of Outstanding items prepared – all items have an agreed action plan			
7.	Fire systems tested and report available – if applicable			
8.	PV Vent Operational (if Applicable)			
9.	Thermal relief valves tested and installed			
10.	Sample points include any internal lines fully complete			
11.	De-watering system operational			
12.	Varec/ Tank gauge operational			
13.	High Level alarm checked for correct height setting (If Applicable)			
14.	Temperature Indicator Installed			
15.	Tank strapping completed and operational summary data available. PCM/HCP Coordinator advised. Entries updated with new calibration values			
16.	Strapping data analysed for variations between previous product and current data. Any changes should be subject to MOC and necessary communication. Depending on the discrepancy this may not prevent the tank being returned to service (must be initialled but may not necessary be completed)			

Tank Re-commissioning Checklist

17.	Tank Safe height verified. Check tank for any modifications which may alter safe fill height.			
18.	All signage on the tank complete, updated & correct. Include 10 yearly inspection date, IFR installation date and internal coating date.			
19.	Earth straps, (roof, floating suction) are present and in good condition. Is tank earth currently tested?			
20.	Internal Floating Roof access hatches closed –if applicable.			
21.	IFR roof seals installed and checked – if applicable.			
22.	IFR legs in correct position, pins installed & secured.			
23.	Floating suction checked and ready for operation- if applicable.			
24.	Tank Painting is complete.			
25.	Tank Internal coating is complete.			
26.	Existing walkways, hand rails, paths and steps are satisfactory for use.			
27.	Dip hatch is clean and operational.			
28.	Foam piping to foam pourers or sub-surface injection is re-installed and in good condition.			
29.	All surplus nozzles are blanked.			
30.	Compound is free of surplus equipment, trash, oil, sludge, debris, grass etc.			
31.	Compound drain is closed and operational.			
32.	Tanks bund are intact and good condition.			
33.	Temporary wind sock removed.			
34.	Tank OOS Maintenance Checklist completed.			

All necessary maintenance work is complete and tank can be boxed up and de-isolated ready for filling.

Signed: _____
Terminal Operations Engineer/ Maintenance Date

Note: Notify supply coordinator for tank progress.

Section 2: TANK DE-ISOLATION

No.	Description of Check	Comp (v) (x) (na)	Sign	Comment
1.	Manways in place. Check all studs & nuts in place and tight			
2.	All valves in place. All studs & nuts in place and tight. Motor operated valves installed and connected-if applicable. All valves in closed position.			
3.	All automated vales have been stroked and checked for correct operations.			
4.	All automated valves operate in remote – if applicable.			
5.	All blinds/ spades removed. All pipe spools in-installed (including foam lines –if applicable) Note: This step to occur if product is immediately available. If product not available DO NOT progress beyond this step.			
6.	All valves de-isolated and tags/locks removed.			
7.	Blinds List and isolation register have been signed off.			
8.	Tank Hydrotest report available – if applicable.			
9.	Tank recommissioning procedure available. (i.e. filling rate, rundown rate vs gravitation, checks etc)			
10.	High level alarm re-energised and checked for correct operations- if applicable			
11.	REFER PCM REQUIREMENTS 060.17 AND 060.18 PRIOR TO TANK RECEIVING PRODUCT.			

The tank has been de-isolated (locks and tags removed, blinds/ spades removed) and the tank is ready to receive product.

Signed: _____
Terminal Operations Engineer/ Maintenance Date

Note: Notify supply coordinator for tank progress.

SECTION 3: TANK COMMISSIONING

No.	Description of Check	Comp (v) (x) (na)	Sign	Comment
1.	When either the roof has been floated or there is sufficient product in the tank, a manual check of the dip should be taken to check the Varec dip. If necessary, calibrate the Varec reading to actual dip reading – if applicable.			
2.	Varec dip matches the manual dip.			
3.	At approximately 1m level a sample should be drawn from the tank to ensure the products quality. Product on spec? (Clear and bright, density etc)			
4.	When roof is fully flanged and access is allowed, check the roof vent for proper operations.			

The tank level measurement has been checked and tank can be filled to normal heights.

Signed: _____
Terminal Operations Date

Note: Notify supply coordinator for tank progress.

SECTION 4: TANK COMPLETION

No.	Description of Check	Comp (v) (x) (na)	Sign	Comment
1.	Strapping tables entered into level gauge system – if applicable			
2.	Final Tank painting complete.			
3.	All equipment/ debris/ construction materials removed from site.			
4.	Tank operations Data Sheet modified.			
5.	Foundations in good conditions.			
6.	MoC for any tank changes complete – if applicable			
7.	Summary of tank repairs including drawings of any repairs or modifications provided to Engineering.			
8.	Complete Project Closure Report			

	summarizing cost, site assessment and learning's.			
9.	Send copy of inspection and closeout reports to Tank Inspection Database administrator.			

All tank maintenance work has been completed.

Signed: _____
Terminal Operations Engineer/ Maintenance Date

WHO?	Operations & Maintenance
WHEN?	A Change of Service
WHY?	To review the reasons for the change and the required changes to enable to evaluate change of service is justified.

No.	Item	Comments	Budget Cost \$
1.	What are the future product and usage requirements for this tank? What time frames are applicable to which product(s)?	Current <ul style="list-style-type: none"> • Interim Future	~
2.	What are the immediately apparent implications of these requirements for the tank in relation to design and capability (i.e. internal coating, fill & draw line diameter, instrumentation etc.)	The tank is design to store multi product and can be changed. This tank has just been approved with Fitness for Service Certificate from SGS after major repairs was done. Internal Internal Pipeline External Instrumentation	
3.	What piping changes are required to connect this tank to relevant pumps for product change?		

		Tank 1 Outlet	
4.	Review Regulatory licenses to ensure change is acceptable.	N/A	
5.	Is an IFR needed? We will store flammable in future or immediately. Can this be economically justified (we have a method for this calculation)		
6.	If existing IFR, should IFR seal material be replaced? This is for material compatibility with products proposed (particularly if Ethanol based)	N/A	
7.	If no IFR do vent capacity or type change? E.g. open vent or PV vent. Emergency venting required.	NA	
8.	Other		
		TOTAL	

Site:		Tank No.	
	Item	Reference Material	Tick when Complete
	PREPARATION		
	Forward NDT Inspector Bulk Tank Datasheet to allow estimating and planning	EF-P908	
	Notify NDT Inspector and Tank Inspector at least one week before decom. and confirm any special restrictions. Discuss OCTEL, Access/height limits, power requirements (usually 240V to within 30m of tank), scaffold if truss roof structure, etc.		
	Arrange for various companies and equipment to be on-call for potential use. Consider Waste Disposal, Sandblasting, Painting, Scaffolding, Welding (Minor Repairs only).	EW-P906	
	DECOMMISSIONING		
	Arrange with Maintenance Operator to empty tank including the following:-		
	<ul style="list-style-type: none"> Ensure any floating roofs have legs in lowered position 		
	<ul style="list-style-type: none"> Pump out tank heel using stripping line 		
	<ul style="list-style-type: none"> Compile isolation list (must be documented) 		
	<ul style="list-style-type: none"> Complete all isolations, e.g. spading, blanks, electrical rack outs etc 	Isolation List	
	<ul style="list-style-type: none"> Isolated thermal relief lines are able to be directed elsewhere 		
	<ul style="list-style-type: none"> Open all manways and covers to ventilate atmosphere 		
	Allow tank space to ventilate so it is 'gas free'. Install mechanical ventilation to manways if required (air powered equipment only). Ensure roof pillar drains are not blocked and roof pillars and floating suction, if fitted, are fully drained of product.		
	CLEANING		
	Verify if tank has ever contained leaded product, if so follow procedures in OCTEL "Leaded Gasoline Tank Cleaning and Disposal of Sludge"	OCTEL	
	Verify if any sludge is present & test it for level of contamination. (Refer to Waste Management Standard for endorsed laboratories)	ANZ-DIP-0004	
	Review Lead hazards and consider if Tank can be tested for "Lead Hazard Free"	MRAA-HEN-004	
	Tender sludge removal & cleaning. Obtain removal & disposal rates per m ³ if quantities are difficult to estimate.		
	Check if contractor has Safety Management Plan and has completed JSA's for their work		
	Progress sludge removal and cleaning of tank by Cleaning & Waste Disposal Contractors. Ensure waste is disposed of by an approved method.	ANZ-DIP-0004	
	Hydroblast (typically 10,000psi) floor and 1 m up the shell until free of all sludge, loose rust and paint	EW-P903	
	Inspect floor to see if grit blasting is required for effective floor scanning - consult with NDT company. Check floor welds are visible with no grim hiding defects.		
	Arrange grit blasting of floor and floor-to-shell weld if required		
	Ensure tank is thoroughly clean before NDT company is mobilised. Confirm access of minimum 1.6 metres for MFL floor scan.		

Tank Decommissioning, Gas Freeing & Cleaning now completed

Signed: _____ Date: _____
 Cleaning Contractor (Name)
 _____ Date: _____
 Terminal Manager (Name)

I Facility Name:	
------------------	--

REFERENCES: EM JIG2, Appendix AS

1. STORAGE TANK DETAILS

Item	Note						
Tank Number	1						
Product	2						
Date Constructed	3						
Date Installed	4						
Manufacturer	5						
Serial Number	6						
Standard	7						
Capacity (m3)	8						
Function	9						
Installation Type	10						
Tank Type	11						
Shell Type	12						
Roof Type	13						
Vent Type	14						
Floor Type	15						
Floor Slope	16						
Sump Type	17						
Flush Tank	18						
Sump Sampling	19						
Lining Extent	20						
Floating Suction	21						
Rank Sampling	22						
High Level Alarm	23						
HH Level Alarm	24						
Cooling Water	25						
Foam System	26						
Leaded Service	27						

2. MAINTENANCE & INSPECTION SUMMARY

Item	Note						
Tank Number	1						
Last Inspected	2						
Inspection Due	3						
Last Cleaned	4						
Cleaning Due	5						
Mechanical Insp.	6						
Mechanical Due	7						
Last Integrity	8						
Integrity Due	9						
Last Calibration	10						

3. OTHER RELEVANT INFORMATION

Tank Number	Note	
	1	
	1	
	1	
	1	
	1	

1. NOTES ON COMPLETING STORAGE TANK DETAILS

General: Reasonable efforts should be made to collect the required data. If information is unknown then this should be written in the section, if the information is not applicable then NA should be written in the section.

1. Tank Number should be unique, tank numbers should not be re-issued to avoid confusion over historical tank records.
2. The inventory of tanks should not only include main storage tanks but also tanks used for own use fuel storage. Eg. Diesel storage tank for supplying fuelling equipment.
3. The date tank was constructed according to tank data plate.
4. The date the tank was installed at this location.
5. The manufacturer according to the tank data plate.
6. The serial number according to the tank data plate.
7. The standard the tank is constructed to according to the data plate. Eg. API 650.
8. The total useable capacity according to the data plate.
9. Function – Operating Tank, Product Recovery Tank, Defuel Tank etc.
10. Above Ground, Semi-Buried, Underground.
11. Horizontal or Vertical.
12. Single Skin or Double Walled.
13. Fixed, Internal Floating Roof (IFR), Floating Roof.
14. Free Vent, Pressure / Vacuum (PV) Vent.
15. Cone Down, Cone Up, Flat etc.
16. Slope regardless of floor type expressed as a ratio. Eg. 1:20.
17. Centre sump, multiple sump (identify number), sump at lowest point.
18. Identify capacity and if it serves several tanks.
19. Identify Type, in-line, enclosed etc.
20. Identify extent of lining, full, floor and first strake etc.
21. Yes or No, identify number of arm sections, single arm, double arm, triple arm.
22. Identify tank side sampling points. Eg. Upper, Middle, Lower.
23. Identify High Level Alarm system. Eg. Alarm on Tank Gauging etc.
24. Identify High High Level alarm system. Eg. Float Switch, Optical Probe etc.
25. Identify if cooling water is available and system type. Eg. Fixed or Monitor.
26. Identify if foam system is installed and type. Eg. Surface, Sub-Surface.
27. Identify if the tank is in leaded product services or if it has ever been in leaded product service.

2. NOTES ON COMPLETING MAINTENANCE & INSPECTION SUMMARY

General: Reasonable efforts should be made to collect the required data. If information is unknown then this should be written in the section, if the information is not applicable then NA should be written in the section.

1. Tank Numbers should be arranged in the same order as on previous list.
2. Identify date when tank was last inspected for cleanliness.
3. Identify date when tank is next due for inspection.
4. Identify date when tank was last cleaned.
5. Identify date when tank is next due for cleaning (even if this an estimation only).
6. Identify when tank was last had a major mechanical inspection. Eg. scanning of floors etc.
7. Identify when tank is next due for a major mechanical inspection.
8. Identify last tank integrity test was carried out if applicable. Eg. pressure test on underground tank.
9. Identify when next tank integrity test is due if applicable.
10. Identify date when tank was last calibrated. If last tank calibration > 10 years then, perform a calibration at first available maintenance opportunity.

3. NOTES ON COMPLETING OTHER RELEVANT INFORMATION

General: Reasonable efforts should be made to collect the required data. If information is unknown then this should be written in the section, if the information is not applicable then NA should be written in the section.

1. Information which is relevant to the tanks history and condition should be added to this section where it does not match with the categories in the previous two sections.

Facility Name			
Tank Number		Year	
Permit Number		Technician's Name	

1. FIXED TANK INSPECTION & MAINTENANCE

Smaller airports to record the Monthly checks listed below on AGD-F-Q062 and the Quarterly checks on AGD-F-Q064

Item	Note	Frequency	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Floating Suction	1	1m												
Jiggle Wire	2	1m												
Indicator Bonding	3	1m												
Tank integrity	4	1m												
General Condition	5	3m												
Paint Condition	6	3m												
Tank Number	7	3m												
Tank Capacity	8	3m												
Grade ID	9	3m												
Status Signs	10	3m												
Regulation Signs	11	3m												
Lead Warning	12	3m												
Vent Condition	13	3m												
Walkways	14	3m												
Stairs	15	3m												
Anti-Skid	16	3m												
Manhole covers, Gauge hatches and other fittings	17	3m												
Dewatering Equip	18	3m												
Flush Tank	19	3m												
Return Pump	20	3m												
Sampling Points	21	3m												
Shell Valves	22	3m												
Tank Gauging/ATG	23	3m												
Temper. Probe/ATT	24	3m												
Foam System	25	3m												
Cooling System	26	3m												
Collection Membrane	27	3m												
Inspection in date	28	3m												
Cleaning in date	29	3m												
Major Mechanical Inspection in date	30	3m												
Leak Detection	31	1y												
PV Vent Function	32	1y												
Foundations	33	1y												
Flame Arrestor	34	1y												
Dip Tape/Dip Stick	35	1y												

2. FIXED TANK COMPOUND INSPECTION & MAINTENANCE

Smaller airports to record the Quarterly checks listed below on AGD-F-Q064

Item	Note	Frequency	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Bund Integrity	1	3m												
Access to Bund	2	3m												
Drainage	3	3m												
Product Recovery Tank Inspection	4	3m												
Summary of specific actions arising from Routine Inspection & Maintenance														

3. LEVEL ALARM TESTING
Smaller airports to record the Monthly checks on AGD-F-Q062

Item	Note	Frequency	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
High Level Alarm														
Function Test	1	1m												
Dynamic Test		1y												
High High Level Alarm														
Function Test	2	1m												
Dynamic Test		1y												
Alarm activation level		1y												
Level plus receipt volume "A"		1y												
Tank Maximum Safe Fill		1y												
Low Level Alarm														
Alarm set point:		1y												
Level alarmed at:		1y												
Shutdown in Response to Alarm														
Level alarm activated at:	3	1y												
Tank Level after complete shutdown:		1y												
Volume received between alarm activation and shutdown (A):		1y												

Facility Name			
Tank Number		Year	
Permit Number		Technician's Name	

1. FIXED TANK INSPECTION & MAINTENANCE

Smaller airports to record the Monthly checks listed below on AGD-F-Q062 and the Quarterly checks on AGD-F-Q064

Item	Note	Frequency	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Floating Suction	1	1m												
Jiggle Wire	2	1m												
Indicator Bonding	3	1m												
Tank integrity	4	1m												
General Condition	5	3m												
Paint Condition	6	3m												
Tank Number	7	3m												
Tank Capacity	8	3m												
Grade ID	9	3m												
Status Signs	10	3m												
Regulation Signs	11	3m												
Lead Warning	12	3m												
Vent Condition	13	3m												
Walkways	14	3m												
Stairs	15	3m												
Anti-Skid	16	3m												
Manhole covers, Gauge hatches and other fittings	17	3m												
Dewatering Equip	18	3m												
Flush Tank	19	3m												
Return Pump	20	3m												
Sampling Points	21	3m												
Shell Valves	22	3m												
Tank Gauging/ATG	23	3m												
Temper. Probe/ATT	24	3m												
Foam System	25	3m												
Cooling System	26	3m												
Collection Membrane	27	3m												
Inspection in date	28	3m												
Cleaning in date	29	3m												
Major Mechanical Inspection in date	30	3m												
Leak Detection	31	1y												
PV Vent Function	32	1y												
Foundations	33	1y												
Flame Arrestor	34	1y												
Dip Tape/Dip Stick	35	1y												

2. FIXED TANK COMPOUND INSPECTION & MAINTENANCE

Smaller airports to record the Quarterly checks listed below on AGD-F-Q064

Item	Note	Frequency	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Bund Integrity	1	3m												
Access to Bund	2	3m												
Drainage	3	3m												
Product Recovery Tank Inspection	4	3m												

Summary of specific actions arising from Routine Inspection & Maintenance

3. LEVEL ALARM TESTING
Smaller airports to record the Monthly checks on AGD-F-Q062

Item	Note	Freq ncy	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
High Level Alarm														
Function Test	1	1m												
Dynamic Test		1y												
High High Level Alarm														
Function Test	2	1m												
Dynamic Test		1y												
Alarm activation level		1y												
Level plus receipt volume "A"		1y												
Tank Maximum Safe Fill		1y												
Low Level Alarm														
Alarm set point:		1y												
Level alarmed at:		1y												
Shutdown in Response to Alarm														
Level alarm activated at:	3	1y												
Tank Level after complete shutdown:		1y												
Volume received between alarm activation and shutdown (A):		1y												

CATHODIC PROTECTION SYSTEM CHECKS RECORDS

Frequency ⁽¹⁾ :

(1) Frequency is the more stringent between EMA guidance from latest issue of AGD-S-M100 and local regulation

Date: Site:

Contractor: Tank ID:

Cathodic Protection (CP) systems shall be monitored as per the AGD-P-Z822 procedure by an experienced operator or a certified contractor.

In addition, a system check shall also be carried out by an inspection specialist, who will issue an inspection report. As this is a due diligence requirement, test should be carried out by a certified contractor.

Monitoring		Select the applicable check for the type of CP installed					Signature	System Check	Signature
		<input type="checkbox"/> Impressed current voltage readings							
		<input type="checkbox"/> Sacrificial anode voltage readings							
		1 Test Station	2 Test Station	3 Test Station	4 Test Station	5 Test Station			
JAN								DATE	
FEB								COMMENTS/FINDINGS:	
MAR									
APR									
MAY									
JUN									
JUL								DATE	
AUG								COMMENTS/FINDINGS:	
SEP									
OCT									
NOV									
DEC									

Comments & Details of Significant Findings:

Based on the work undertaken, the CP system IS / IS NOT (circle) fit to be returned to aviation service.

Based on the work undertaken the estimated date for next inspection:

Technician/
Contractor: Name Signature Date:

ExxonMobil
Representative: Name Signature Date:

1. NOTES ON FIXED TANK INSPECTION & MAINTENANCE

REFERENCES: EM JIG 2, EM JIG 4

General: Where checks identify deficiencies or problems these should be noted at the bottom of the section with adequate detail. When the issue is resolved the original comment should be annotated accordingly.

1. The floating suction should move freely, a slight tug on the cable should allow a bobbing motion to be felt as the floats settle back to their original position. Care should be taken when checking not to break suction and introduce air into the system.
2. The jiggle wire must be positively bonded to the tank shell. It must be directly connected and shall not rely on continuity through hinges of hatches etc.
3. Where float operated level indicators are fitted they must be positively bonded to the tank shell. Normally this is achieved by using a permanently attached bonding wire that allows the indicator to full travel.
4. A general inspection of the tank should be carried out to ensure that it is free from leaks. Attention should be paid to manways and all connections and any blisters in paintwork.
5. Comment on general condition of the tank.
6. Comment on the condition of the paint, if repainting will be required in the foreseeable future identify the estimated repainting date in the summary section. **Refer to AOM if deep corrosion defect is suspected**
7. The tank number must be obvious and legible. Tank Number should be unique, tank numbers should not be re-issued to avoid confusion over historical tank records.
8. The tank capacity must be obvious and legible.
9. The tank grade identification must be obvious and legible.
10. The status signs for the tank, FILLING, SETTLING, IN SERVICE, must be legible and functional.
11. Signage required by local Regulations and Requirements must be in place and compliant.
12. If the tank has ever contained loaded product then the appropriate warning sign must be in place and legible.
13. The condition of free vents and mesh screens should be checked. Pressure/vacuum relief valves and flame arrestors, where fitted, shall be checked and serviced in accordance with manufacturer's recommendations. The vent must be in good condition with the mesh free from debris. In cold climates where there is the possibility of ice forming on the vent mesh and blocking it more frequent checks may be required.
14. Walkways should be in good condition, free from corrosion, damage or trip hazards and compliant with relevant standards.
15. Stairs should be in good condition, free from corrosion, damage or trip hazards and compliant with relevant standards.
16. Where anti-skid has been applied to roof walkways it must be in good condition and functional.
17. All tank top fittings must be in condition and should not allow water ingress into the tank under all conditions. Check manhole covers and gauge hatches to ensure seal and vapour tightness, respectively.
18. Dewatering equipment must be in good condition and valves in the flush system must operate effectively.
19. The Flush Tank must be clean, in good condition and fit for purpose. The tank lid should prevent the ingress of water under all conditions. An IATA endorsed microbial growth test (Microbmonitor 2, Merck ATP test kit) on a sump sample after flushing, may be carried out as an alternative to quarterly visual inspection.
20. The product return pump should be properly rated in all respects and must function safely and effectively, the pump must be fitted with a non-return valve on the discharge side to prevent draining of the main storage tank in the event of pump failure.
21. Sampling points should be clean and fitted with camlock caps. Valves should be self closing and free from leaks or faults.
22. Tank shell valves must be leak-tight, correctly colour coded and in good condition. Rising stem valve threads should be adequately lubricated with grease. The valve shaft must not be lubricated.
23. Verify that for Tank Gauging systems (ATGs) the max variation against reference tape is $\pm 5\text{mm}$. Errors must be rectified.
24. Verify that for Temperature probes (ATTs) the max variation against a reference thermometer is $\pm 0.5^\circ\text{C}$. Errors must be rectified.
25. For surface foam systems the integrity of the frangible glass in the pourer should be checked. For sub-surface foam systems the tank side bleed valve should be opened to ensure that the bursting disc is tight and that the tank side check valve is tight.
26. The cooling water system should be operated to ensure that they function correctly and are free from blockage.
27. Where the tank is fitted with an under-floor membrane the collection point should be inspected to ensure that no product has been collected.
28. Is the last tank inspection still current?
29. Is the last tank cleaning still current?
30. Is the last major tank mechanical inspection still current?
31. Where there are integrity or leak detection systems in place these should also be checked.
32. Where the vent is of a pressure vacuum type its proper function must be checked and maintenance carried out as required.
33. The foundations of the tank should be checked to ensure that the tank is free from undermining or distortion due to settlement.
34. Flame arrestors, where fitted, shall be checked and serviced in accordance with the manufacturer's recommendations.
35. Dip tapes shall be inspected for kinking/deformation that would impact measurement accuracy and for security of the bottom weight. Quick sticks of volumetric measurement of horizontal tanks shall be checked for defects.

2. NOTES ON TANK COMPOUND INSPECTION & MAINTENANCE

General: Where checks identify deficiencies or problems these should be noted at the bottom of the section.

1. The condition of the bund should be checked. There should be no obvious integrity issues, it should be clean and free from debris. Walls should be at their original design height.
2. Walkways should be in good condition, free from corrosion, damage or trip hazards and compliant with relevant standards.
3. Bund drainage should be effective and should not be blocked with debris. Bund drain valves should be closed and fitted with signage identifying that they may only be opened under continuous supervision.
4. Product Recovery Tanks shall be inspected, without entry, quarterly for cleanliness and condition. An IATA endorsed microbial growth test (see 2.3.4 (i)) on a sump sample after flushing, may be carried out as an alternative to quarterly visual inspection. Cleaning and repairs to internal lining shall be carried out where there is cause. (See EM JIG 2 section 6.2.5, EM JIG 4 section 6.2.5)

3. NOTES ON LEVEL ALARM TESTING

General: Where checks identify deficiencies or problems these should be noted at the bottom of the section.

1. The High Level Alarm should be function- tested by either manually tripping it or utilizing its test function. Care should be taken to ensure that it is returned to a ready state following testing.
2. The High High Level Alarm should be function- tested by either manually tripping it or utilizing its test function. Care should be taken to ensure that it is returned to a ready state following testing.
3. Shutdown (Dynamic) tested at mid-range of tank level to ensure that test will not result in overfill should the test fail.

Facility Name			
Tank Number		Year	
Permit Number		Technician's Name	

1. FIXED TANK INSPECTION & MAINTENANCE

Smaller airports to record the Monthly checks listed below on AGD-F-Q062 and the Quarterly checks on AGD-F-Q064

Item	Note	Frequency	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Floating Suction	1	1m												
Jiggle Wire	2	1m												
Indicator Bonding	3	1m												
Tank integrity	4	1m												
General Condition	5	3m												
Paint Condition	6	3m												
Tank Number	7	3m												
Tank Capacity	8	3m												
Grade ID	9	3m												
Status Signs	10	3m												
Regulation Signs	11	3m												
Lead Warning	12	3m												
Vent Condition	13	3m												
Walkways	14	3m												
Stairs	15	3m												
Anti-Skid	16	3m												
Manhole covers, Gauge hatches and other fittings	17	3m												
Dewatering Equip	18	3m												
Flush Tank	19	3m												
Return Pump	20	3m												
Sampling Points	21	3m												
Shell Valves	22	3m												
Tank Gauging/ATG	23	3m												
Temper. Probe/ATT	24	3m												
Foam System	25	3m												
Cooling System	26	3m												
Collection Membrane	27	3m												
Inspection in date	28	3m												
Cleaning in date	29	3m												
Major Mechanical Inspection in date	30	3m												
Leak Detection	31	1y												
PV Vent Function	32	1y												
Foundations	33	1y												
Flame Arrestor	34	1y												
Dip Tape/Dip Stick	35	1y												

2. FIXED TANK COMPOUND INSPECTION & MAINTENANCE

Smaller airports to record the Quarterly checks listed below on AGD-F-Q064

Item	Note	Frequency	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Bund Integrity	1	3m												
Access to Bund	2	3m												
Drainage	3	3m												
Product Recovery Tank Inspection	4	3m												
Summary of specific actions arising from Routine Inspection & Maintenance														

3. LEVEL ALARM TESTING
Smaller airports to record the Monthly checks on AGD-F-Q062

Item	Note	Frequency	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
High Level Alarm														
Function Test	1	1m												
Dynamic Test		1y												
High High Level Alarm														
Function Test	2	1m												
Dynamic Test		1y												
Alarm activation level		1y												
Level plus receipt volume "A"		1y												
Tank Maximum Safe Fill		1y												
Low Level Alarm														
Alarm set point:		1y												
Level alarmed at:		1y												
Shutdown in Response to Alarm														
Level alarm activated at:	3	1y												
Tank Level after complete shutdown:		1y												
Volume received between alarm activation and shutdown (A):		1y												

CATHODIC PROTECTION SYSTEM CHECKS RECORDS

Frequency ⁽¹⁾ :

(1) Frequency is the more stringent between EMA guidance from latest issue of AGD-S-M100 and local regulation

Date: Site:
Contractor: Tank ID:

Cathodic Protection (CP) systems shall be monitored as per the AGD-P-Z822 procedure by an experienced operator or a certified contractor.

In addition, a system check shall also be carried out by an inspection specialist, who will issue an inspection report. As this is a due diligence requirement, test should be carried out by a certified contractor.

Monitoring		Select the applicable check for the type of CP installed					Signature	System Check	Signature
		<input type="checkbox"/> Impressed current voltage readings							
		<input type="checkbox"/> Sacrificial anode voltage readings							
		1 Test Station	2 Test Station	3 Test Station	4 Test Station	5 Test Station			
JAN								DATE	
FEB								COMMENTS/FINDINGS:	
MAR									
APR									
MAY									
JUN									
JUL							DATE		
AUG							COMMENTS/FINDINGS:		
SEP									
OCT									
NOV									
DEC									

Comments & Details of Significant Findings:

Based on the work undertaken, the CP system IS / IS NOT (circle) fit to be returned to aviation service.

Based on the work undertaken the estimated date for next Inspection:

Technician/
Contractor: Date:

Name Signature

ExxonMobil
Representative: Date:

Name Signature

1. NOTES ON FIXED TANK INSPECTION & MAINTENANCE

REFERENCES: EM JIG 2, EM JIG 4

General: Where checks identify deficiencies or problems these should be noted at the bottom of the section with adequate detail. When the issue is resolved the original comment should be annotated accordingly.

1. The floating suction should move freely, a slight tug on the cable should allow a bobbing motion to be felt as the floats settle back to their original position. Care should be taken when checking not to break suction and introduce air into the system.
2. The jiggle wire must be positively bonded to the tank shell. It must be directly connected and shall not rely on continuity through hinges of hatches etc.
3. Where float operated level indicators are fitted they must be positively bonded to the tank shell. Normally this is achieved by using a permanently attached bonding wire that allows the indicator to full travel.
4. A generally inspection of the tank should be carried out to ensure that it is free from leaks. Attention should be paid to manways and all connections and any blisters in paintwork.
5. Comment on general condition of the tank.
6. Comment on the condition of the paint, if repainting will be required in the foreseeable future identify the estimated repainting date in the summary section. Refer to AOM if deep corrosion defect is suspected
7. The tank number must be obvious and legible. Tank Number should be unique, tank numbers should not be re-issued to avoid confusion over historical tank records.
8. The tank capacity must be obvious and legible.
9. The tank grade identification must be obvious and legible.
10. The status signs for the tank, FILLING, SETTLING, IN SERVICE, must be legible and functional.
11. Signage required by local Regulations and Requirements must be in place and compliant.
12. If the tank has ever contained leaded product then the appropriate warning sign must be in place and legible.
13. The condition of free vents and mesh screens should be checked. Pressure/vacuum relief valves and flame arrestors, where fitted, shall be checked and serviced in accordance with manufacturer's recommendations. The vent must be in good condition with the mesh free from debris. In cold climates where there is the possibility of ice forming on the vent mesh and blocking it more frequent checks may be required.
14. Walkways should be in good condition, free from corrosion, damage or trip hazards and compliant with relevant standards.
15. Stairs should be in good condition, free from corrosion, damage or trip hazards and compliant with relevant standards.
16. Where anti-skid has been applied to roof walkways it must be in good condition and functional.
17. All tank top fittings must be in condition and should not allow water ingress into the tank under all conditions. Check manhole covers and gauge hatches to ensure seal and vapour tightness, respectively.
18. Dewatering equipment must be in good condition and valves in the flush system must operate effectively.
19. The Flush Tank must be clean, in good condition and fit for purpose. The tank lid should prevent the ingress of water under all conditions. An IATA endorsed microbial growth test (Microbmonitor 2, Merck ATP test kit) on a sump sample after flushing, may be carried out as an alternative to quarterly visual inspection.
20. The product return pump should be properly rated in all respects and must function safely and effectively, the pump must be fitted with a non-return valve on the discharge side to prevent draining of the main storage tank in the event of pump failure.
21. Sampling points should be clean and fitted with camlock caps. Valves should be self closing and free from leaks or faults.
22. Tank shell valves must be leak-tight, correctly colour coded and in good condition. Rising stem valve threads should be adequately lubricated with grease. The valve shaft must not be lubricated.
23. Verify that for Tank Gauging systems (ATGs) the max variation against reference tape is $\pm 5\text{mm}$. Errors must be rectified.
24. Verify that for Temperature probes (ATTs) the max variation against a reference thermometer is $\pm 0.5^\circ\text{C}$. Errors must be rectified.
25. For surface foam systems the integrity of the frangible glass in the pourer should be checked. For sub-surface foam systems the tank side bleed valve should be opened to ensure that the bursting disc is tight and that they tank side check valve is tight.
26. The cooling water system should be operated to ensure that they function correctly and are free from blockage.
27. Where the tank is fitted with an under-floor membrane the collection point should be inspected to ensure that no product has been collected.
28. Is the last tank inspection still current?
29. Is the last tank cleaning still current?
30. Is the last major tank mechanical inspection still current?
31. Where there are integrity or leak detection systems in place these should also be checked.
32. Where the vent is of a pressure vacuum type its proper function must be checked and maintenance carried out as required.
33. The foundations of the tank should be checked to ensure that the tank is free from undermining or distortion due to settlement.
34. Flame arrestors, where fitted, shall be checked and serviced in accordance with the manufacturer's recommendations.
35. Dip tapes shall be inspected for kinking/deformation that would impact measurement accuracy and for security of the bottom weight. Quick sticks of volumetric measurement of horizontal tanks shall be checked for defects.

2. NOTES ON TANK COMPOUND INSPECTION & MAINTENANCE

General: Where checks identify deficiencies or problems these should be noted at the bottom of the section.

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General: Where checks identify deficiencies or problems these should be noted at the bottom of the section.

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3. Shutdown (Dynamic) tested at mid-range of tank level to ensure that test will not result in overfill should the test fail.

CATHODIC PROTECTION SYSTEM CHECKS RECORDS

Frequency ⁽¹⁾ :

(1) Frequency is the more stringent between EMA guidance from latest issue of AGD-S-M100 and local regulation

Date: _____

Site: _____

Contractor: _____

Tank ID:

Cathodic Protection (CP) systems shall be monitored as per the AGD-P-Z822 procedure by an experienced operator or a certified contractor.

In addition, a system check shall also be carried out by an inspection specialist, who will issue an inspection report. As this is a due diligence requirement, test should be carried out by a certified contractor.

Monitoring		Select the applicable check for the type of CP installed <input type="checkbox"/> Impressed current voltage readings <input type="checkbox"/> Sacrificial anode voltage readings					Signature	System Check	Signature
		1 Test Station	2 Test Station	3 Test Station	4 Test Station	5 Test Station			
JAN								DATE	
FEB								COMMENTS/FINDINGS:	
MAR									
APR									
MAY									
JUN									
JUL									
AUG									
SEP									
OCT									
NOV									
DEC									

[illegible]

Based on the work undertaken, the CP system IS / IS NOT (circle) fit to be returned to aviation service.

Based on the work undertaken the estimated date for next inspection:

Technician/
Contractor:

Name _____

Signature _____

Date: _____

ExxonMobil
Representative:

Name _____

Signature _____

Date: _____

1. NOTES ON FIXED TANK INSPECTION & MAINTENANCE

REFERENCES: EM JIG 2, EM JIG 4

General: Where checks identify deficiencies or problems these should be noted at the bottom of the section with adequate detail. When the issue is resolved the original comment should be annotated accordingly.

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4. A general inspection of the tank should be carried out to ensure that it is free from leaks. Attention should be paid to manways and all connections and any blisters in paintwork.
5. Comment on general condition of the tank.
6. Comment on the condition of the paint, if repainting will be required in the foreseeable future identify the estimated repainting date in the summary section. **Refer to AOM if deep corrosion defect is suspected**
7. The tank number must be obvious and legible. Tank Number should be unique, tank numbers should not be re-issued to avoid confusion over historical tank records.
8. The tank capacity must be obvious and legible.
9. The tank grade identification must be obvious and legible.
10. The status signs for the tank, FILLING, SETTLING, IN SERVICE, must be legible and functional.
11. Signage required by local Regulations and Requirements must be in place and compliant.
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17. All tank top fittings must be in condition and should not allow water ingress into the tank under all conditions. Check manhole covers and gauge hatches to ensure seal and vapour tightness, respectively.
18. Dewatering equipment must be in good condition and valves in the flush system must operate effectively.
19. The Flush Tank must be clean, in good condition and fit for purpose. The tank lid should prevent the ingress of water under all conditions. An IATA endorsed microbial growth test (Microbmonitor 2, Merck ATP test kit) on a sump sample after flushing, may be carried out as an alternative to quarterly visual inspection.
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22. Tank shell valves must be leak-tight, correctly colour coded and in good condition. Rising stem valve threads should be adequately lubricated with grease. The valve shaft must not be lubricated.
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27. Where the tank is fitted with an under-floor membrane the collection point should be inspected to ensure that no product has been collected.
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29. Is the last tank cleaning still current?
30. Is the last major tank mechanical inspection still current?
31. Where there are integrity or leak detection systems in place these should also be checked.
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3. Shutdown (Dynamic) tested at mid-range of tank level to ensure that test will not result in overfill should the test fail.

Facility Name			
Tank Number		Year	
Permit Number		Technician's Name	

1. FIXED TANK INSPECTION & MAINTENANCE

Smaller airports to record the Monthly checks listed below on AGD-F-Q062 and the Quarterly checks on AGD-F-Q064

Item	Note	Frequency	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Floating Suction	1	1m												
Jiggle Wire	2	1m												
Indicator Bonding	3	1m												
Tank integrity	4	1m												
General Condition	5	3m												
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Grade ID	9	3m												
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Walkways	14	3m												
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Temper. Probe/ATT	24	3m												
Foam System	25	3m												
Cooling System	26	3m												
Collection Membrane	27	3m												
Inspection in date	28	3m												
Cleaning in date	29	3m												
Major Mechanical Inspection in date	30	3m												
Leak Detection	31	1y												
PV Vent Function	32	1y												
Foundations	33	1y												
Flame Arrestor	34	1y												
Dip Tape/Dip Stick	35	1y												

2. FIXED TANK COMPOUND INSPECTION & MAINTENANCE

Smaller airports to record the Quarterly checks listed below on AGD-F-Q064

Item	Note	Frequency	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Bund Integrity	1	3m												
Access to Bund	2	3m												
Drainage	3	3m												
Product Recovery Tank Inspection	4	3m												
Summary of specific actions arising from Routine Inspection & Maintenance														

3. LEVEL ALARM TESTING
Smaller airports to record the Monthly checks on AGD-F-Q062

Item	Note	Frequ ncy	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
High Level Alarm														
Function Test	1	1m												
Dynamic Test		1y												
High High Level Alarm														
Function Test	2	1m												
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Alarm activation level		1y												
Level plus receipt volume "A"		1y												
Tank Maximum Safe Fill		1y												
Low Level Alarm														
Alarm set point:		1y												
Level alarmed at:		1y												
Shutdown in Response to Alarm														
Level alarm activated at:	3	1y												
Tank Level after complete shutdown:		1y												
Volume received between alarm activation and shutdown (A):		1y												

1. NOTES ON FIXED TANK INSPECTION & MAINTENANCE

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3. NOTES ON LEVEL ALARM TESTING

General: Where checks identify deficiencies or problems these should be noted at the bottom of the section.

1. The High Level Alarm should be function- tested by either manually tripping it or utilizing its test function. Care should be taken to ensure that it is returned to a ready state following testing.
2. The High High Level Alarm should be function- tested by either manually tripping it or utilizing its test function. Care should be taken to ensure that it is returned to a ready state following testing.
3. Shutdown (Dynamic) tested at mid-range of tank level to ensure that test will not result in overfill should the test fail.

(1) Frequency is the more stringent between EMA guidance from latest issue of EM JIG 2 and local regulation

4. CLEANLINESS ASSESSMENT (continued)

ELEVATION

Microbiological Check Result.

Maximum Allowable Cleaning Interval

Is tank within allowable period for type and service? Identify the allowable maximum and the reference (More stringent of EM JIG 2 or Local Regulation).

Summary of Cleanliness Assessment

Based on the data compiled and reviewed the Tank DOES / DOES NOT (circle) require cleaning at this time.

Based on the data compiled and reviewed the estimated date for next cleaning is:

Name: _____ Signature: _____ Date: _____

5. CLEANING INSPECTION BY ENTRY

Frequency ⁽¹⁾ :

(1) Frequency is the more stringent between EMA guidance from latest issue of EM JIG 2 and local regulation

Assigned Supervisor:		Permit Issuer:	
Cleaning Contractor:		Waste Contractor:	
Description of Sludge / Sediment Removed.			
Describe nature and quantity, sketch distribution in Cleaning Assessment if not already done.			
Description of Water / Staining Removed.			
Describe nature and quantity, sketch distribution in Cleaning Assessment if not already done.			
Visual Inspection, Condition of Lining ⁽²⁾			
Identify failed areas in Cleaning Assessment sketch, detail repairs, estimate relining date.			
Dewatering Effectiveness			
Identify effectiveness of dewatering arrangements and any repairs / modifications undertaken.			
Photographic Record			
If possible photographs of the extent and nature of debris should be taken. Following completion of repair work photographs of repairs should be taken as well as photographs of other key features of the tank such as sump(s), internal drain pipes and inlet and draw off arrangements. All photographs should be attached to this cleaning record and clearly labeled.			
Inspection of Internal Equipment			
Floating Suction			
Jiggle wire attachment & bonding:			
Restraining cable attachment:			
Float integrity:			
Float attachment:			
Suction pipe condition:			
Suction rest condition / adequacy:			
Tightness of studs & fasteners:			
Swivel free movement:			
Sample point connections:			
Gauging & Alarms			
Guide cables correctly tensioned:			
Floater free to move:			
Dewatering Connections			
Pipes not in contact with sump:			
Additional Comments			
Summary of Cleaning & Inspection			
Based on the work undertaken tank IS / IS NOT (circle) fit to be returned to Aviation Service.			
Based on the data compiled and reviewed the estimated date for next cleaning is: <input type="text"/>			
Name: _____	Signature: _____	Date: _____	

6. MECHANICAL INSPECTION AND REPAIR

Frequency ⁽¹⁾ :

(1) Frequency is the more stringent between EMA guidance from latest issue of AGD-S-M100 and local regulation

Assigned Supervisor:		Permit Issuer:	
NDT Contractor:		Mechanical Contractor:	
Coating Consultant:		Painting Contractor:	
Calibration Contractor:			

Summary of NDT Results.

The NDT report should be available, key findings should be summarized:

Summary of Mechanical Repairs.

Repair documentation should be available, key works undertaken should be summarized:

Summary of Coating Repairs

Coating repair documentation should be available, key works undertaken should be summarized:

Summary of Calibration

Calibration documentation should be available, results of calibration should be summarised:

Summary of Mechanical Inspection and Repair

Based on the work undertaken tank IS / IS NOT (circle) fit to be returned to aviation service.

Based on the work undertaken the estimated date for next Mechanical Inspection:

Name: _____ Signature: _____ Date: _____

Frequency ⁽¹⁾ :

(1) Frequency is the more stringent between EMA guidance from latest issue of AGD-S-M100 and local regulation

Site: _____

Tank ID: _____

Underground Fiberglass Reinforced Plastic tanks shall be pressure tested, as required in AGD-S-M100. As this is a due diligence requirement, test should be carried out by an experienced pressure tester or a certified contractor.

Comments & Details of Significant Findings: _____

Based on the work undertaken tank IS / IS NOT (circle) fit to be returned to aviation service.

Based on the work undertaken the estimated date for next Pressure Test:

Date: _____

Date: _____

NOTES ON COMPLETING TANK INSPECTION & MAINTENANCE REPORT

REFERENCES: AGD-S-M100, EM JIG 2

The aim of this document is to provide a framework for collating relevant information on the condition of the tank as well as to record decisions taken based on that information.

In general all sections of the document should be worked through methodically, even if for example there is already an intention to clean the tank.

In this case completion of the Cleanliness Assessment section ahead of Tank Cleaning will allow a correlation to be established between indicators of condition and the actual condition of the tank found following entry.

Tank cleaning intervals are subject to the maximums allowed by EM JIG 2, Industry Practices and Regulatory Requirements.

(1) The external condition of the tank shall include a visual inspection of the tank's exterior surfaces. Evidence of leaks; corrosion; paint coatings, and appurtenances shall be repaired. Shell distortions; signs of settlement; and condition of the foundation insulation systems shall be documented for follow-up action by an authorized inspector.

Guidance for external coating condition assessment:

Simple coating breakdown: Inspect any visible rust spots or paint bubbling on coating. Carefully inspect to assess if the defect is shallow or deep. If deep corrosion defect is suspected refer to AOM who will advise on further inspection to be performed when tank is emptied. If shallow corrosion defect is suspected, wire brush area to clear away loose paint and corrosion material. If pit depth is < 25%, record location of defect, spot prime and recoat to EM painting spec. If pit depth is >25%, refer to AOM who will advise on additional actions.

(iii) Blind corrosion / corrosion under insulation: Identify areas where blind corrosion could occur. Then look for tell-tail signs of corrosion actually occurring. For areas of concern, documented with photographic record and inform AOM

(2) Inspect for evidence of excessive internal corrosion and condition of all welding joints. Identify and evaluate any tank bottom settlement, evidence of deformation or damage.

1. SUMMARY

Tank Number	
Location	
Date of last Mechanical Inspection	
Date of next Mechanical Inspection (scheduled)	
Date of last MBG test	
Date of next MBG test	
Date of this Clean	
Date of this Inspection	
Date of last Clean	
Date of last Inspection	
Date of next Clean (est.)	
Date of next Inspection	
Summary of specific activities / checks for next Clean / Inspection	

2. TANK DATA

Date Constructed	
Capacity (m3 or usg)	
Vertical or Horizontal	
Above Ground or Semi Buried or Buried	
Cone Down or Cone Up or Other	
Fixed Roof or Floating Pan or Floating Roof	
Extent of Lining	
Date Last Lined	
Suction Type	
Leaded or Unleaded	
Grade before Clean	
Grade after Clean	
Summary of History of Mechanical Repairs and Lining Repairs / Recoating	

Frequency ⁽¹⁾ :

Item	Comment / Condition:
Tank Gauging	
Temperature Gauging	
Level Alarms	
Floating Suction	
Sample Points	
Dewatering facilities	
Vents	
Top Hatches and Fittings	
Inlet Valve Integrity/Condition	
Outlet Valve Integrity/Condition	
Other Fittings	
Leak Detection System	
Floor membrane collection point	
Stairs and Walkways	
External Coating Condition (1)	
Condition of Foundation	

[illegible]

1. SUMMARY

Tank Number	
Location	
Date of last Mechanical Inspection	
Date of next Mechanical Inspection (scheduled)	
Date of last MBG test	
Date of next MBG test	
Date of this Clean	
Date of this Inspection	
Date of last Clean	
Date of last Inspection	
Date of next Clean (est.)	
Date of next Inspection	
Summary of specific activities / checks for next Clean / Inspection	

2. TANK DATA

Date Constructed	
Capacity (m3 or usg)	
Vertical or Horizontal	
Above Ground or Semi Buried or Buried	
Cone Down or Cone Up or Other	
Fixed Roof or Floating Pan or Floating Roof	
Extent of Lining	
Date Last Lined	
Suction Type	
Leaded or Unleaded	
Grade before Clean	
Grade after Clean	
Summary of History of Mechanical Repairs and Lining Repairs / Recoating	

3. EXTERNAL VISUAL INSPECTION⁽¹⁾

Frequency ⁽¹⁾ :	
-----------------------------------	--

(1) Frequency is the more stringent between EMA guidance from latest issue of AGD-S-M100 and local regulation

Item	Comment / Condition:
Tank Gauging	
Temperature Gauging	
Level Alarms	
Floating Suction	
Sample Points	
Dewatering facilities	
Vents	
Top Hatches and Fittings	
Inlet Valve Integrity/Condition	
Outlet Valve Integrity/Condition	
Other Fittings	
Leak Detection System	
Floor membrane collection point	
Stairs and Walkways	
External Coating Condition (1)	
Condition of Foundation	

Summary of Actions arising from Inspection:

Frequency ⁽¹⁾ :

(1) Frequency is the more stringent between EMA guidance from latest issue of EM JIG 2 and local regulation

4. CLEANLINESS ASSESSMENT (continued)

ELEVATION

Microbiological Check Result.

Maximum Allowable Cleaning Interval

Is tank within allowable period for type and service? Identify the allowable maximum and the reference (More stringent of EM JIG 2 or Local Regulation).

Summary of Cleanliness Assessment

Based on the data compiled and reviewed the Tank DOES / DOES NOT (circle) require cleaning at this time.

Based on the data compiled and reviewed the estimated date for next cleaning is:

Name: _____ Signature: _____ Date: _____

5. CLEANING INSPECTION BY ENTRY

Frequency ⁽¹⁾ :	
----------------------------	--

(1) Frequency is the more stringent between EMA guidance from latest issue of EM JIG 2 and local regulation

Assigned Supervisor:		Permit Issuer:	
Cleaning Contractor:		Waste Contractor:	
Description of Sludge / Sediment Removed.			
Describe nature and quantity, sketch distribution in Cleaning Assessment if not already done.			
Description of Water / Staining Removed.			
Describe nature and quantity, sketch distribution in Cleaning Assessment if not already done.			
Visual Inspection, Condition of Lining ⁽²⁾			
Identify failed areas in Cleaning Assessment sketch, detail repairs, estimate relining date.			
Dewatering Effectiveness			
Identify effectiveness of dewatering arrangements and any repairs / modifications undertaken.			
Photographic Record			
If possible photographs of the extent and nature of debris should be taken. Following completion of repair work photographs of repairs should be taken as well as photographs of other key features of the tank such as sump(s), internal drain pipes and inlet and draw off arrangements. All photographs should be attached to this cleaning record and clearly labeled.			
Inspection of Internal Equipment			
Floating Suction			
Jiggle wire attachment & bonding:			
Restraining cable attachment:			
Float integrity:			
Float attachment:			
Suction pipe condition:			
Suction rest condition / adequacy:			
Tightness of studs & fasteners:			
Swivel free movement:			
Sample point connections:			
Gauging & Alarms			
Guide cables correctly tensioned:			
Floats free to move:			
Dewatering Connections			
Pipes not in contact with sump:			
Additional Comments			
Summary of Cleaning & Inspection			
Based on the work undertaken tank IS / IS NOT (circle) fit to be returned to Aviation Service.			
Based on the data compiled and reviewed the estimated date for next cleaning is: 			
Name: _____		Signature: _____	Date: _____

6. MECHANICAL INSPECTION AND REPAIR

Frequency ⁽¹⁾ :

(1) Frequency is the more stringent between EMA guidance from latest issue of AGD-S-M100 and local regulation

Assigned Supervisor:		Permit Issuer:	
NDT Contractor:		Mechanical Contractor:	
Coating Consultant:		Painting Contractor:	
Calibration Contractor:			

Summary of NDT Results.
The NDT report should be available, key findings should be summarized:

Summary of Mechanical Repairs.
Repair documentation should be available, key works undertaken should be summarized:

Summary of Coating Repairs
Coating repair documentation should be available, key works undertaken should be summarized:

Summary of Calibration
Calibration documentation should be available, results of calibration should be summarised:

Summary of Mechanical Inspection and Repair
Based on the work undertaken tank IS / IS NOT (circle) fit to be returned to aviation service.
Based on the work undertaken the estimated date for next Mechanical Inspection:

Name: _____ Signature: _____ Date: _____

Frequency ⁽¹⁾ :

Frequency ⁽¹⁾:

(1) Frequency is the more stringent between EMA guidance from latest issue of AGD-S-M100 and local regulation

Site: _____

Tank ID: _____

Underground Fiberglass Reinforced Plastic tanks shall be pressure tested, as required in AGD-S-M100. As this is a due diligence requirement, test should be carried out by an experienced pressure tester or a certified contractor.

Comments & Details of Significant Findings: _____

Based on the work undertaken tank IS / IS NOT (circle) fit to be returned to aviation service.

Based on the work undertaken the estimated date for next Pressure Test:

Date: _____

Date: _____

NOTES ON COMPLETING TANK INSPECTION & MAINTENANCE REPORT

REFERENCES: AGD-S-M100, EM JIG 2

The aim of this document is to provide a framework for collating relevant information on the condition of the tank as well as to record decisions taken based on that information.

In general all sections of the document should be worked through methodically, even if for example there is already an intention to clean the tank.

In this case completion of the Cleanliness Assessment section ahead of Tank Cleaning will allow a correlation to be established between indicators of condition and the actual condition of the tank found following entry.

Tank cleaning intervals are subject to the maximums allowed by EM JIG 2, Industry Practices and Regulatory Requirements.

(1) The external condition of the tank shall include a visual inspection of the tank's exterior surfaces. Evidence of leaks; corrosion; paint coatings, and appurtenances shall be repaired. Shell distortions; signs of settlement; and condition of the foundation insulation systems shall be documented for follow-up action by an authorized inspector.

Guidance for external coating condition assessment:

Simple coating breakdown: Inspect any visible rust spots or paint bubbling on coating. Carefully inspect to assess if the defect is shallow or deep. If deep corrosion defect is suspected refer to AOM who will advise on further inspection to be performed when tank is emptied. If shallow corrosion defect is suspected, wire brush area to clear away loose paint and corrosion material. If pit depth is < 25%, record location of defect, spot prime and recoat to EM painting spec. If pit depth is >25%, refer to AOM who will advise on additional actions.

(iii) Blind corrosion / corrosion under insulation: Identify areas where blind corrosion could occur. Then look for tell-tail signs of corrosion actually occurring. For areas of concern, documented with photographic record and inform AOM

(2) Inspect for evidence of excessive internal corrosion and condition of all welding joints. Identify and evaluate any tank bottom settlement, evidence of deformation or damage.

1. SUMMARY

Tank Number	
Location	
Date of last Mechanical Inspection	
Date of next Mechanical Inspection (scheduled)	
Date of last MBG test	
Date of next MBG test	
Date of this Clean	
Date of this Inspection	
Date of last Clean	
Date of last Inspection	
Date of next Clean (est.)	
Date of next Inspection	
Summary of specific activities / checks for next Clean / Inspection	

2. TANK DATA

Date Constructed	
Capacity (m3 or usg)	
Vertical or Horizontal	
Above Ground or Semi Buried or Buried	
Cone Down or Cone Up or Other	
Fixed Roof or Floating Pan or Floating Roof	
Extent of Lining	
Date Last Lined	
Suction Type	
Leaded or Unleaded	
Grade before Clean	
Grade after Clean	
Summary of History of Mechanical Repairs and Lining Repairs / Recoating	

3. EXTERNAL VISUAL INSPECTION⁽¹⁾

Frequency ⁽¹⁾ :

(1) Frequency is the more stringent between EMA guidance from latest issue of AGD-S-M100 and local regulation

Item	Comment / Condition:
Tank Gauging	
Temperature Gauging	
Level Alarms	
Floating Suction	
Sample Points	
Dewatering facilities	
Vents	
Top Hatches and Fittings	
Inlet Valve Integrity/Condition	
Outlet Valve Integrity/Condition	
Other Fittings	
Leak Detection System	
Floor membrane collection point	
Stairs and Walkways	
External Coating Condition (1)	
Condition of Foundation	

Summary of Actions arising from Inspection:

Frequency ⁽¹⁾ :

(1) Frequency is the more stringent between EMA guidance from latest issue of EM JIG 2 and local regulation

Page 3 of 8

4. CLEANLINESS ASSESSMENT (continued)

ELEVATION

Microbiological Check Result.

Maximum Allowable Cleaning Interval

Is tank within allowable period for type and service? Identify the allowable maximum and the reference (More stringent of EM JIG 2 or Local Regulation).

Summary of Cleanliness Assessment

Based on the data compiled and reviewed the Tank DOES / DOES NOT (circle) require cleaning at this time.

Based on the data compiled and reviewed the estimated date for next cleaning is:

Name: _____ Signature: _____ Date: _____

5. CLEANING INSPECTION BY ENTRY

Frequency ⁽¹⁾ :

(1) Frequency is the more stringent between EMA guidance from latest issue of EM JIG 2 and local regulation

Assigned Supervisor:		Permit Issuer:	
Cleaning Contractor:		Waste Contractor:	
Description of Sludge / Sediment Removed.			
Describe nature and quantity, sketch distribution in Cleaning Assessment if not already done.			
Description of Water / Staining Removed.			
Describe nature and quantity, sketch distribution in Cleaning Assessment if not already done.			
Visual Inspection, Condition of Lining ⁽²⁾			
Identify failed areas in Cleaning Assessment sketch, detail repairs, estimate relining date.			
Dewatering Effectiveness			
Identify effectiveness of dewatering arrangements and any repairs / modifications undertaken.			
Photographic Record			
If possible photographs of the extent and nature of debris should be taken. Following completion of repair work photographs of repairs should be taken as well as photographs of other key features of the tank such as sump(s), internal drain pipes and inlet and draw off arrangements. All photographs should be attached to this cleaning record and clearly labeled.			
Inspection of Internal Equipment			
Floating Suction			
Jiggle wire attachment & bonding:			
Restraining cable attachment:			
Float integrity:			
Float attachment:			
Suction pipe condition:			
Suction rest condition / adequacy:			
Tightness of studs & fasteners:			
Swivel free movement:			
Sample point connections:			
Gauging & Alarms			
Guide cables correctly tensioned:			
Floater free to move:			
Dewatering Connections			
Pipes not in contact with sump:			
Additional Comments			
Summary of Cleaning & Inspection			
Based on the work undertaken tank IS / IS NOT (circle) fit to be returned to Aviation Service.			
Based on the data compiled and reviewed the estimated date for next cleaning is: <input type="text"/>			
Name: _____	Signature: _____	Date: _____	

6. MECHANICAL INSPECTION AND REPAIR

Frequency ⁽¹⁾ :

(1) Frequency is the more stringent between EMA guidance from latest issue of AGD-S-M100 and local regulation

Assigned Supervisor:		Permit Issuer:	
NDT Contractor:		Mechanical Contractor:	
Coating Consultant:		Painting Contractor:	
Calibration Contractor:			

Summary of NDT Results.
The NDT report should be available, key findings should be summarized:

Summary of Mechanical Repairs.
Repair documentation should be available, key works undertaken should be summarized:

Summary of Coating Repairs
Coating repair documentation should be available, key works undertaken should be summarized:

Summary of Calibration
Calibration documentation should be available, results of calibration should be summarised:

Summary of Mechanical Inspection and Repair
Based on the work undertaken tank IS / IS NOT (circle) fit to be returned to aviation service.
Based on the work undertaken the estimated date for next Mechanical Inspection:

Name: _____ Signature: _____ Date: _____

Frequency ⁽¹⁾ :

Frequency¹⁷:

(1) Frequency is the more stringent between EMA guidance from latest issue of AGD-S-M100 and local regulation

Site: _____

Tank ID: _____

Underground Fiberglass Reinforced Plastic tanks shall be pressure tested, as required in AGD-S-M100. As this is a due diligence requirement, test should be carried out by an experienced pressure tester or a certified contractor.

Comments & Details of Significant Findings: _____

Based on the work undertaken tank IS / IS NOT (circle) fit to be returned to aviation service.

Based on the work undertaken the estimated date for next Pressure Test:

Signature _____

Date: _____

Name _____

Signature _____

Date: _____

Page 7 of 8

NOTES ON COMPLETING TANK INSPECTION & MAINTENANCE REPORT

REFERENCES: AGD-S-M100, EM JIG 2

The aim of this document is to provide a framework for collating relevant information on the condition of the tank, as well as to record decisions taken based on that information.

In general all sections of the document should be worked through methodically, even if for example there is already an intention to clean the tank.

In this case completion of the Cleanliness Assessment section ahead of Tank Cleaning will allow a correlation to be established between indicators of condition and the actual condition of the tank found following entry.

Tank cleaning intervals are subject to the maximums allowed by EM JIG 2, Industry Practices and Regulatory Requirements.

(1) The external condition of the tank shall include a visual inspection of the tank's exterior surfaces. Evidence of leaks; corrosion; paint coatings, and appurtenances shall be repaired. Shell distortions; signs of settlement; and condition of the foundation insulation systems shall be documented for follow-up action by an authorized inspector.

Guidance for external coating condition assessment:

Simple coating breakdown: Inspect any visible rust spots or paint bubbling on coating. Carefully inspect to assess if the defect is shallow or deep. If deep corrosion defect is suspected refer to AOM who will advise on further inspection to be performed when tank is emptied. If shallow corrosion defect is suspected, wire brush area to clear away loose paint and corrosion material. If pit depth is < 25%, record location of defect, spot prime and recoat to EM painting spec. If pit depth is >25%, refer to AOM who will advise on additional actions.

(iii) Blind corrosion / corrosion under insulation: Identify areas where blind corrosion could occur. Then look for tell-tail signs of corrosion actually occurring. For areas of concern, documented with photographic record and inform AOM

(2) Inspect for evidence of excessive internal corrosion and condition of all welding joints. Identify and evaluate any tank bottom settlement, evidence of deformation or damage.

1. SUMMARY

Tank Number	
Location	
Date of last Mechanical Inspection	
Date of next Mechanical Inspection (scheduled)	
Date of last MBG test	
Date of next MBG test	
Date of this Clean	
Date of this Inspection	
Date of last Clean	
Date of last Inspection	
Date of next Clean (est.)	
Date of next Inspection	
Summary of specific activities / checks for next Clean / Inspection	

2. TANK DATA

Date Constructed	
Capacity (m3 or usg)	
Vertical or Horizontal	
Above Ground or Semi Buried or Buried	
Cone Down or Cone Up or Other	
Fixed Roof or Floating Pan or Floating Roof	
Extent of Lining	
Date Last Lined	
Suction Type	
Leaded or Unleaded	
Grade before Clean	
Grade after Clean	
Summary of History of Mechanical Repairs and Lining Repairs / Recoating	

3. EXTERNAL VISUAL INSPECTION⁽¹⁾

Frequency ⁽¹⁾ :	
-----------------------------------	--

(1) Frequency is the more stringent between EMA guidance from latest issue of AGD-S-M100 and local regulation

Item	Comment / Condition:
Tank Gauging	
Temperature Gauging	
Level Alarms	
Floating Suction	
Sample Points	
Dewatering facilities	
Vents	
Top Hatches and Fittings	
Inlet Valve Integrity/Condition	
Outlet Valve Integrity/Condition	
Other Fittings	
Leak Detection System	
Floor membrane collection point	
Stairs and Walkways	
External Coating Condition (1)	
Condition of Foundation	

Summary of Actions arising from Inspection:

Frequency ⁽¹⁾ :

(1) Frequency is the more stringent between EMA guidance from latest issue of EM JIG 2 and local regulation

Summary of Tank Sump Drain Results for Period.
Summary of Downstream Filter Records for Period.
Summary of Particle Counter Results (Alternative 1)
Top Hatch Visual Inspection or Inspection Following Drain Down & Gas Free (Alternative 2)
Sketch should show the following information: Location of sump Location of major fittings Location of dewatering equipment Location of floating suction Location and extent of staining Location and extend of sediment Location of areas of inadequate slope Location of any permanent staining
PLAN (North towards top of page)

4. CLEANLINESS ASSESSMENT (continued)

ELEVATION

Microbiological Check Result.

Maximum Allowable Cleaning Interval

Is tank within allowable period for type and service? Identify the allowable maximum and the reference (More stringent of EM JIG 2 or Local Regulation).

Summary of Cleanliness Assessment

Based on the data compiled and reviewed the Tank DOES / DOES NOT (circle) require cleaning at this time.

Based on the data compiled and reviewed the estimated date for next cleaning is:

Name: _____ Signature: _____ Date: _____

5. CLEANING INSPECTION BY ENTRY

Frequency ⁽¹⁾ :

(1) Frequency is the more stringent between EMA guidance from latest issue of EM JIG 2 and local regulation

Assigned Supervisor:		Permit Issuer:	
Cleaning Contractor:		Waste Contractor:	
Description of Sludge / Sediment Removed.			
Describe nature and quantity, sketch distribution in Cleaning Assessment if not already done.			
Description of Water / Staining Removed.			
Describe nature and quantity, sketch distribution in Cleaning Assessment if not already done.			
Visual Inspection, Condition of Lining ⁽²⁾			
Identify failed areas in Cleaning Assessment sketch, detail repairs, estimate relining date.			
Dewatering Effectiveness			
Identify effectiveness of dewatering arrangements and any repairs / modifications undertaken.			
Photographic Record			
If possible photographs of the extent and nature of debris should be taken. Following completion of repair work photographs of repairs should be taken as well as photographs of other key features of the tank such as sump(s), internal drain pipes and inlet and draw off arrangements. All photographs should be attached to this cleaning record and clearly labeled.			
Inspection of Internal Equipment			
Floating Suction			
Jiggle wire attachment & bonding:			
Restraining cable attachment:			
Float integrity:			
Float attachment:			
Suction pipe condition:			
Suction rest condition / adequacy:			
Tightness of studs & fasteners:			
Swivel free movement:			
Sample point connections:			
Gauging & Alarms			
Guide cables correctly tensioned:			
Floater free to move:			
Dewatering Connections			
Pipes not in contact with sump:			
Additional Comments			
Summary of Cleaning & Inspection			
Based on the work undertaken tank IS / IS NOT (circle) fit to be returned to Aviation Service.			
Based on the data compiled and reviewed the estimated date for next cleaning is: <input type="text"/>			
Name: _____	Signature: _____	Date: _____	

6. MECHANICAL INSPECTION AND REPAIR

Frequency ⁽¹⁾ :

(1) Frequency is the more stringent between EMA guidance from latest issue of AGD-S-M100 and local regulation

Assigned Supervisor:		Permit Issuer:	
NDT Contractor:		Mechanical Contractor:	
Coating Consultant:		Painting Contractor:	
Calibration Contractor:			

Summary of NDT Results.

The NDT report should be available, key findings should be summarized:

Summary of Mechanical Repairs.

Repair documentation should be available, key works undertaken should be summarized:

Summary of Coating Repairs

Coating repair documentation should be available, key works undertaken should be summarized:

Summary of Calibration

Calibration documentation should be available, results of calibration should be summarised:

Summary of Mechanical Inspection and Repair

Based on the work undertaken tank IS / IS NOT (circle) fit to be returned to aviation service.

Based on the work undertaken the estimated date for next Mechanical Inspection:

--

Name: _____ Signature: _____ Date: _____

Frequency ⁽¹⁾ :

(1) Frequency is the more stringent between EMA guidance from latest issue of AGD-S-M100 and local regulation

Site: _____

Tank ID: _____

Underground Fiberglass Reinforced Plastic tanks shall be pressure tested, as required in AGD-S-M100. As this is a due diligence requirement, test should be carried out by an experienced pressure tester or a certified contractor.

[illegible]

Based on the work undertaken tank IS / IS NOT (circle) fit to be returned to aviation service.

Based on the work undertaken the estimated date for next Pressure Test:

Date: _____

Date: _____

NOTES ON COMPLETING TANK INSPECTION & MAINTENANCE REPORT

REFERENCES: AGD-S-M100, EM JIG 2

The aim of this document is to provide a framework for collating relevant information on the condition of the tank as well as to record decisions taken based on that information.

In general all sections of the document should be worked through methodically, even if for example there is already an intention to clean the tank.

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Guidance for external coating condition assessment:

Simple coating breakdown: Inspect any visible rust spots or paint bubbling on coating. Carefully inspect to assess if the defect is shallow or deep. If deep corrosion defect is suspected refer to AOM who will advise on further inspection to be performed when tank is emptied. If shallow corrosion defect is suspected, wire brush area to clear away loose paint and corrosion material. If pit depth is < 25%, record location of defect, spot prime and recoat to EM painting spec. If pit depth is >25%, refer to AOM who will advise on additional actions.

(iii) Blind corrosion / corrosion under insulation: Identify areas where blind corrosion could occur. Then look for tell-tail signs of corrosion actually occurring. For areas of concern, documented with photographic record and inform AOM

(2) Inspect for evidence of excessive internal corrosion and condition of all welding joints. Identify and evaluate any tank bottom settlement, evidence of deformation or damage.

1. SUMMARY

Tank Number	
Location	
Date of last Mechanical Inspection	
Date of next Mechanical Inspection (scheduled)	
Date of last MBG test	
Date of next MBG test	
Date of this Clean	
Date of this Inspection	
Date of last Clean	
Date of last Inspection	
Date of next Clean (est.)	
Date of next Inspection	
Summary of specific activities / checks for next Clean / Inspection	

2. TANK DATA

Date Constructed	
Capacity (m3 or usg)	
Vertical or Horizontal	
Above Ground or Semi Buried or Buried	
Cone Down or Cone Up or Other	
Fixed Roof or Floating Pan or Floating Roof	
Extent of Lining	
Date Last Lined	
Suction Type	
Leaded or Unleaded	
Grade before Clean	
Grade after Clean	
Summary of History of Mechanical Repairs and Lining Repairs / Recoating	

3. EXTERNAL VISUAL INSPECTION⁽¹⁾

Frequency ⁽¹⁾ :

(1) Frequency is the more stringent between EMA guidance from latest issue of AGD-S-M100 and local regulation

[illegible]

4. CLEANLINESS ASSESSMENT

Frequency ⁽¹⁾ :

(1) Frequency is the more stringent between EMA guidance from latest issue of EM JIG 2 and local regulation

Summary of Tank Sump Drain Results for Period.
Summary of Downstream Filter Records for Period.
Summary of Particle Counter Results (Alternative 1)
Top Hatch Visual Inspection or Inspection Following Drain Down & Gas Free (Alternative 2)
Sketch should show the following information: Location of sump Location of major fittings Location of dewatering equipment Location of floating suction Location and extent of staining Location and extend of sediment Location of areas of inadequate slope Location of any permanent staining
PLAN (North towards top of page)

4. CLEANLINESS ASSESSMENT (continued)

ELEVATION

Microbiological Check Result.

Maximum Allowable Cleaning Interval

Is tank within allowable period for type and service? Identify the allowable maximum and the reference (More stringent of EM JIG 2 or Local Regulation).

Summary of Cleanliness Assessment

Based on the data compiled and reviewed the Tank DOES / DOES NOT (circle) require cleaning at this time.

Based on the data compiled and reviewed the estimated date for next cleaning is:

Name: _____ Signature: _____ Date: _____

5. CLEANING INSPECTION BY ENTRY

Frequency ⁽¹⁾ :	
----------------------------	--

(1) Frequency is the more stringent between EMA guidance from latest issue of EM JIG 2 and local regulation

Assigned Supervisor:		Permit Issuer:	
Cleaning Contractor:		Waste Contractor:	
Description of Sludge / Sediment Removed.			
Describe nature and quantity, sketch distribution in Cleaning Assessment if not already done.			
Description of Water / Staining Removed.			
Describe nature and quantity, sketch distribution in Cleaning Assessment if not already done.			
Visual Inspection, Condition of Lining ⁽²⁾			
Identify failed areas in Cleaning Assessment sketch, detail repairs, estimate relining date.			
Dewatering Effectiveness			
Identify effectiveness of dewatering arrangements and any repairs / modifications undertaken.			
Photographic Record			
If possible photographs of the extent and nature of debris should be taken. Following completion of repair work photographs of repairs should be taken as well as photographs of other key features of the tank such as sump(s), internal drain pipes and inlet and draw off arrangements. All photographs should be attached to this cleaning record and clearly labeled.			
Inspection of Internal Equipment			
Floating Suction			
Jiggle wire attachment & bonding:			
Restraining cable attachment:			
Float integrity:			
Float attachment:			
Suction pipe condition:			
Suction rest condition / adequacy:			
Tightness of studs & fasteners:			
Swivel free movement:			
Sample point connections:			
Gauging & Alarms			
Guide cables correctly tensioned:			
Floats free to move:			
Dewatering Connections			
Pipes not in contact with sump:			
Additional Comments			
Summary of Cleaning & Inspection			
Based on the work undertaken tank IS / IS NOT (circle) fit to be returned to Aviation Service.			
Based on the data compiled and reviewed the estimated date for next cleaning is: 			
Name: _____	Signature: _____	Date: _____	

6. MECHANICAL INSPECTION AND REPAIR

Frequency ⁽¹⁾ :

(1) Frequency is the more stringent between EMA guidance from latest issue of AGD-S-M100 and local regulation

Assigned Supervisor:		Permit Issuer:	
NDT Contractor:		Mechanical Contractor:	
Coating Consultant:		Painting Contractor:	
Calibration Contractor:			
Summary of NDT Results.			
The NDT report should be available, key findings should be summarized:			
Summary of Mechanical Repairs.			
Repair documentation should be available, key works undertaken should be summarized:			
Summary of Coating Repairs			
Coating repair documentation should be available, key works undertaken should be summarized:			
Summary of Calibration			
Calibration documentation should be available, results of calibration should be summarised:			
Summary of Mechanical Inspection and Repair			
Based on the work undertaken tank IS / IS NOT (circle) fit to be returned to aviation service.			
Based on the work undertaken the estimated date for next Mechanical Inspection: <input type="text"/>			
Name: _____ Signature: _____ Date: _____			

Frequency ⁽¹⁾ :	
----------------------------	--

Date: _____ Site: _____

Contractor: _____ Tank ID: _____

[illegible]

Based on the work undertaken the estimated date for next Pressure Test:

Technician/
Contractor: _____ Name _____ Signature _____ Date: _____

ExxonMobil
Representative: _____ Date: _____

Name Signature

NOTES ON COMPLETING TANK INSPECTION & MAINTENANCE REPORT

REFERENCES: AGD-S-M100, EM JIG 2

The aim of this document is to provide a framework for collating relevant information on the condition of the tank as well as to record decisions taken based on that information.

In general all sections of the document should be worked through methodically, even if for example there is already an intention to clean the tank.

In this case completion of the Cleanliness Assessment section ahead of Tank Cleaning will allow a correlation to be established between indicators of condition and the actual condition of the tank found following entry.

Tank cleaning intervals are subject to the maximums allowed by EM JIG 2, Industry Practices and Regulatory Requirements.

(1) The external condition of the tank shall include a visual inspection of the tank's exterior surfaces. Evidence of leaks; corrosion; paint coatings, and appurtenances shall be repaired. Shell distortions; signs of settlement; and condition of the foundation insulation systems shall be documented for follow-up action by an authorized inspector.

(2)

(i) Inspect for evidence of excessive internal corrosion and condition of all welding joints.

~~(ii) Simple coating breakdown: Inspect any visible rust spots or paint bubbling on coating. Carefully inspect to assess if the defect is shallow or deep. If deep corrosion defect is suspected refer to AOM who will advise on further inspection to be performed when tank is emptied. If shallow corrosion defect is suspected, wire brush area to clear away loose paint and corrosion material. If pit depth is < 25%, record location of defect, spot prime and recoat to EM painting spec. If pit depth is >25%, refer to AOM who will advise on additional actions.~~

~~(iii) Blind corrosion / corrosion under insulation: Identify areas where blind corrosion could occur. Then look for tell-tail signs of corrosion actually occurring. For areas of concern, documented with photographic record and inform AOM~~

(ii) Simple coating breakdown: Inspect any visible rust spots or paint bubbling on coating. Carefully inspect to assess if the defect is shallow or deep. If deep corrosion defect is suspected refer to AOM who will advise on further inspection to be performed when tank is emptied. If shallow corrosion defect is suspected, wire brush area to clear away loose paint and corrosion material. If pit depth is < 25%, record location of defect, spot prime and recoat to EM painting spec. If pit depth is >25%, refer to AOM who will advise on additional actions.

(iii) Blind corrosion / corrosion under insulation: Identify areas where blind corrosion could occur. Then look for tell-tail signs of corrosion actually occurring. For areas of concern, documented with photographic record and inform AOM

(iv) Identify and evaluate any tank bottom settlement, evidence of deformation or damage.

The purpose of this form is to allow the Inspection & Maintenance plans for an individual line to be documented. Testing intervals mentioned in this document are the minimums derived from the AGD-S-M100 standard. More frequent intervals may be appropriate depending on Risk Assessment results.

INSPECTION & MAINTENANCE OF PIPES

1. Line Information

Pipe ID	
Installation Date	
Age of Pipe	
Product normally carried	
Outside Diameter	
Length	
Initial wall thickness	
External Coating*	
Cathodic Protection	
Dead Legs?	
Buried Flanges?*	

**Note: If line does not have external coating then it must re-routed above ground or exposed and coated. If the line has buried flanges then it must be re-routed above ground or modified to eliminate flanges.*

2. Annual Endorsement (Airport Manager)

Name	Signature	Date

A. VISUAL INSPECTION RECORDS

Date: _____ Site: _____
Contractor: _____ Pipe ID: _____

Survey the route of the underground pipeline, looking for issues and indications of leakage.
Visually inspect the line for signs of leakage during the pressure test, while the system is under pressure.
As this is a due diligence requirement, test should be carried out by an experienced operator or a certified contractor.

Check Items	Comments	Signature
ABOVE GROUND PIPEWORK		
Check no visible leaks at flanges etc ¹		
Check all bolts, studs & nuts in place and tight ²		
Check pipe supports are sound ³		
Check for corrosion at pipe supports		
Check pipeline markers legible		
Check vent pipes are clear		
Check all valves operate fully		
Grease all gate valve stems		
Line Strainers have been checked		
Check all camlocks have dust caps		
Check all caps have washers		
Check for spot rusting on pipework		
General paint condition sound		
Touch-up painting carried out		
Estimated repainting date		
Valves colour coded as per AIP-CP5		
PRV isolation valves wired open		
Line pitting at the bottom ⁴		
UNDERGROUND LINES		
No evidence of leaks along route		
Soft / Wet spots on the ground		
Discoloration of the soil		
Change in the surface contour of the ground / softening of paving asphalt		
Condition of the pipe at the soil/air interface at the into-ground point		
Signs of leakage from above-grade welds, flanges, valves (pressure test)		
Pipeline markers in place		
Entry / Exit point in good condition		
Major Mechanical Inspection in date		
Comments & Details of Significant Findings: _____		

Notes

1. Ensure that joints are vapour and liquid tight. Check double gate valves for leakage by inspecting the drain between the valves. Any product collected there after depressurising and draining the pipe indicates valve leakage.
2. Maintain all connections involving studs, bolts and nuts with a full set of bolts/nuts of proper diameter and length which protrude 2 for full threads from the nut.
3. Check that pipe supports are in sound condition. If they have settled or become dislodged, repair or replace them.
4. If a line is found to be pitting just on the bottom, which often happens, it has been the practice to rotate the line 90° at timely intervals. These conditions should be carefully watched and recorded.

Based on the work undertaken line IS / IS NOT (circle) fit to be returned to aviation service.
Based on the work undertaken the estimated date for next Visual Inspection:

Technician/Contractor: _____ Date: _____
Name Signature

ExxonMobil _____ Date: _____
Representative: Name Signature

B. PRESSURE TEST RECORDS (p.1/3)

Date: _____ Site: _____
Contractor: _____ Pipe ID: _____

Underground pipelines (within facility boundaries) shall be tested in accordance with AGD-P-Z824. As this is a due diligence requirement, test should be carried out by an experienced pressure tester or a certified contractor. Test shall be performed with pipe completely filled with liquid (hydrostatic test). Test using a gas (Pneumatic test) are not permitted

The condition of the pipe at the soil/air interface at the into-ground point shall be inspected at the same frequency as the pressure test. Visually inspect all above-grade welds, flanges, valves, etc. for signs of leakage while the system is under pressure. Record the findings in section A.

Preparation for testing:

Step	Description	Yes/No	Signature
1.	Vents available at all high points	Y/N	
2.	Work permit in place	Y/N	
3.	Visual inspection complete	Y/N	
4.	Line volume in test section _____ litres Quantity to pressurise _____ litres Pressurising medium _____		
5.	Isolation in place	Y/N	
6.	Hazard zone around aboveground sections inspected, controlled, and safe.	Y/N	
7.	Equipment in place: Pressure Gauge (_____ Pa increment, _____ Pa rating) (_____ Gauge #, _____ last tested) Hand pump and valve assembly (for limited spaces a blind flange with side tapping for pump assembly may be inserted in line) Air bleed equipment at high point Continuous recording pressure measurement device Test medium temperature sensor (refer GP for type) - both ends of test section, if practical. Continuous recording temperature measurement device (where appropriate - can be combined with pressure measurement device) Ambient temperature measurement device Buckets with static clips for product collection For short lengths of line, periodic recording of medium pressure and temperature may be acceptable with engineering advice.	Y/N Y/N Y/N Y/N Y/N Y/N Y/N	
8.	Precautions in place to ensure line does not overpressure due to thermal effects during the test period	Y/N	

B. PRESSURE TEST RECORDS (p.2/3)

Test Process:

Note: MOP stands for the maximum operating pressure limit of a pipeline segment established through pressure testing, maximum historical operating pressure, or equipment operating pressure limit(s).

Care should be taken to ensure the test does not overpressure the system. Test pressure shall never exceed the maximum pressure to which the piping can be subjected within the strength limits of the piping material. Also, equipment that may be unable to withstand test pressure shall be isolated from the test either by blanking or removal from the system during the test procedure.

Leak Test					
	Pressure Change	Time	Line Pressure (kPa)	Medium temperature (deg C.)	Ambient temperature
0min.	(1)(2)(3)				
5min.	(1)				
10 min.	(1)				
20 min.					
30 min.					
45 min.					
1 hr.	(1)(3)				
1 hr. 30 min.					
2 hr.	(2)				
3 hr.					
4 hr.					
5 hr.					
6 hr.					
7 hr.					
8 hr.	(3)				

Note: Any pressure variations should be calibrated against temperature variations to show that line is stable.

(1) Pressure levels for every pipes except hydrant pipes:

- At the beginning: pressurize to MOP = _____.
- At t=5min.: increase pressure to 1.2xMOP= _____.
- At t=10min.: increase pressure to 1.5xMOP= _____.
- At t=1hr.: end the test

(2) Pressure level for hydrant pipes with no leak detection system, monthly test (ensure that no fuellings are in progress):

- At the beginning, pressurize to Normal Operating Pressure = _____.
- At t=2hr.: end the test.

Pressure levels for hydrant pipes with no leak detection system, annual test:

- With no history, pressurize to MOP= _____ for 8hr.
- If test results confirming the absence of leaks can be established positively, pressurize to MOP= _____ for 1hr.
- If test results suggest the possibility of a leak, pressurize to 110%xMAOP= _____ for 8hr. or if MAOP is not known, pressurize to 125%xMOP= _____ for 8hr. (MAOP stands for Maximum Allowable Operating Pressure)

B. PRESSURE TEST RECORDS (p.3/3)

Comments & Details of Significant Findings:

Based on the work undertaken line IS / IS NOT (circle) fit to be returned to aviation service.

Based on the work undertaken the estimated date for next Pressure Test:

Technician/
Contractor:

Name

Signature

 Date:

ExxonMobil
Representative:

Name

Signature

 Date:

C. MECHANICAL INSPECTION AND REPAIR RECORDS

Date: _____ Site: _____

Contractor: _____ Pipe ID: _____

NDE Method: ☐ Excavation with Ultra Sonic thickness test
☐ Intelligent pigging
☐ Guided waive
☐ DCVG / ECDA
☐ Other: _____ check all that apply

Underground pipelines (within facility boundaries) shall be thickness tested in accordance with AGD-S-M100. As this is a due diligence requirement, test should be carried out by a certified contractor.

Thickness Specifications

	Specification	Value	Signature
1.	Initial pipe thickness, $t_{initial}$, mm or in		
2.	Minimum measured pipe thickness from current test, t_{actual} , mm or in		
3.	Minimum required pipe thickness, $t_{required}$, mm or in		
4.	Corrosion Rate Determined from Equation 2, loss in mm/year or in/year		
5.	Remaining Life for Pipe Determined from Equation 1, years		
<p>Referenced equations:</p> <p>Remaining Life (y) = $\frac{t_{actual} - t_{required}}{\text{Corrosion rate [inches or mm per year]}}$ [1]</p> <p>Corrosion rate (mm/y or in/y) = $\frac{t_{initial} - t_{actual}}{\text{time in years between } t_{initial} \text{ and } t_{actual}}$ [2]</p>			

The NDE report and/or repair documentation should be available, key findings to be summarised below.

Comments & Details of Significant Findings: _____

Summary of NDT Results.

Summary of Mechanical Repairs.

Summary of Coating Repairs

Based on the work undertaken line IS / IS NOT (circle) fit to be returned to aviation service.

Based on the work undertaken the estimated date for next Mechanical Inspection

Date of next Mechanical Inspection shall not exceed 10years from current activity

Technician/ Contractor: _____ Date: _____

Name Signature

ExxonMobil Representative: _____ Date: _____

Name Signature

D. CATHODIC PROTECTION SYSTEM CHECK RECORDS

Date: _____ Site: _____

Contractor: _____ Pipe ID: _____

Type of CP: ☐ Impressed current ☐ Sacrificial anode

Cathodic protection systems shall be monitored as per the AGD-P-Z822 procedure by an experienced operator or a certified contractor. In addition, a system check shall also be carried out by an inspection specialist, who will issue an inspection report. As this is a due diligence requirement, test should be carried out by a certified contractor.

Enter the information required or a notation of "Yes", "No" or "OK" shall be entered into the following table, ticks are not acceptable.

General		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Date													
Technicians Name													
INSULATING FLANGES													
Condition of flanges													
Condition of cables and connections													
Condition of pipe coating													
Condition of ground bed cable													
IMPRESSED CURRENT													
Impressed Current reading													
Condition of ventilating screens													
Oil level and cleanliness of oil immersed rectifier units													
Condition of electrical protective devices													
Test Station:		SACRIFICIAL ANODE											
1	Anode output, Ammeter readings (40 to 50 mA)												
	Pipe to soil potential read. (-0.85 V to -1.5 V)												
	Voltage shift test reading (-0.50 V to -0.65 V)												
2	Anode output, Ammeter readings (40 to 50 mA)												
	Pipe to soil potential read. (-0.85 V to -1.5 V)												
	Voltage shift test reading (-0.50 V to -0.65 V)												
3	Anode output, Ammeter readings (40 to 50 mA)												
	Pipe to soil potential read. (-0.85 V to -1.5 V)												
	Voltage shift test reading (-0.50 V to -0.65 V)												
Comments & Details of Significant Findings: _____													

Inspection, Main findings: _____ Date: _____

Based on the work undertaken the estimated date for next inspection:

Based on the work undertaken, the CP system IS / IS NOT (circle) fit to be returned to aviation service.

Technician/
Contractor: _____ Date: _____

Name _____ Signature _____

ExxonMobil
Representative: _____ Date: _____

Name _____ Signature _____

E. LEAK DETECTION SYSTEM TESTING RECORDS

Date: _____
Contractor: _____
Device ID: _____

Site: _____
Pipe ID: _____



Note: A Leak Detection System is deemed to be a Critical Safety Device

The Leak Detection System shall be checked annually for proper operation, as per manufacturer's recommendations.

As this is a due diligence requirement, test should be carried out by an experienced operator or a certified contractor.

Comments & Details of Significant Findings: _____

Based on the work undertaken, the Leak Detection system IS / IS NOT (circle) fit to be returned to aviation service.

Based on the work undertaken the estimated date for next Inspection:

Technician/
Contractor:

Name

Signature

Date: _____

ExxonMobil
Representative:

Name

Signature

Date: _____

PRELIMINARY INFORMATION	
Subject	The procedure for visual inspection of storage tanks.
Objective	Define the principal steps required to carry out visual inspections of storage tanks to ensure all issues are identified, enable maintenance planning and ensure all product quality and environmental requirements are met.
Key Issues	Visual inspection covers both internal and external areas of the storage tank. Tank entry is not required and internal inspection will be from tank top. Check lists to be used.
Prerequisite Skills	Personnel involved in this procedure should be familiar with maintenance and inspection of storage tanks.
Procedure Sections	<ol style="list-style-type: none"> 1. Equipment & Conditions : <ul style="list-style-type: none"> - Testing Equipment - Safety Equipment and Conditions 2. Procedure: <ul style="list-style-type: none"> I: Inspection of bund area II: Tank Exterior. III: Ladders, Stairways and Platforms. IV: Tank Top Checks V: Valves, pipework and sample cones VI: Visual Internal Inspection from Tank Top Hatch VII: Tank Cleanliness Assessments VIII: Fire Protection. 3. Post Completion of activity <ul style="list-style-type: none"> I: Documentation II: Records

1. Equipment & Conditions

Testing Equipment	As this procedure primarily covers visual and standard checks no specialist testing equipment is required.
Safety Equipment and Conditions	The task shall not be carried out under conditions which would make it unsafe. Refer to the JSA for more information on unsafe conditions.


2. PROCEDURE

Step	Procedure	Explanations
Section I: Inspect bunded area		
1	Check bund to ensure area is free of: <ul style="list-style-type: none"> ➤ Loose combustible material. ➤ Drums or barrels. ➤ Tall grass or weeds. 	Can cause a fire hazard, any items identified must be removed without delay.
2	Ensure base of tank is free of dirt build up.	Dirt build up could trap moisture and cause corrosion at the bottom to shell joint..
3	Where the tank sits on earth, check that there is no erosion under the tank shoulder.	Voids can cause dangerous stress on floor and shell plates. Replace any displaced earth from underneath the edge of the tank, then spray and tamp it with asphalt product.
4	Check condition of bund walls to ensure they are: <ul style="list-style-type: none"> ➤ In good repair ➤ At design height. ➤ Impervious and have not been pierced by pipes or cables. 	Bunds are designed to ensure retention of any spillage, placing pipes or cables through the bund wall will compromise the bund, lowering the design height will reduce the bunds capacity. Earth bunds can erode with wind and rain and need extra care when inspecting so repairs can be scheduled.
Section II: Tank Exterior		
1	Ensure tanks are properly painted and clearly identified with tank number, capacity, name of product contained, status placards. Etc.	<ul style="list-style-type: none"> ➤ Storage tanks should have a unique identification number, the number is assigned to the tank from new and should not be changed. ➤ A system to indicate the Status of the tank shall be used. This can be achieved by either; placarding, Receipt / Settling / In Service or In use. Alternatively, an industry recognised plant control system, with software interlocks to ensure that the valves remain closed until correct status has been defined, can be used. ➤ If the tank has ever contained leaded product then the appropriate warning signs must be in place and legible.

2	Check condition of tank for external corrosion, especially in salt water or corrosive environments.	Signs of pitting may indicate a leak is imminent. If old riveted tanks are used, check for leakage at the lap joints. Repair all leaks immediately.
3	Ensure tops of tanks are liquid and vapour tight, with the exception of designated openings.	Water and other contaminants must not be allowed to enter the tank as this could result in off spec product and micro biological growth within the tank. Increased levels of water in sump drains could be an indicator of roof leakage in vertical tanks or shell leakage in underground tanks.
4	Check tank leak detection / containment systems for signs of leaks, including under-tank membrane collection points.	Immediately investigate and put in place plan to rectify / monitor situation. Review tank oil loss records.


Section III: Ladders, Stairways and Platforms

Tank ladders, stairs, walkways, platforms and handrails shall be examined in line with approved operating unit inspection and maintenance programmes for corroded, loose or broken parts, use form AGD-F-M002.
Ensure all local regulations are observed.

1	Check for corrosion and tightness, all anchor / fixing bolts and nuts on walkways, steps, ladders and platforms.	Visual inspection is normally sufficient to determine condition, where doubt exists a sideways tap on the nut with a hammer may reveal complete corrosion of the bolt below the plate. Loose / faulty nuts and bolts must be tightened or replaced without delay.
2	Check welded joints for signs of corrosion on: <ul style="list-style-type: none"> ➤ Supports and steps on tank access stairways/ladders. ➤ Handrails on steps across pipelines and bund access walkways. ➤ Platforms. 	 <p>Staining of tank paintwork will indicate that there is some degree of corrosion. Regular inspections will help identify early stages of corrosion so remedial action can be programmed.</p>
3	Check condition of paintwork.	Chipped or cracked paint will allow water and corrosive elements access to the underlying metal surfaces. Note any areas in need of repair. Remove any grease, snow or ice.
4	Check for bent or damaged rungs or treads or treads worn smooth.	Damaged and worn components that constitute a safety hazard, should be repaired or replaced immediately.

Section IV: Tank top Checks		
1	For Tanks with ATG, Dip tank, record and compare measurement with ATG reading.	Physical dip required as comparison against ATG. Refer to HCP requirements. Where required have the ATG adjusted by a competent service technician.
2	Check tank reference height is marked near the gauge hatch.	Tank reference height is used to determine the degree of tank shell distortion.
3	For Tanks with ATT, take temperature, record and compare with ATT reading.	Take temperature readings at required points to enable check of accuracy of ATT. Refer to HCP requirements. Where required have the ATG adjusted by a competent service technician.
4	Check manholes and gauge hatches for security, tightness and any missing nuts and bolts.	When not being used, all hatches and access point must be tightly closed to ensure no water or contaminant ingress.
5	Check movement of floating suction and security of jiggle wire, where fitted.	The floating suction should move freely. A slight movement of the jiggle wire should allow a bobbing motion to be felt. Take care not to break the suction as this will introduce air into the system. Check jiggle wire to ensure it is positively bonded to the tank shell.
6	Check condition, security and design of tank top handrails.	Tank top handrails should also be fitted with intermediate rails and kick plates.
7	Check condition of Tank top anti-slip surfaces and walkways..	Tank top access routes to operational equipment should be provided with anti-slip surfaces or equivalent measures, e.g. walkways

Section V: Valves, Pipework and Flush Tanks

1	<p>Check all valves for:</p> <ul style="list-style-type: none"> ➤ Signs of leaks at the stem gland, bonnet to body flange and connecting flanges. ➤ Security of nuts and bolts and no excessive corrosion. ➤ Valve can be opened and closed without excessive effort. ➤ Rising stem valves are lubricated. ➤ Means in place to lock the valve in the correct position for the current tank operation. ➤ Valves not of the rising stem type have a means of indicating the valve status, open or closed. ➤ All sample valves should be clean and fitted with camlock caps. ➤ Where required valves are colour coded. 	 <p>As many valves are connected directly to the tank shell and in constant contact with the product in the tank any leak at the valve or flange will continue until rectified or the tank level falls below the valve.</p>
2	<p>Check all pipework and flanges for:</p> <ul style="list-style-type: none"> ➤ Signs of leaks at flange connections. ➤ Security of nuts and bolts and no excessive corrosion. ➤ Walkways are in place to cross pipes that cross regularly used routes. ➤ Condition of paint. ➤ Condition of pipe support / corrosion between support & pipe. ➤ Directional and grade markings. 	<p>Replace any corroded bolts and nuts with correct grade and type.</p> <p>Paint is designed to protect the surface of the pipe, where the paint surface is damaged it must be repaired without delay.</p>
3	<p>Check the flush tank to ensure it is fit for purpose and:</p> <ul style="list-style-type: none"> ➤ In good condition. ➤ The tank lid prevents the ingress of water under all conditions. ➤ The inside of the tank is clean and dry. ➤ Sample valves should be self-closing and free of leaks and defects. 	<p>As the flush tank is used to check the quality of the product in the storage tank, it is critical that the tank is clean and free of any contaminants and water before use.</p>

Section VI: Internal Visual Inspection From Tank Top Hatch.

For fixed roof tanks without internal floating roof, a top hatch inspection when product is at a low level can reveal if there is significant build-up of contaminants etc.

Review JSA and ensure all safety precautions are in place.

1	With the top hatch open, use an intrinsically safe light or a mirror to reflect light into the tank and check the condition of the tank wall and epoxy coatings.	Note any areas where lining has blistered or is flaking.
2	Shine a light on the bottom of the tank and note any obvious signs of contamination.	Should significant signs of contamination be found, the tank will need to be programmed out of service for tank entry and cleaning. Follow the EMA Tank Cleaning Procedure.

Section VII: Tank Cleanliness Assessments

The principle of Tank Cleanliness Assessments is to clean on the basis of condition rather than on fixed time periods as was the previous practice.

This principle is subject to industry allowable maximums, local regulatory requirements and opportunities to clean tank in conjunction with other work.

Refer to EM JIG 2 section 6.2 for Tank inspection and cleaning requirement

Refer to AGD-P-Z812 for Fixed Storage Tank Entry and Cleaning Approval Procedure.

Section VIII: Fire Protection.

1	<p>Foam Systems:</p> <ul style="list-style-type: none">➤ Check foam containers and fittings.➤ For surface foam systems check the integrity of the frangible glass in the foam pourer.➤ For sub surface foam systems, the tank side bleed valve should be opened to ensure the bursting disc is tight and that the tank side check valve is tight.	<p>All foam concentrate past its use by date must be replaced.</p> <p>Ensure valves move freely.</p> <p>All checks are visual only. Do not activate foam system as this will contaminate the product in the tank.</p>
2	<p>Operate the cooling water system.</p>	<p>Physically activate the cooling water system to check that it is functioning as designed.</p> <p>As the cooling water works on the outside of the tank, there is no risk of contaminating the stored product.</p>

3. POST COMPLETION OF ACTIVITY

Step	Procedure	Explanations
Section I: documentation		
2	<p>Complete and File Inspection Forms, AGD-F-M003 and AGD-F-M002</p>	<p>Ensure all required areas of the form have been completed and identified issues highlighted to management for action.</p>
Section II: Records		
1	<p>Update and file:</p> <ul style="list-style-type: none">➤ Tank inspection records.➤ ATG calibration check➤ ATT calibration check	<p>Accurate records provide traceability and evidence that all required processes have been carried out.</p>
2	<p>Review :</p> <ul style="list-style-type: none">➤ Tank cleaning / inspection dates➤ Date of last major mechanical inspection➤ High level alarm testing.➤ Date of last tank calibration	<p>Ensure all dates are current, if not, programme relevant activities.</p>

GLOBAL DOCUMENT INFORMATION		
Development Team	Antonis Christodoulakis, Brian Herbert, Guillaume Viallet	
Date of Development	September 9, 2013	
TABLE OF CHANGES		
REVISION/DATE	SECTION(s)	DESCRIPTION OF CHANGES
Rev.01 – Sept 9, 2013	None	Initial Publish
REFERENCES		
Standards	EM JIG2	
Referred Procedures	AGD-P-Z812 Fixed Storage Tank Entry and Cleaning Approval	
Forms	AGD-F-M002 Fixed Tank Maintenance, Section 1 AGD-F-M003 Fixed Tank Inspection & Cleaning & Maintenance, Section 3	
JSA	Local JSAs	
RETENTION MANAGEMENT GUIDELINES (RMG)		
Retention Code	TEC5000	Current version on airport. Original in head office + 10Y

Before performing this task, the operator should have carefully reviewed the respective JSA and any particular conditions that may apply onsite. If local procedures or regulations are more stringent they must be complied with. Although this document was developed for activities performed by EMA employees, it can be used as an example by contractors to develop their own Procedure at their responsibility and by site personnel to review contractor's Procedures.



DAILY COATING INSPECTION REPORT

Date: / / M T W Th F S Su						Pg. Of	
Project #:						COPY To:	
Inspector:						<input type="checkbox"/> QC Mgr <input type="checkbox"/> Owner <input type="checkbox"/> Contr <input type="checkbox"/> _____	
Project/Client:						Attachments:	
Location:						<input type="checkbox"/> DFT Sheet <input type="checkbox"/> NCR/CAR <input type="checkbox"/> _____	
Description:							
Requirements:							
Contractor:						Revision #	
Spec #							
Description of Areas & Work Performed						Hold Point Inspections Performed	
						<input type="checkbox"/> 1 Pre Surface Prep/Condition & Cleanliness	
						<input type="checkbox"/> 2 Surface Preparation Monitoring	
						<input type="checkbox"/> 3 Post Surface Preparation/Cleanliness & Profile	
						<input type="checkbox"/> 4 Pre Application Prep/Surface Cleanliness	
						<input type="checkbox"/> 5 Application Monitoring/Wet Film Thickness (WFT)	
						<input type="checkbox"/> 6 Post Application/Application Defects	
						<input type="checkbox"/> 7 Post Cure/Dry Film Thickness (DFT)	
						<input type="checkbox"/> 8 Nonconformance/Corrective Actions Follow-up	
						<input type="checkbox"/> 9 Final Inspection	
Surface Conditions						Ambient Conditions	
<input type="checkbox"/> New <input type="checkbox"/> Maint <input type="checkbox"/> Primer/Paint <input type="checkbox"/> Age/Dry/Cure _____ <input type="checkbox"/> Steel <input type="checkbox"/> Galvanize <input type="checkbox"/> Concrete <input type="checkbox"/> Other _____ <input type="checkbox"/> Hazard _____ <input type="checkbox"/> Sample Report # _____ <input type="checkbox"/> Degree of contamination: _____ Test: <input type="checkbox"/> Cl _____ $\mu\text{g}/\text{cm}^2$ / ppm <input type="checkbox"/> Fe _____ ppm <input type="checkbox"/> pH _____ <input type="checkbox"/> Degree of Corrosion: _____ <input type="checkbox"/> Scale <input type="checkbox"/> Pitting/Holes <input type="checkbox"/> Crevices <input type="checkbox"/> Sharp Edges <input type="checkbox"/> Weld _____ <input type="checkbox"/> Moisture <input type="checkbox"/> Oils <input type="checkbox"/> Other _____ <input type="checkbox"/> Painted Surface Condition: _____ Dry to: <input type="checkbox"/> Touch <input type="checkbox"/> Handle <input type="checkbox"/> Recoat <input type="checkbox"/> Dry/Over Spray <input type="checkbox"/> Runs/Sags <input type="checkbox"/> Pinholes <input type="checkbox"/> Holidays <input type="checkbox"/> Abrasion <input type="checkbox"/> Fall Out <input type="checkbox"/> Other _____						Time (Indicate AM or PM) : : : : Dry Bulb Temp ⁰ (C/F) 0 0 0 0 Wet Bulb Temp ⁰ (C/F) 0 0 0 0 % Relative Humidity % % % % Surface Temp ⁰ (C/F) Min/Max / 0 / 0 / 0 / 0 Dew Point Temp ⁰ (C/F) 0 0 0 0 Wind Direction/Speed Weather Conditions:	
Surface Preparation						Application	
Start Time: Finish Time: Est Sq/ft: <input type="checkbox"/> Solvent Clean <input type="checkbox"/> Hand Tool <input type="checkbox"/> Power Tool <input type="checkbox"/> HP Wash PSI _____ <input type="checkbox"/> Other _____ <input type="checkbox"/> Abrasive Blast <input type="checkbox"/> Abrasive Type _____ <input type="checkbox"/> Sample <input type="checkbox"/> Blast Hose Size _____ <input type="checkbox"/> Nozzle Size / PSI _____ <input type="checkbox"/> Air Supply CFM _____ <input type="checkbox"/> Air Supply Cleanliness <input type="checkbox"/> Water/Oil Trap Check <input type="checkbox"/> Equipment Condition Check						Start Time : Finish Time : Est. Sq/ft. <input type="checkbox"/> Primer <input type="checkbox"/> Intermediate <input type="checkbox"/> Topcoat <input type="checkbox"/> Touch-up Generic Type: Qty Mixed: Manuf.: Mix Ratio: Prod Name: Mix Method: Prod #: Strain/Screen: Color: Material Temp: 0F Kit Size/Cond.: Sweat-in Time: Min/Hrs Shelf Life: Pot Life: Min/Hrs	
Surface Cleanliness & Profile Measurement						Batch #'s	
<input type="checkbox"/> Job Specification <input type="checkbox"/> SSPC/NACE - SP- _____ <input type="checkbox"/> SSPC/NACE Spec / Visual Stds <input type="checkbox"/> _____ Profile Check: _____ <input type="checkbox"/> Disc <input type="checkbox"/> Tape <input type="checkbox"/> Gauge <input type="checkbox"/> Specified _____ mils avg. / Achieved _____ mils <input type="checkbox"/> Surface effect on DFT Gauge/BMR _____ mils						Reducer: <input type="checkbox"/> Airless/Conv. Spray <input type="checkbox"/> Brush <input type="checkbox"/> Roller <input type="checkbox"/> Other _____ Pump Pot Hose Dia. Air Check Ratio/Size Hose Lng. SEP/Trap GPM/CFM Spray Gun Filter PSI Tip Sz. Agitator	
Dry Film Thickness							
Gage Type / Model	Gage Serial #	Gage Calib. Verified	Spec Avg. DFT	Total Avg DFT	DFT Last Coat	DFT This Coat	
						Inspector's Signature Date:	

WELDING & INSPECTION RECORD FORM



Original : Project Manager

Copy : Site Supervisor

PROJECT NAME	
PROJECT LOCATION	
PROJECT ENGINEER	
INSPECTION STANDARD	
ACCEPTANCE CRITERIA	

PROJECT ID	
QA/QC INSPECTOR	
REPORT NUMBER	
DATE	
CONTRACTOR	

Drawing Group:
Drawing Number:

NOTE: Detail of welding shall be provided in the specific type inspection reports.

Weld I.D	Welder ID	Joint Dimensions	WPS #	Date Welded	Visual		RT			UT			MT			PT			HT			Material Type	Heat #	QA/QC Initial
					A	R	Report	A	R	Report	A	R	Report	A	R	Report	A	R	Report	A	R			

Legend: A- Accept; R-Reject; RT- Radiography Test; UT- Ultrasound Test; MT- Magentic Particle Test; PT- Penetrant Test; HT- Hydro Testing																							
Vital Energy's QA/QC Inspector												Contractor's QA/QC Inspector											
NAME																							
SIGNATURE																							
DATE																							

SECTION 2.4

CONTRACTING

- Appendix W Contract Agreement
- Appendix X Particular Conditions of Contract
- Appendix Y Tender and Price Submission Forms

Appendix W

Contract Agreement

LICENCE

for

Licensee:

Date:

To read the full licence agreement, simply click within the red box above and scroll through with your cursor

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Australian Standard™

**General conditions of contract for the
provision of asset maintenance and
services
(Principal's version)**



This Australian Standard was prepared by Committee OB-012, Service Contracts. It was approved on behalf of the Council of Standards Australia on 18 June 2003. This Standard was published on 22 August 2003.

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Australian Building Services Association
Australian Local Government Association
AUSTROADS
Building Industry Specialists Contractors Organization of NSW Inc.
Civil Contractors Federation
Construction Industry Engineering Services Group Ltd
Hire and Rental Association of New Zealand
Institution of Engineers Australia
Law Council of Australia
Macquarie University
Masters Builders Australia Inc.
Snowy Mountains Hydro-Electric Authority

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This Standard was issued in draft form for comment as DR 99333.

Australian Standard™

General conditions of contract for the provision of asset maintenance and services (Principal's version)

First published as AS 4920—2003.
Reissued incorporating Amendment No. 1 (March 2005).

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Preface

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee, OB-012, Service Contracts.

This Standard incorporates Amendment No. 1 (March 2005). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

AS 4920—2003 *General conditions of contract for the provision of asset maintenance and services (Principal's version)* is a part of the suite of conditions of contract based on AS 4000—1997 *General conditions of contract*.

These conditions of contract are intended to be used where services are generally performed on the premises of the Principal.

These conditions of contract are published in three versions. Where the Principal uses a Principal's representative and a Superintendent is not engaged, use this Standard AS 4920—2003. Where the Contract is administered through a Superintendent, use Standard AS 4919—2003. If a short version of the conditions of contract is required, use AS 4921—2003.

The objective of AS 4920—2003 *General conditions of contract for the provision of asset maintenance and services (Principal's version)* is to allocate the obligations and responsibilities between parties making formal agreements covering provision of periodical services between Principals (including government authorities and agencies) and Contractors.

These conditions of contract are not suitable for:

- a) construction projects;
- b) projects of a non-service nature;
- c) professional consulting services;
- d) records or systems management; or
- e) supply of equipment.

Subclauses 6.5 and 25.2, prefixed by *, are optional, and may be omitted without making consequential amendments but such omission should be clearly shown on the face of the document by striking out these subclauses or indicating clearly in Annexure Part C or elsewhere that they are not to apply. See paragraph i) of clause 1 on page 3 for the effect of stating changes in Annexure Part C.

Warnings

- 1) **Users of this Australian Standard are warned that clause 12 (Damage to persons and property other than the Services) does not limit the liability of parties for special, indirect or consequential losses, notwithstanding any limitations or exclusions permitted under insurance clauses 14 (Insurance of the liability to reinstate) and 15 (Public liability insurance).**

However, clause 13 (General limitations of liability) allows the parties to agree to limit the liability of parties in certain respects.

Parties wishing to limit their liability should seek legal and insurance advice before entering a Contract under this Standard.

- 2) Legislation has come into force in some jurisdictions dealing with security of payments. Parties intending to use this Standard should seek expert advice as to their rights and obligations under such legislation.

Contents

Clause	Title	Page
1	Interpretation and construction of Contract	1
2	Performance and payment	4
3	Security	4
4	Evidence of Contract	5
5	Service of notices	5
6	Contract documents	5
7	Assignment and subcontracting	7
8	Intellectual property rights	7
9	Legislative requirements	8
10	Protection of people and property	8
11	Care of the Services and reinstatement of damage	9
12	Damage to persons and property other than the Services	10
13	General limitations of liability	11
14	Insurance of the liability to reinstate	12
15	Public liability insurance	12
16	Insurance of employees	13
17	Inspection and provisions of insurance policies	13
18	Principal	14
19	Contractor's representative	15
20	Contractor's employees and subcontractors	15
21	Access to the premises	16
22	Latent conditions	16
23	Plant, equipment and materials	17
24	Repairs	17
25	Quality	18
26	Working hours	19
27	Programming	19

Clause	Title	Page
28	Suspension	20
29	Time and progress	20
30	Warranties and defects liability	22
31	Variations	22
32	Payment	23
33	Payment of workers and subcontractors	25
34	Default or insolvency	25
35	Termination by frustration	29
36	Notification of claims	30
37	Dispute resolution	30
38	Waiver of conditions	31
	Annexure Part A	33
	Annexure Part B	39
	Annexure Part C	40
	Index	41

1 Interpretation and construction of Contract

In the *Contract*, except where the context otherwise requires:

Item	means an <i>Item</i> in Annexure Part A;
compensable cause	means: <ol style="list-style-type: none"> any act, default or omission of the <i>Principal</i> or its consultants, agents or other contractors (not being employed by the <i>Contractor</i>); or those listed in <i>Item 29</i>;
Contract	has the meaning in clause 4;
contract sum	means: <ol style="list-style-type: none"> where the <i>Principal</i> accepted a lump sum, the lump sum; where the <i>Principal</i> accepted rates, the sum of the products ascertained by multiplying the rates and the corresponding quantities in the <i>schedule of rates</i>; or where the <i>Principal</i> accepted a lump sum and rates, the aggregate of the sums referred to in paragraphs (a) and (b), but excluding any additions or deductions which may be required to be made under the <i>Contract</i> ;
Contractor	means the person bound to perform and complete <i>the Services</i> ;
date of acceptance of tender	means the date which appears on the written notice of acceptance of the tender;
defects	has the meaning in subclause 30.2 and includes omissions;
defects liability period	has the meaning in subclause 30.2;
direction	includes agreement, approval, assessment, authorisation, certificate, decision, demand, determination, explanation, instruction, notice, order, permission, rejection, request or requirement;
dispute	has the meaning in clause 37;
EOT (from 'extension of time')	has the meaning in subclause 29.3;
excepted risk	has the meaning in subclause 11.3;
final payment claim	means the final payment claim referred to in subclause 32.3;
intellectual property right	means any patent, registered design, trademark or name, copyright or other protected right;
latent condition	has the meaning in subclause 22.1;

legislative requirement includes:

- a) Acts, Ordinances, regulations, by-laws, orders, awards and proclamations of the jurisdiction where *the Services* or the particular part thereof are being performed;
- b) certificates, licences, consents, permits, approvals and requirements of organisations having jurisdiction in connection with the performance of *the Services*; and
- c) fees and charges payable in connection with the foregoing;

performance duration means the duration stated in *Item 7* for a *single performance*;

performance period cycle means, where *the Services* are to be performed on more than one occasion during the *total performance period*, the frequency or occasions stated in *Item 8* for a *single performance*;

performance program has the meaning in clause 27;

premises means the place where *the Services* are to be performed, and includes where the context so requires, anything on the premises;

prescribed notice has the meaning in subclause 36.1;

Principal means the Principal stated in *Item 1*;

public liability policy has the meaning in clause 15;

qualifying cause of delay means:

- a) any act, default or omission of the *Principal* or its consultants, agents or other contractors (not being employed by the *Contractor*); or
- b) other than:
 - i) a breach or omission by the *Contractor*; and
 - ii) stated in *Item 25*;

schedule of rates means any schedule included in the *Contract* which, in respect of any section or item of *work* to be performed, shows the rate or respective rates of payment for the performance of that *work* and which may also include lump sums, provisional sums, other sums, quantities and prices;

security means:

- a) cash;
- b) retention moneys;
- c) bonds or inscribed stock or their equivalent issued by a national, state or territory government;
- d) interest bearing deposit in a bank carrying on business at the place stated in *Item 11(c)*;
- e) an approved unconditional undertaking (the form in Annexure Part B is approved) or an approved performance undertaking given by an approved financial institution or insurance company; or
- f) other form approved by the party having the benefit of the security;

single performance means a performance of *the Services* on one occasion;

the Services means the whole of the *work* which the *Contractor* is required to perform and complete under the *Contract* and includes *variations*, remedial *work* and all other *work* reasonably necessary for the performance of the *Contract*;

total performance period means the period of time stated in *Item 9* and as adjusted pursuant to the *Contract*;

variation has the meaning in clause 31;

work includes the provision of materials,
and like words have a similar meaning.

In the *Contract*:

- a) references to days mean calendar days and references to a person include an individual, firm or a body, corporate or unincorporate;
- b) unless otherwise stated, time for doing any act or thing under the *Contract* shall, if it ends on a Saturday, Sunday or Statutory or Public Holiday, be deemed to end on the day next following which is not a Saturday, Sunday or Statutory or Public Holiday;
- c) clause headings and subclause headings shall not form part of, nor be used in the interpretation of, the *Contract*;
- d) words in the singular include the plural and words in the plural include the singular, according to the requirements of the context. Words importing a gender include every gender;
- e) communications between the *Principal* and the *Contractor* shall be in the English language;
- f) measurements of physical quantities shall be in legal units of measurement of the jurisdiction in *Item 10*;
- g) unless otherwise provided, prices are in the currency in *Item 11(a)* and payments shall be made in that currency at the place in *Item 11(b)*;
- h) the law governing the *Contract*, its interpretation and construction, and any agreement to arbitrate, is the law of the jurisdiction in *Item 10*; and
- i) the changes in Annexure Part C shall be deemed to be part of these General Conditions.

2 Performance and payment

The *Contractor* shall perform and complete the *Services* in accordance with the *Contract* and *directions* authorised by the *Contract*.

The *Principal* shall pay the *Contractor*:

- a) for the *Services* for which the *Principal* accepted a lump sum, the lump sum; and
- b) for the *Services* for which the *Principal* accepted rates, the sum of the products ascertained by multiplying the measured quantity of each section or item of the *Services* actually performed under the *Contract* by the rate accepted by the *Principal* for the section or item,

adjusted by any additions or deductions made pursuant to the *Contract*.

3 Security

3.1 Provision

Security shall be provided in accordance with *Item* 12 or 13. All delivered *security*, other than cash or retention moneys, shall be transferred in escrow.

3.2 Recourse

Security shall be subject to recourse by a party who remains unpaid after the time for payment where at least 5 days have elapsed since that party notified the other party of intention to have recourse.

3.3 Change of security

At any time a party providing retention moneys or cash *security* may substitute another form of *security*. To the extent that another form of *security* is provided, the other party shall not deduct, and shall promptly release and return, retention moneys and cash *security*.

3.4 Release

A party's entitlement to *security* shall cease 14 days after payment of the *final payment claim*.

Upon a party's entitlement to *security* ceasing, that party shall release and return forthwith the *security* to the other party.

3.5 Trusts and interest

Except where held by a government department or agency or a municipal, public or statutory authority, any portion of *security* (and interest earned thereon) which is cash or retention moneys, shall be held in trust for the party providing them until the *Principal* or the *Contractor* is entitled to receive them.

Interest earned on *security* not required to be held in trust shall belong to the party holding that *security*.

4 Evidence of Contract

Until a formal instrument of agreement is executed by the parties, documents evidencing the parties' consensus shall constitute the *Contract*. If such *Contract* requires a formal instrument of agreement, the *Principal* shall, within 28 days of the *date of acceptance of tender*, send it in duplicate for execution by the *Contractor*. Within 14 days after receiving them, the *Contractor* shall (if they are correct) properly execute both copies and return them.

Within 14 days after receiving them, the *Principal* shall execute both copies, have them stamped as necessary and send one copy to the *Contractor*.

5 Service of notices

A notice (and other documents) shall be deemed to have been given and received:

- a) if addressed or delivered to the relevant address in the *Contract* or last communicated in writing to the person giving the notice; and
- b) on the earliest date of:
 - i) actual receipt;
 - ii) confirmation of correct transmission of fax; or
 - iii) 3 days after posting.

6 Contract documents

6.1 Discrepancies

Figured shall prevail over scaled dimensions in a discrepancy. Otherwise, if either party discovers any inconsistency, ambiguity or discrepancy in any document prepared for the purpose of performing *the Services*, that party shall give the other written notice of it. The *Principal* thereupon, and after otherwise becoming aware, shall direct the *Contractor* as to the interpretation and construction to be followed.

If compliance with any such *direction* under this subclause causes the *Contractor* to incur more or less cost than otherwise would have been incurred had the *direction* not been given, the difference shall be assessed by the *Principal* and added to or deducted from the *contract sum*.

6.2 Principal-supplied documents

The *Principal* shall supply to the *Contractor* the documents and number of copies thereof, both stated in *Item 14*.

They shall:

- a) remain the *Principal's* property and be returned to the *Principal* on written demand; and
- b) not be used, copied nor reproduced for any purpose other than performing *the Services*.

6.3 Contractor-supplied documents

The *Contractor* shall supply to the *Principal* the documents and number of copies thereof, both stated elsewhere in the *Contract*.

If the *Contractor* submits a document to the *Principal*, then except where the *Contract* otherwise provides:

- a) the *Principal* shall not be required to check that document for errors, omissions, inconsistencies, ambiguities, discrepancies or compliance with the *Contract*;
- b) notwithstanding clause 2, any *Principal's* acknowledgment or approval shall not prejudice the *Contractor's* obligations; and
- c) if the *Contract* requires the *Contractor* to obtain the *Principal's* direction about that document, the *Principal* shall give, within the time stated in *Item 15*, the appropriate *direction*, including reasons if the document is not suitable.

Copies of documents supplied by the *Contractor* shall be the *Principal's* property but shall not be used nor copied otherwise than for the use, repair, maintenance or alteration of *the Services*.

6.4 Confidential information

The parties shall ensure that there are kept confidential such documents, samples, models, patterns and other information as are supplied and clearly identified as confidential.

If required in writing by a party, the other party shall enter into a separate agreement not to disclose to anyone else any confidential matter even after final payment or earlier termination of the *Contract*.

*6.5 Media

The *Contractor* shall not disclose any information concerning *the Services* for distribution through any communications media without the *Principal's* prior written approval (which shall not be unreasonably withheld). The *Contractor* shall refer to the *Principal* any enquiries from any media concerning *the Services*.

* See Preface on page (iii)

7 Assignment and subcontracting

7.1 Assignment

Neither party shall, without the other's prior written approval (including terms) assign the *Contract* or any payment or any other right, benefit or interest thereunder.

7.2 Subcontracting generally

The *Contractor* shall not without the *Principal's* prior written approval (which shall not be unreasonably withheld):

- a) subcontract or allow a subcontractor to subcontract any *work* described in *Item 16*; or
- b) allow a subcontractor to assign a subcontract or any payment or any other right, benefit or interest thereunder.

With a request for approval, the *Contractor* shall give the *Principal* written particulars of the *work* to be subcontracted and the name and address of the proposed subcontractor. The *Contractor* shall give the *Principal* other information which the *Principal* reasonably requests, including the proposed subcontract documents without prices.

Within 14 days of the *Contractor's* request for approval, the *Principal* shall give the *Contractor* written notice of approval or of the reasons why approval is not given.

Approval may be conditional upon the subcontract including:

- a) provision that the subcontractor shall not assign nor subcontract without the *Contractor's* written consent; and
- b) provisions which may be reasonably necessary to enable the *Contractor* to fulfil the *Contractor's* obligations to the *Principal*.

7.3 Contractor's responsibility

Except where the *Contract* otherwise provides, the *Contractor* shall be liable to the *Principal* for the acts, defaults and omissions of subcontractors and employees and agents of subcontractors as if they were those of the *Contractor*.

Approval to subcontract shall not relieve the *Contractor* from any liability or obligation under the *Contract*.

8 Intellectual property rights

The *Principal* warrants that, unless otherwise provided in the *Contract*, design, materials, documents and methods of working, each specified in the *Contract* or provided or directed by the *Principal* shall not infringe any *intellectual property right*.

The *Contractor* warrants that any other design, materials, documents and methods of working, each provided by the *Contractor*, shall not infringe any *intellectual property right*.

Each party shall indemnify the other against such respective infringements.

9 Legislative requirements

9.1 Compliance

The *Contractor* shall satisfy all *legislative requirements* except those in *Item 17* or which can only be satisfied by the *Principal*.

The *Contractor*, upon finding that a *legislative requirement* is at variance with the *Contract*, shall promptly give the *Principal* written notice thereof.

9.2 Changes

If a *legislative requirement*:

- a) necessitates a change;
 - i) to the *Services*, or
 - ii) in a fee or charge or payment of a new fee or charge;
- b) comes into effect after the 14th day before the closing of tenders but could not reasonably then have been anticipated by a competent contractor; and
- c) causes the *Contractor* to incur more or less cost than otherwise would have been incurred,

the difference shall be assessed by the *Principal* and added to or deducted from the *contract sum*.

10 Protection of people and property

10.1 Protection

Insofar as compliance with the *Contract* permits, the *Contractor* shall:

- a) take measures necessary to protect people and property including complying with the *Principal's* requirements in respect thereof;
- b) avoid unnecessary interference with the passage of people and vehicles; and
- c) prevent nuisance and unreasonable noise and disturbance.

If the *Contractor* damages property, the *Contractor* shall promptly rectify the damage and pay any compensation which the law requires the *Contractor* to pay.

If the *Contractor* fails to comply with an obligation under this subclause, the *Principal*, after giving reasonable written notice to the *Contractor* and in addition to the *Principal's* other rights and remedies, may have the obligation performed by others. The cost thereby incurred shall be moneys due from the *Contractor* to the *Principal*.

10.2 Urgent protection

If urgent action is necessary to protect *the Services*, other property or people and the *Contractor* fails to take the action, in addition to any other remedies of the *Principal*, the *Principal* may take the necessary action. If the action was action which the *Contractor* should have taken at the *Contractor's* cost, the cost incurred shall be moneys due from the *Contractor* to the *Principal*.

If time permits, the *Principal* shall give the *Contractor* prior written notice of the intention to take action pursuant to this subclause.

10.3 Occupational health and safety

The *Contractor* shall comply with all reasonable *directions* in regard to the application of the *Principal's* occupational health and safety policy and procedures for the *premises*.

If compliance with any *direction* given pursuant to the preceding paragraph causes the *Contractor* to incur more or less cost than a competent contractor could reasonably have anticipated at the date of the closing of tenders, then that compliance shall be a deemed *variation*.

If the *Contractor* fails to comply with an obligation under this subclause, the *Principal*, after the *Principal* has given reasonable written notice to the *Contractor* and in addition to the *Principal's* other rights and remedies, may have the obligation performed by others. The cost thereby incurred shall be moneys due from the *Contractor* to the *Principal*.

11 Care of the Services and reinstatement of damage

11.1 Care of the Services

Except as provided in subclause 11.3, whilst performing *the Services* the *Contractor* shall be responsible for the care of *the Services*.

11.2 Reinstatement

If loss or damage, other than that caused by an *excepted risk*, occurs to *the Services* during the period of the *Contractor's* care, the *Contractor* shall, at its cost, rectify such loss or damage.

In the event of loss or damage being caused by any of the *excepted risks* (whether or not in combination with other risks), the *Contractor* shall to the extent directed by the *Principal*, rectify the loss or damage and such rectification shall be a deemed *variation*. If loss or damage is caused by a combination of *excepted risks* and other risks, the *Principal* in pricing the *variation* shall assess the proportional responsibility of the parties.

11.3 Excepted risks

The *excepted risks* causing loss or damage, for which the *Principal* is liable, are:

- a) any negligent act or omission of the *Principal* or its consultants, agents, employees or other contractors (not being employed by the *Contractor*);
- b) any risk specifically excepted elsewhere in the *Contract*;

- c) war, invasion, act of foreign enemies, hostilities (whether war be declared or not), civil war, rebellion, revolution, insurrection or military or usurped power, martial law or confiscation by order of any Government or public authority;
- d) ionising radiations or contamination by radioactivity from any nuclear fuel or from any nuclear waste from the combustion of nuclear fuel not caused by the *Contractor* or its subcontractors or either's employees or agents;
- e) use or occupation of any part of the *premises* by the *Principal* or its consultants, agents or other contractors (not being employed by the *Contractor*);
- f) damage which is the unavoidable result of the performance of *the Services* directed by the *Principal* during an emergency;
- g) the correction of anything discovered during the performance of *the Services*, not being part of *the Services* but required to be corrected due to a *legislative requirement*; and
- h) defects in the design of *the Services*, other than design provided by the *Contractor*.

12 Damage to persons and property other than the Services

12.1 Indemnity by Contractor

Insofar as this subclause applies to property, it applies to property other than *the Services*.

The *Contractor* shall indemnify the *Principal* against:

- a) loss of or damage to the *Principal*'s property; and
- b) claims in respect of personal injury or death or loss of, or damage to, any other property,

arising out of or as a consequence of the performance of *the Services*, but the indemnity shall be reduced proportionally to the extent that the act or omission of the *Principal* or its consultants, agents or other contractors (not being employed by the *Contractor*) may have contributed to the injury, death, loss or damage.

This subclause shall not apply to:

- a) claims that may be made by any person for injury, death, loss or damage resulting from the performance of *the Services* directed by the *Principal* during an emergency;
- b) the extent that the *Contractor*'s liability is limited by another provision of the *Contract*;
- c) exclude any other right of the *Principal* to be indemnified by the *Contractor*;
- d) things for the care of which the *Contractor* is responsible under subclause 11.1;
- e) damage which is the unavoidable result of the performance of *the Services* in accordance with the *Contract*;

- f) damage in respect of any part of the *premises* hidden or inaccessible, details of which have not been supplied by the *Principal* before the closing of tenders; and
- g) claims in respect of the *Principal's* right to have *the Services* performed.

12.2 Indemnity by Principal

The *Principal* shall indemnify the *Contractor* in respect of claims referred to in the second-mentioned paragraph (a) of subclause 12.1 but the indemnity shall be reduced proportionately to the extent that the act or omission of the *Contractor* or its subcontractors or either's employees or agents may have contributed to the injury, death, loss or damage.

The *Principal* shall also indemnify the *Contractor* in respect of damage referred to in paragraphs (e) and (f) of subclause 12.1 and claims referred to in paragraph (g) of subclause 12.1.

13 General limitations of liability

13.1 Limitation of liability

Subject to subclause 13.2, the liability of each party arising in connection with the subject matter of the *Contract* including a claim:

- a) in tort;
- b) under statute; or
- c) for rectification or frustration,

or like claim available under the law governing the *Contract*, is limited to the amounts stated in *Items* 18 and 19, as the case may be.

This limitation shall continue to apply notwithstanding fundamental breach, breach of a fundamental term, rescission, repudiation or termination for any reason or frustration, whether unintentional or by operation of law.

13.2 Exclusion of limitation of liability

The limitation of liability under subclause 13.1 shall not apply to:

- a) liability to pay the *contract sum* as adjusted pursuant to the *Contract*;
- b) liability to pay interest;
- c) liability to account for *security*;
- d) liability for infringement of *intellectual property rights*;
- e) liability for liquidated damages and delay damages;
- f) the extent that liability is otherwise limited by another provision of the *Contract*; and
- g) liability out of which by law the party liable cannot contract.

Amounts payable in respect of paragraphs (a) to (g) of this subclause shall not be included in the limitation of liability under subclause 13.1.

14 Insurance of the liability to reinstate

Before commencing the performance of *the Services*, the *Contractor* shall insure its liability under subclause 11.1 against loss or damage resulting from any cause until the *Contractor* ceases to be responsible for the care of *the Services*.

Without limiting the generality of the obligation to insure, such insurance shall cover the *Contractor's* liability under subclause 11.2 and things to form part of *the Services* but may exclude:

- a) the cost of making good fair wear and tear or gradual deterioration, but shall not exclude the loss or damage resulting therefrom;
- b) the cost of making good faulty design, workmanship and materials, but shall not exclude the loss or damage resulting therefrom;
- c) consequential loss of any kind, but shall not exclude loss of or damage to *the Services*;
- d) damages for delay in completing or for the failure to complete *the Services*;
- e) loss or damage resulting from ionising radiations or contamination by radioactivity from any nuclear fuel or from any nuclear waste from the combustion of nuclear fuel resulting from any cause;
- f) loss or damage resulting from the *excepted risks* referred to in paragraphs (b) and (c) of subclause 11.3.

The insurance cover shall be for an amount not less than the amount stated in *Item 20*.

Insurance shall be in the joint names of the parties, shall cover the parties and all subcontractors whenever performing *the Services* for their respective rights, interests and liabilities and, except where the *Contract* otherwise provides, shall be with an insurer and in terms both approved in writing by the *Principal* (which approvals shall not be unreasonably withheld).

The insurance shall be maintained until the *Contractor* ceases to be responsible under subclause 11.1 for the care of *the Services*.

15 Public liability insurance

The Alternative in *Item 21(a)* applies.

Before commencing *the Services*, the *Contractor* shall effect and maintain for the duration of the *Contract*, a *public liability policy*.

The policy shall:

- a) be in the joint names of the parties;
- b) cover the:
 - i) respective rights and interests; and
 - ii) liabilities to third parties,

of the parties and subcontractors from time to time, whenever performing *the Services*;

- c) cover the parties' respective liability to each other for loss or damage to property (other than property required to be insured by clause 13) and the death of or injury to any person (other than liability which the law requires to be covered under a workers compensation insurance policy);
- d) be endorsed to cover the use of any plant not covered under a comprehensive or third party motor vehicle insurance policy;
- e) provide insurance cover for an amount in respect of any one occurrence of not less than the sum in *Item 21(b)*; and
- f) be with an insurer and otherwise in terms both approved in writing by the *Principal* (which approvals shall not be unreasonably withheld).

Before the *date of acceptance of tender*, the *Principal* shall effect in relation to *the Services*, a *public liability policy* in the terms of the policy included in the tender documents and nominating or stating the insurer. The *Principal* shall maintain such insurance for the duration of the *Contract*.

16 Insurance of employees

Before commencing *the Services*, the *Contractor* shall insure against statutory and common law liability for death of or injury to persons employed by the *Contractor*. The insurance cover shall be maintained for the duration of the *Contract*.

Where permitted by law, the insurance policy or policies shall be extended to provide indemnity for the *Principal's* statutory liability to the *Contractor's* employees.

The *Contractor* shall ensure that all subcontractors have similarly insured their employees.

17 Inspection and provisions of insurance policies

17.1 Proof of insurance

Before the *Contractor* commences *the Services* and whenever requested in writing by the other party, a party liable to insure shall provide satisfactory evidence of such insurance effected and maintained.

Insurance shall not limit liabilities or obligations under other provisions of the *Contract*.

17.2 Failure to produce proof of insurance

If after being so requested, a party fails promptly to provide evidence of satisfactory compliance, then without prejudice to other rights or remedies, the other party may insure and the cost thereof shall be moneys due and payable from the party in default to the other party. Where the defaulting party is the *Contractor*, the *Principal* may refuse payment until such evidence is produced by the *Contractor*.

17.3 Notices of potential claims

A party shall, as soon as practicable, inform the other party in writing of any occurrence that may give rise to a claim under an insurance policy required by clause 14 or 15 and shall keep the other party informed of subsequent developments concerning the claim. The *Contractor* shall ensure that subcontractors in respect of their operations similarly inform the parties.

17.4 Settlement of claims

Upon settlement of a claim under the insurance required by clause 14:

- a) to the extent that reinstatement has been the subject of a payment or allowance by the *Principal* to the *Contractor*, if the *Contractor* has not completed such reinstatement, insurance moneys received shall, if requested by either party, be paid into an agreed bank account in the joint names of the parties. As the *Contractor* reinstates the loss or damage, the *Principal* shall sign against the joint account for the reasonable cost of reinstatement; and
- b) to the extent that reinstatement has not been the subject of a payment or allowance by the *Principal* to the *Contractor*, the *Contractor* shall be entitled immediately to receive from insurance moneys received, the amount of such moneys so paid in relation to any loss suffered by the *Contractor*.

17.5 Cross liability

Any insurance required to be effected in joint names in accordance with the *Contract* shall include a cross liability clause in which the insurer agrees to waive all rights of subrogation or action against any of the persons constituting the insured and for the purpose of which the insurer accepts the term 'insured' as applying to each of the persons constituting the insured as if a separate policy of insurance had been issued to each of them (subject always to the overall sum insured not being increased thereby).

18 Principal**18.1 Principal's directions**

Except where the *Contract* otherwise provides, the *Principal* may give a *direction* orally but shall as soon as practicable confirm it in writing. If the *Contractor* in writing requests the *Principal* to confirm in writing an oral *direction*, the *Contractor* shall not be bound to comply with the *direction* until the *Principal* does so.

18.2 Principal's representative

The *Principal* may from time to time appoint individuals to exercise delegated *Principal's* functions, provided that:

- a) no aspect of any function shall at any one time be the subject of delegation to more than one *Principal's* representative;
- b) delegation shall not prevent the *Principal* exercising any function;
- c) the *Principal* forthwith gives the *Contractor* written notice of respectively:
 - i) the appointment, including the *Principal's* representative's name and delegated functions; and
 - ii) the termination of each appointment; and
- d) if the *Contractor* makes a reasonable objection to the appointment of a *Principal's* representative, the *Principal* shall terminate the appointment.

19 Contractor's representative

The *Contractor* shall superintend *the Services* personally or by a competent representative. Matters within a *Contractor's* representative's knowledge (including *directions* received) shall be deemed to be within the *Contractor's* knowledge.

The *Contractor* shall forthwith give the *Principal* written notice of the representative's name and any subsequent changes.

If the *Principal* makes a reasonable objection to the appointment of a representative, the *Contractor* shall terminate the appointment and appoint another representative.

20 Contractor's employees and subcontractors

The *Principal* may direct the *Contractor* to have removed, within a stated time, from the *premises* or from any activity of *the Services*, any person employed on *the Services* who, in the *Principal's* opinion, is incompetent, negligent or guilty of misconduct.

21 Access to the premises

21.1 Principal's obligations

The *Principal* shall provide to the *Contractor*:

- a) reasonable access to the *premises* or sufficient of the *premises* to enable the *Contractor* to perform the *Services*;
- b) particulars of entrances and exits to and from the *premises*, available to the *Contractor* and subcontractors of the *Contractor*; and
- c) a written notice as to:
 - i) the times when the *premises* will be available; and
 - ii) any security measures to be observed in connection with the *premises* or access to them.

If compliance therewith causes the *Contractor* to incur more or less cost than otherwise would have been incurred there shall be a deemed variation.

Subject to subclause 34.7, delay by the *Principal* in giving access shall not be a breach of the *Contract*.

21.2 Contractor's obligations

The *Contractor* shall ensure that in relation to the performance of the *Services* on the *premises*, the *Contractor* and subcontractors and either's employees or agents:

- a) use entrances and exits provided by the *Principal*;
- b) comply with access arrangements and the security measures directed by the *Principal*;
- c) carry suitable identification;
- d) do not examine, copy, remove or otherwise interfere with anything on the *premises* except for the purpose of the performance of the *Services*; and
- e) regularly remove rubbish and surplus material which results from the performance of the *Services*.

22 Latent conditions

22.1 Scope

Latent conditions are physical conditions on the *premises* and its near surrounds, including artificial things but excluding weather conditions, which differ materially from the physical conditions which should reasonably have been anticipated by a competent contractor at the time of the *Contractor's* tender if the *Contractor* had inspected:

- a) all written information made available by the *Principal* to the *Contractor* for the purpose of tendering;
- b) all information influencing the risk allocation in the *Contractor's* tender and reasonably obtainable by the making of reasonable enquiries; and

- c) the *premises* and its near surrounds.

22.2 Notification

The *Contractor*, upon becoming aware of a *latent condition* while performing *the Services*, shall promptly, and where possible before the *latent condition* is disturbed, give the *Principal* written notice of the general nature thereof.

If required by the *Principal* promptly after receiving that notice, the *Contractor* shall, as soon as practicable, give the *Principal* a written statement of:

- a) the *latent condition* encountered and the respects in which it differs materially;
- b) the additional *work*, resources, time and cost which the *Contractor* estimates to be necessary to deal with the *latent condition*; and
- c) other details reasonably required by the *Principal*.

22.3 Deemed variation

The effect of the *latent condition* shall be a deemed *variation*, priced having no regard to additional cost incurred more than 28 days before the date on which the *Contractor* gave the notice required by the first paragraph of subclause 22.2 but so as to include the *Contractor's* other costs for each compliance with subclause 22.2.

23 Plant, equipment and materials

The *Principal* shall provide and make available to the *Contractor* at the *premises* the facilities, utilities and items of plant, equipment and material stated in *Item 22* necessary to perform *the Services*.

Except to the extent that the *Contract* otherwise provides, the *Contractor* shall supply everything else necessary for the proper performance of the *Contractor's* obligations and discharge of the *Contractor's* liabilities.

24 Repairs

If repairs to the *premises* or other property of the *Principal* are necessary from time to time to enable *the Services* to be performed, the *Contractor* shall promptly notify the *Principal* of the requirement for such repairs.

Except to the extent that *Item 23* or the *Contract* elsewhere provides, the *Principal* shall promptly arrange for any such repairs as are necessary to enable *the Services* to be performed. The *Principal* may direct the *Contractor* to carry out such repairs (including replacement parts and components) whereupon there shall be a deemed *variation*.

25 Quality

25.1 Quality of material and work

Unless otherwise provided, the *Contractor* shall use suitable new materials and proper and tradesmanlike workmanship.

*25.2 Quality assurance

If the *Contract* elsewhere requires further quality assurance, the *Contractor* shall:

- a) plan, establish and maintain a conforming quality system; and
- b) ensure that the *Principal* has reasonable access to the quality system of the *Contractor* and subcontractors so as to enable monitoring and quality auditing.

Any such quality system shall be used only as an aid to achieving compliance with the *Contract* and to document such compliance. Such system shall not discharge the *Contractor's* other obligations under the *Contract*.

25.3 Defective work

If the *Principal* becomes aware of *work* done (including material provided) by the *Contractor* which does not comply with the *Contract*, the *Principal* shall as soon as practicable give the *Contractor* written details thereof. If the subject *work* has not been rectified, the *Principal* may direct the *Contractor* to do any one or more of the following (including reasonable times for commencement and completion):

- a) remove the material from the *premises*
- b) demolish the *work*;
- c) reconstruct, replace or correct the *work*; and
- d) not deliver it to the *premises*;

If:

- a) the *Contractor* fails to comply with such a *direction*; and
- b) that failure has not been made good within a reasonable time after the *Contractor* receives written notice that the *Principal* intends to have the subject *work* rectified by others,

the *Principal* may have that *work* so rectified and the cost incurred shall be moneys due from the *Contractor* to the *Principal*.

25.4 Acceptance of defective work

Instead of a *direction* pursuant to subclause 25.3, the *Principal* may direct the *Contractor* that the *Principal* elects to accept the subject *work*, whereupon there shall be a deemed *variation*.

25.5 Timing

The *Principal* may give a *direction* pursuant to this clause at any time before the expiry of the *defects liability period*.

* See Preface on page (iii)

26 Working hours

If the working hours and working days on the *premises* are not stated elsewhere in the *Contract*, they shall be as notified by the *Contractor* to the *Principal* before commencement of *work* on the *premises*. They shall not be varied without the *Principal's* prior written approval, except when, in the interests of safety of persons or property, the *Contractor* finds it necessary to perform *the Services* otherwise, whereupon the *Contractor* shall give the *Principal* written notice of those circumstances as early as possible.

27 Programming

The *Contractor* shall give the *Principal* reasonable advance notice of when the *Contractor* needs information, materials, documents or instructions from the *Principal*.

The *Principal* shall not be obliged to give any information, materials, documents or instructions earlier than the *Principal* should reasonably have anticipated at the *date of acceptance of tender*.

The *Principal* may direct in what order and at what dates and times the various stages or portions of *the Services* shall be performed. If the *Contractor* can reasonably comply with the *direction*, the *Contractor* shall do so. If the *Contractor* cannot reasonably comply, the *Contractor* shall give the *Principal* written notice of the reasons.

A *performance program* is a written statement showing the times and frequency of each *performance duration* and *performance period cycle* during the *total performance period*. It shall be deemed a *Contract* document.

The *Principal* may direct the *Contractor* to give the *Principal* a *performance program* within the time and in the form directed.

The *Contractor* shall not, without reasonable cause, depart from a *performance program*.

If compliance with any such *directions* under this clause, except those pursuant to the *Contractor's* default, causes the *Contractor* to incur more or less cost than otherwise would have been incurred had the *Contractor* not been given the *direction*, the difference shall be assessed by the *Principal* and added to or deducted from the *contract sum*.

28 Suspension

28.1 Principal's suspension

The *Principal* may direct the *Contractor* to suspend the performance of the whole or part of *the Services* for such time as the *Principal* thinks fit, if the *Principal*, acting reasonably, forms the opinion that it is necessary:

- a) because of an act, default or omission of:
 - i) the *Principal* or its employees, consultants, agents or other contractors (not being employed by the *Contractor*); or
 - ii) the *Contractor*, a subcontractor or either's employees or agents;
- b) for the protection or safety of any person or property; or
- c) to comply with a court order.

28.2 Contractor's suspension

If the *Contractor* wishes to suspend the performance of the whole or part of *the Services*, otherwise than pursuant to subclause 34.9, the *Contractor* shall obtain the *Principal's* prior written approval. The *Principal* may approve the suspension and may impose conditions of approval.

28.3 Recommencement

As soon as the *Principal* becomes aware that the reason for any suspension no longer exists, the *Principal* shall direct the *Contractor* to recommence suspended *Services* as soon as reasonably practicable.

The *Contractor* may recommence *the Services* suspended pursuant to subclause 28.2 or 34.9 at any time after reasonable notice to the *Principal*.

28.4 Cost

The *Contractor* shall bear the cost of suspension pursuant to paragraph (a)(ii) of subclause 28.1 and subclause 28.2. If the *Contractor* made the protection, safety or court order necessary, the *Contractor* shall bear the cost of suspension pursuant to paragraph (b) or (c) of subclause 28.1. If the *Contractor* otherwise incurs more or less cost than otherwise would have been incurred, the difference shall be assessed by the *Principal* and added to or deducted from the *contract sum*.

29 Time and progress

29.1 Commencement and progress

The *Contractor* shall commence the *Services* as stated in *Item 24*.

Subject to subclause 29.3, the *Contractor* shall ensure that each *single performance* of *the Services* is performed within the applicable *performance duration* stated in *Item 7*, that *the Services* are performed in accordance with the *performance period cycles* stated in *Item 8* and that *the Services* are completed within the *total performance period* stated in *Item 9*.

29.2 Notice of delay

A party becoming aware of anything which will probably cause delay to *the Services* shall promptly give the other party written notice of that cause and the estimated delay.

29.3 Claim

The *Contractor* shall be entitled to such extension of time for performing *the Services* or a *single performance*, as the *Principal*, acting reasonably, assesses ('EOT'), if:

- a) the *Contractor* is or will be delayed in either performing those *Services* or that *single performance*, as the case may be, by a *qualifying cause of delay*; and
- b) the *Contractor* gives the *Principal*, within the time stated in *Item 26* of when the *Contractor* should reasonably have become aware of that causation occurring, a written claim for an *EOT* evidencing the facts of causation and of the delay (including extent) to *the Services* or the *single performance*, as the case may be.

If further delay results from a *qualifying cause of delay* evidenced in a claim under paragraph (b) of this subclause, the *Contractor* shall claim an *EOT* for such delay by promptly giving the *Principal* a written claim evidencing the facts of that delay.

29.4 Assessment

When both non-qualifying and *qualifying causes of delay* overlap, the *Principal* shall apportion the resulting delay to *the Services* or the *single performance*, as the case may be, according to the respective causes' contribution.

In assessing each *EOT* the *Principal* shall disregard whether the *Contractor* can accelerate but shall have regard to what prevention and mitigation of the delay has not been effected by the *Contractor*.

29.5 Extension of time

Within the time stated in *Item 27* after receiving the *Contractor's* claim for an *EOT*, the *Principal* shall give to the *Contractor* a written *direction* evidencing the *EOT* so assessed. If the *Principal* does not do so, there shall be a deemed assessment and *direction* for an *EOT* as claimed.

Notwithstanding that the *Contractor* is not entitled to or has not claimed an *EOT*, the *Principal* may at any time and from time to time before the final payment direct an *EOT*.

29.6 Liquidated damages for a single performance

If a *single performance* of *the Services* is delayed by a non-qualifying cause of delay, liquidated damages shall be due and payable to the *Principal* at the rate stated in *Item 28* for every day that *single performance* is delayed.

If an *EOT* for that *single performance* is directed after the *Contractor* has paid or the *Principal* has set off liquidated damages, the *Principal* shall forthwith repay to the *Contractor* such of those liquidated damages as represent the days the subject of the *EOT*.

29.7 Delay damages

For every day the subject of an *EOT* for a *compensable cause* and for which the *Contractor* gives the *Principal* a claim for delay damages pursuant to subclause 36.1, damages pursuant to *Item 30* shall be due and payable to the *Contractor*.

30 Warranties and defects liability

30.1 Warranties

The *Contractor* shall obtain for the benefit of the *Principal*, the warranties specified elsewhere in the *Contract* on the items stated in *Item 31*, for the respective periods stated in *Item 31*, in relation to the materials, parts or components used in the performance of *the Services*.

30.2 Defects liability

The *defects liability period* stated in *Item 32* shall commence at the expiration of the *total performance period* at 4.00 pm.

The *Contractor* shall carry out rectification at times and in a manner causing as little inconvenience to the occupants or users of the *premises* as is reasonably possible.

As soon as possible after the expiration of the *total performance period*, the *Contractor* shall rectify all *defects* existing at the end of the *total performance period*.

During the *defects liability period*, the *Principal* may give the *Contractor* a *direction* to rectify a *defect* arising out of the performance of *the Services* which *direction* shall identify the *defect* and reasonable times and dates for commencement and completion of its rectification.

If the rectification is not commenced or completed by the stated times and dates, the *Principal* may have the rectification carried out by others but without prejudice to any other rights or remedies the *Principal* may have. The cost thereby incurred shall be moneys due and payable to the *Principal*.

31 Variations

31.1 Directing variations

The *Contractor* shall not vary *the Services* except as directed in writing.

The *Principal*, before the expiration of the *total performance period*, may direct the *Contractor* to vary *the Services* or perform additional *Services* provided such are nevertheless of a character and extent contemplated by, and capable of being performed under, the provisions of the *Contract*.

The *Contractor* shall not be bound to perform a *variation* directed after the expiration of the *total performance period*.

31.2 Proposed variations

The *Principal* may give the *Contractor* written notice of a proposed *variation*.

The *Contractor* shall as soon as practicable after receiving such notice, notify the *Principal* whether the proposed *variation* can be effected, together with, if it can be effected, the *Contractor's* estimate of the:

- a) effect on the *performance program*; and
- b) cost (including all time-related costs, if any) of the proposed *variation*.

The *Principal* may direct the *Contractor* to give a detailed quotation for the proposed *variation* supported by measurements or other evidence of cost.

The *Contractor's* costs for each compliance with this subclause shall be assessed by the *Principal* as moneys due to the *Contractor*.

31.3 Pricing

The *Principal* shall, as soon as possible, price each *variation* using the following order of precedence:

- a) prior agreement;
- b) applicable rates or prices in the *Contract*;
- c) rates or prices in a *schedule of rates* or schedule of prices, even though not *Contract* documents, to the extent that it is reasonable to use them; and
- d) reasonable rates or prices, which shall include a reasonable amount for profit and overheads,

and any deductions shall include a reasonable amount for profit but not overheads.

That price shall be added to or deducted from the *contract sum*.

32 Payment

32.1 Progress claims

The *Contractor* shall claim payment in accordance with *Item 33*.

An early progress claim shall be deemed to have been made on the date for making that claim.

Each progress claim shall be given in writing to the *Principal* and shall include details of the value of *the Services* performed and may include details of other moneys then due to the *Contractor* pursuant to the provisions of the *Contract*.

32.2 Payment

The *Principal* shall, within 14 days after receiving such a progress claim, pay the *Contractor* the amount due to the *Contractor* after deducting retention moneys and setting off such moneys as the *Principal* is entitled, pursuant to the *Contract*, to set off. If the *Principal* does not pay the amount claimed in the *Contractor's* progress claim, the *Principal* shall with the payment give the *Contractor* reasons for any difference.

If the *Contractor* does not make a progress claim in accordance with *Item 33*, the *Principal* may at the *Principal's* discretion make a payment on account.

Neither a progress claim nor a payment of moneys shall be evidence that *the Services* have been performed satisfactorily. Payment other than final payment shall be payment on account only.

32.3 Final payment

Within 28 days after the expiry of the *defects liability period*, the *Contractor* shall give the *Principal* a written *final payment claim*, endorsed 'Final Payment Claim' being a progress claim together with all other claims whatsoever in connection with the subject matter of the *Contract*.

Within 42 days after the expiry of the *defects liability period*, the *Principal* shall pay to the *Contractor* or the *Contractor* shall pay to the *Principal*, as the case may be, the amount which is finally due and payable on any account whatsoever in connection with the subject matter of the *Contract*.

Payment of the amount due in respect of the *final payment claim* shall be conclusive evidence of accord and satisfaction, and in discharge of each party's obligations in connection with the subject matter of the *Contract* except for:

- a) fraud or dishonesty relating to the performance of *the Services* or any part thereof;
- b) any *defect* or omission in *the Services* which was not apparent at the end of the *defects liability period* or which would not have been disclosed upon reasonable inspection at the end of the *defects liability period*;
- c) any accidental or erroneous inclusion or exclusion of any *work* or figures in any computation or an arithmetical error in any computation; or
- d) unresolved issues the subject of any notice of *dispute* pursuant to clause 37, served before the 7th day after the payment by the *Principal* or by the *Contractor*, as the case may be, in respect of the *Contractor's final payment claim*.

32.4 Interest

Interest in *Item 34* shall be due and payable after the date of default in payment.

32.5 Other moneys due

The *Principal* may elect that moneys due and owing otherwise than in connection with the subject matter of the *Contract* also be due to the *Principal* pursuant to the *Contract*.

33 Payment of workers and subcontractors

This clause 33 shall not apply unless so stated in *Item 35*.

33.1 Workers and subcontractors

The *Contractor* shall give in respect of a progress claim, documentary evidence of the payment of moneys due and payable to:

- a) workers of the *Contractor* and of the subcontractors; and
- b) subcontractors,

in respect of the performance of *the Services* the subject of that claim.

If the *Contractor* is unable to give such documentary evidence, the *Contractor* shall give other documentary evidence of the moneys so due and payable to workers and subcontractors.

Documentary evidence, except where the *Contract* otherwise provides, shall be to the *Principal's* reasonable satisfaction.

33.2 Withholding payment

Subject to the next paragraph, the *Principal* may withhold moneys in respect of the progress claim until the *Contractor* complies with subclause 33.1.

The *Principal* shall not withhold payment of such moneys in excess of the moneys evidenced pursuant to subclause 33.1 as due and payable to workers and subcontractors.

33.3 Direct payment

Before final payment, the *Principal*, if not aware of a relevant relation-back day (as defined in the Corporations Law) may pay unpaid moneys the subject of subclause 33.1 directly to a worker or a subcontractor where:

- a) permitted by law;
- b) given a court order in favour of the worker or subcontractor; or
- c) requested in writing by the *Contractor*.

Such payment and a payment made to a worker or subcontractor in compliance with a *legislative requirement* shall be deemed to be part-satisfaction of the *Principal's* obligation to pay pursuant to subclause 32.2 or 32.3, as the case may be.

34 Default or insolvency

34.1 Preservation of other rights

If a party breaches (including repudiates) the *Contract*, nothing in this clause shall prejudice the right of the other party to recover damages or exercise any other right or remedy.

34.2 Contractor's default

If the *Contractor* commits a substantial breach of the *Contract*, the *Principal* may, by hand or by registered post, give the *Contractor* a written notice to show cause.

Substantial breaches include, but are not limited to:

- a) failing to:
 - i) provide *security*;
 - ii) provide evidence of insurance;
 - iii) comply with a *direction* of the *Principal* pursuant to subclause 25.3; or
 - iv) use the materials or standards of *work* required by the *Contract*;
- b) wrongful suspension of *work*;
- c) substantial departure from a *performance program* without reasonable cause or the *Principal's* approval;
- d) where there is no *performance program*, failing to proceed with due expedition and without delay; and
- e) in respect of clause 33, knowingly providing documentary evidence containing an untrue statement.

34.3 Principal's notice to show cause

A notice under subclause 34.2 shall state:

- a) that it is a notice under clause 34 of these General Conditions;
- b) the alleged substantial breach;
- c) that the *Contractor* is required to show cause in writing why the *Principal* should not exercise a right referred to in subclause 34.4;
- d) the date and time by which the *Contractor* must show cause (which shall not be less than 7 clear days after the notice is received by the *Contractor*); and
- e) the place at which cause must be shown.

34.4 Principal's rights

If the *Contractor* fails to show reasonable cause by the stated date and time, the *Principal* may by written notice to the *Contractor*:

- a) take out of the *Contractor's* hands the whole or part of *the Services* remaining to be completed and suspend payment until it becomes due and payable pursuant to subclause 34.6; or
- b) terminate the *Contract*.

34.5 Take out

The *Principal* shall complete *the Services* taken out of the *Contractor's* hands and may:

- a) use materials, equipment and other things intended for *the Services*; and
- b) without payment of compensation to the *Contractor*:
 - i) take possession of, and use, such of the appliances and other things on or in the vicinity of the *premises* as were used by the *Contractor*; and

- ii) contract with such of the *Contractor's* subcontractors and consultants,

as are reasonably required by the *Principal* to facilitate completion of *the Services*.

If the *Principal* takes possession of the appliances and other things, the *Principal* shall maintain them and, subject to subclause 34.6, on completion of *the Services*, shall return such of them as are surplus.

The *Principal* shall keep records of the cost of completing *the Services*.

34.6 Adjustment on completion of services taken out

When *the Services* taken out of the *Contractor's* hands have been completed, the *Principal* shall assess the cost thereby incurred and the difference between that cost (showing the calculations therefor) and the amount which would otherwise have been paid to the *Contractor* if *the Services* had been completed by the *Contractor* shall be moneys due and payable by the *Contractor* to the *Principal* or the *Principal* to the *Contractor*, as the case may be.

If the *Contractor* is indebted to the *Principal*, the *Principal* may retain appliances or other things taken under subclause 34.5 until the debt is satisfied. If after reasonable notice, the *Contractor* fails to pay the debt, the *Principal* may sell the appliances or other things and apply the proceeds to the satisfaction of the debt and the costs of sale. Any excess shall be paid to the *Contractor*.

34.7 Principal's default

If the *Principal* commits a substantial breach of the *Contract*, the *Contractor* may, by hand or by registered post, give the *Principal* a written notice to show cause.

Substantial breaches include, but are not limited to, failing to:

- a) provide *security*;
- b) produce evidence of insurance;
- c) rectify inadequate *Contractor's* access to the *premises* if that failure continues for longer than the time stated in *Item 36*; and
- d) make a payment due and payable pursuant to the *Contract*.

34.8 Contractor's notice to show cause

A notice given under subclause 34.7 shall state:

- a) that it is a notice under clause 34 of these General Conditions;
- b) the alleged substantial breach;
- c) that the *Principal* is required to show cause in writing why the *Contractor* should not exercise a right referred to in subclause 34.9;
- d) the date and time by which the *Principal* must show cause (which shall not be less than 7 clear days after the notice is received by the *Principal*); and
- e) the place at which cause must be shown.

34.9 Contractor's rights

If the *Principal* fails to show reasonable cause by the stated date and time, the *Contractor* may, by written notice to the *Principal*, suspend the whole or any part of the *Services*.

The *Contractor* shall remove the suspension if the *Principal* remedies the breach.

The *Contractor* may, by written notice to the *Principal*, terminate the *Contract*, if within 28 days of the date of suspension under this subclause the *Principal* fails:

- a) to remedy the breach; or
- b) if the breach is not capable of remedy, to make other arrangements to the reasonable satisfaction of the *Contractor*.

The *Contractor* may also be entitled to damages suffered by reason of the suspension.

34.10 Termination

If the *Contract* is terminated pursuant to subclause 34.4(b) or 34.9, the parties' remedies, rights and liabilities shall be the same as they would have been under the law governing the *Contract* had the defaulting party repudiated the *Contract* and the other party elected to treat the *Contract* as at an end and recover damages.

34.11 Insolvency

If:

- a) a party informs the other in writing, or creditors generally, that the party is insolvent or is financially unable to proceed with the *Contract*;
- b) execution is levied against a party by a creditor;
- c) a party is an individual person or a partnership including an individual person, and if that person:
 - i) commits an act of bankruptcy;
 - ii) has a bankruptcy petition presented against him or her or presents his or her own petition;
 - iii) is made bankrupt;
 - iv) makes a proposal for a scheme of arrangement or a composition; or
 - v) has a deed of assignment or deed of arrangement made, accepts a composition, is required to present a debtor's petition, or has a sequestration order made, under Part X of the Bankruptcy Act 1966 (Cwlth) or like provision under the law governing the *Contract*; or
- d) in relation to a party being a corporation:
 - i) notice is given of a meeting of creditors with a view to the corporation entering a deed of company arrangement;
 - ii) it enters a deed of company arrangement with creditors;
 - iii) a controller or administrator is appointed;
 - iv) an application is made to a court for its winding up and not stayed within 14 days;

- v) a winding up order is made in respect of it;
- vi) it resolves by special resolution that it be wound up voluntarily (other than for a member's voluntary winding up); or
- vii) a mortgagee of any of its property takes possession of that property,

then, where the other party is:

- A) the *Principal*, the *Principal* may, without giving a notice to show cause, exercise the right under subclause 34.4(a); or
- B) the *Contractor*, the *Contractor* may, without giving a notice to show cause, exercise the right under subclause 34.9.

The rights and remedies given by this subclause are additional to any other rights and remedies. They may be exercised notwithstanding that there has been no breach of contract.

35 Termination by frustration

If the *Contract* is frustrated:

- a) the *Principal* shall assess the amount which would have been payable for *the Services* performed to the date of frustration had the *Contract* not been frustrated and had the *Contractor* been entitled to and made a progress claim on the date of frustration;
- b) the *Principal* shall pay the *Contractor*:
 - i) the amount assessed under paragraph (a) together with all amounts due but unpaid;
 - ii) the cost of materials and equipment reasonably ordered by the *Contractor* for *the Services* and which the *Contractor* is liable to accept, but only if they will become the *Principal's* property upon payment; and
 - iii) the costs reasonably incurred:
 - A) removing the *Contractor's* equipment and appliances from the *premises*;
 - B) returning to their place of engagement the *Contractor*, subcontractors and their respective employees engaged in *the Services* at the date of frustration; and
 - C) by the *Contractor* in the expectation of completing the whole of *the Services* and not included in any other payment; and
- c) each party shall promptly release and return all *security* provided by the other.

36 Notification of claims

36.1 Communication of claims

The *prescribed notice* is a written notice of the general basis and quantum of the claim.

As soon as practicable after a party becomes aware of any claim in connection with the subject matter of the *Contract*, that party shall give to the other party the *prescribed notice* or a notice of *dispute* under subclause 37.1.

This subclause and subclause 36.3 shall not apply to any claim, including a claim for payment (except for claims which would, other than for this subclause, have been included in the *final payment claim*), the communication of which is required by another provision of the *Contract*.

36.2 Liability for failure to communicate

The failure of a party to comply with the provisions of subclause 36.1 or to communicate a claim in accordance with the relevant provision of the *Contract*, shall, inter alia, entitle the other party to damages for breach of the *Contract* but shall neither bar nor invalidate the claim.

36.3 Liability for claims

If within 28 days of giving the *prescribed notice*, the claim has not been resolved the *prescribed notice* shall thereupon be deemed to be a notice of *dispute* given under subclause 37.1.

37 Dispute resolution

37.1 Notice of dispute

If a difference or dispute (together called a '*dispute*') between the parties arises in connection with the subject matter of the *Contract*, including a *dispute* concerning a claim:

- a) in tort;
- b) under statute;
- c) for restitution based on unjust enrichment or other quantum meruit; or
- d) for rectification or frustration,

or like claim available under the law governing the *Contract*,

then either party shall, by hand or by registered post, give the other a written notice of *dispute* adequately identifying and providing details of the *dispute*.

Notwithstanding the existence of a *dispute*, the parties shall, subject to clauses 34 and 35 and subclause 37.4, continue to perform the *Contract*.

37.2 Conference

Within 14 days after receiving a notice of *dispute*, the parties shall confer at least once to resolve the *dispute* or to agree on methods of doing so. At every such conference each party shall be represented by a person having authority to agree to such resolution or methods. All aspects of every such conference except the fact of occurrence shall be privileged.

If the *dispute* has not been resolved within 28 days of service of the notice of *dispute*, that *dispute* shall be and is hereby referred to arbitration.

37.3 Arbitration

If within a further 14 days the parties have not agreed upon an arbitrator, the arbitrator shall be nominated by the person named in *Item 37(a)*. The arbitration shall be conducted in accordance with the rules in *Item 37(b)*.

37.4 Summary relief

Nothing herein shall prejudice the right of a party to institute proceedings to enforce payment due under the *Contract* or to seek injunctive or urgent declaratory relief.

38 Waiver of conditions

Except as provided at law or in equity or elsewhere in the *Contract*, none of the provisions of the *Contract* shall be varied, waived, discharged or released, except with the prior written consent of the parties.

Part A

Annexure to the Australian Standard
General conditions of contract for the provision of asset maintenance and services (Principal's version)
AS 4920—2003

This Annexure shall be completed and issued as part of the tender documents and, subject to any amendments to be incorporated into the *Contract*, is to be attached to the General Conditions of Contract and shall be read as part of the *Contract*.

Item

- 1 *Principal*
(clause 1)

ACN..... ABN
- 2 *Principal's address*

Phone Fax
- 3 *Contractor*
(clause 1)

ACN..... ABN
- 4 *Contractor's address*

Phone Fax
- 5 Superintendent —not used
- 6 Superintendent's address —not used
- 7 *Performance duration*
(clause 1 and subclause 29.1)

*Hours / *Days / *Other
OR
between the hours ofam/pm andam/pm
- 8 *Performance period cycle*
(clause 1 and subclause 29.1)

*Daily / *Weekly / *Monthly / *Annually
OR
As follows:

.....
.....

* Delete as appropriate

Part A

Annexure to AS 4920—2003

- 9 *Total performance period*
(clause 1 and subclause 29.1)
- 10 Governing law
(page 3, clause 1(h))
If nothing stated, that of the jurisdiction where the *premises* are located
- 11 a) Currency
(page 3, clause 1(g))
If nothing stated, that of the jurisdiction where the *premises* are located
- b) Place for payments
(page 3, clause 1(g))
If nothing stated, the *Principal's* address
- c) Place of business of bank
(page 2, clause 1(d))
If nothing stated, the place nearest to where the *premises* are located
- 12 *Contractor's security*
- a) Form
(clause 3)
- b) Amount or maximum
percentage of *contract sum*
(clause 3)
If nothing stated, 5% of the *contract sum*
- c) If retention moneys, percentage
to be retained from each
progress payment
(clause 3 and subclause 32.2)
.....%, until the limit in *Item 12(b)*
If nothing stated, 10%, until the limit in *Item 12(b)*
- d) Time for provision (except
for retention moneys)
(clause 3)
within days after *date of acceptance of tender*
If nothing stated, 28 days
- 13 *Principal's security*
- a) Form
(clause 3)
- b) Amount or maximum
percentage of *contract sum*
(clause 3)
If nothing stated, nil
- c) Time for provision
(clause 3)
within days after *date of acceptance of tender*
If nothing stated, 28 days

14	Principal-supplied documents (subclause 6.2)	Document	No. of copies
		1 .....	.....
		2 .....	.....
		3 .....	.....
		4 .....	.....
		5 .....	.....
			If nothing stated, 5 copies
15	Time for <i>Principal's</i> direction about documents (subclause 6.3)	..... days If nothing stated, 14 days	
16	Subcontracting (subclause 7.2)	..... ..... ..... ..... .....
17	Legislative requirements, those excepted (subclause 9.1)	..... ..... .....
18	The <i>Contractor's</i> liability is limited as follows: (subclause 13.1)		
	a) For claims in respect or arising out of death or personal injury	Unlimited	
	b) For loss of rents, income (other than arising out of death or personal injury) and the opportunity to earn profits and indirect and consequential loss	\$ If no amount stated, \$1	
	c) For all other claims whatsoever	\$ If no amount stated, the <i>contract sum</i> as adjusted pursuant to the <i>Contract</i>	
19	The <i>Principal's</i> liability is limited as follows (subclause 13.1)	\$ If no amount stated, the <i>contract sum</i> as adjusted pursuant to the <i>Contract</i>	

Part A

Annexure to AS 4920—2003

- 20 Amount of the insurance of the liability to reinstate shall be not less than \$.....
(clause 14) If nothing stated, then not less than the *contract sum*
- 21 Public liability insurance (clause 15)
- a) Alternative applying
If nothing stated, Alternative 1 applies
- If Alternative 1 applies
- b) Amount per occurrence shall be not less than \$.....
If nothing stated, \$10 000 000
- 22 Facilities, utilities and items of plant, equipment and material made available to the *Contractor* by the *Principal* at the premises (clause 23)
- 23 Extent to which the *Principal* is not to be responsible for arranging repairs to enable *the Services* to be performed (clause 24)
- 24 Date and time for commencing the first *single performance of the Services* (subclause 29.1) day of 20
at *am / *pm
- 25 *Qualifying causes of delay*, causes of delay for which *EOTs* will not be granted (page 2, paragraph (b)(ii) of clause 1 and subclause 29.3)

* Delete as appropriate

- 26 Time for the *Contractor* to give claim for an *EOT* (subclause 29.3) days
If nothing stated, 28 days
- 27 Time for the *Principal* to give a written *direction* for an *EOT* (subclause 29.5) days
If nothing stated, 28 days
- 28 Liquidated damages for a *single performance* of the *Services*, rate (subclause 29.6) per day \$per day
- 29 Other *compensable causes* (page 1, paragraph (b) of clause 1 and subclause 29.7)
- 30 Delay damages, rate (subclause 29.7)
.....
..... per day \$per day
If nothing stated, then in accordance with clause 36
- | 31 | Warranties to be provided by <i>Contractor</i> (subclause 30.1) | Item | Period |
|----|---|------|--------|
| | | | |
| | | | |
| | | | |
| | | | |
- 32 *Defects liability period* (subclause 30.2)
If nothing stated, 30 days
- 33 Dates on which or times within which progress claims are to be given (subclause 32.1) On the day of each
OR
Withindays after completion of each *single performance* of the *Services*
If nothing stated, 7 days after completion of each *single performance* of the *Services*
- 34 Interest rate on overdue payments (subclause 32.4) % per annum
If nothing stated, 18% per annum

Part A

Annexure to AS 4920—2003

	35	Payment of workers and subcontractors. Is clause 33 to apply? (clause 33)	*No / *Yes If neither deleted, the clause shall not apply
	36	Time for <i>Principal</i> to remedy inadequate access to the <i>premises</i> (subclause 34.7(c))	..... days If nothing stated, 14 days
	37	Arbitration (subclause 37.3)	
A1	a)	Person to nominate an arbitrator	..... ..... ..... If no-one stated, the President of the Institute of Arbitrators & Mediators Australia
	b)	Rules for arbitration	..... ..... ..... ..... If nothing stated: a) Rules 5–18 of the Rules of The Institute of Arbitrators & Mediators Australia for the Conduct of Commercial Arbitrations; OR b) if one or more of the parties are nationals of and habitually resident in, incorporated in, or where the central management and control is exercised in, different countries as between the parties, then the UNCITRAL Arbitration Rules shall apply and the appointing authority shall be the person provided in <i>Item 37(c)</i>
A1	c)	Appointing Authority under UNCITRAL Arbitration Rules	..... If no-one stated, the President of the Institute of Arbitrators & Mediators Australia

* Delete as appropriate

Part B

- This form may also be used where the *Principal* is required to provide an unconditional undertaking, by substituting *Principal* for *Contractor* and vice versa, wherever occurring.

Annexure to the Australian Standard
General conditions of contract for the provision of asset
maintenance and services (Principal's version)
AS 4920—2003

Approved form of unconditional undertaking

(clause 1 — security)

At the request of

ACN ABN (the *Contractor*) and in consideration of

ACN ABN (the *Principal*) accepting this undertaking

in respect of the *Contract* for

..... (the *Project*)

ACN ABN (the *Financial Institution*) unconditionally

undertakes to pay on demand any sum or sums which may from time to time be demanded by the *Principal* to a

maximum aggregate sum of

..... (\$

The undertaking is to continue until notification has been received from the *Principal* that the sum is no longer required by the *Principal* or until this undertaking is returned to the *Financial Institution* or until payment to the *Principal* by the *Financial Institution* of the whole of the sum or such part as the *Principal* may require.

Should the *Financial Institution* be notified in writing, purporting to be signed by

..... for and on behalf of the *Principal* that the *Principal* desires

payment to be made of the whole or any part or parts of the sum, it is unconditionally agreed that the *Financial Institution* will make the payment or payments to the *Principal* forthwith without reference to the *Contractor* and notwithstanding any notice given by the *Contractor* not to pay same.

Provided always that the *Financial Institution* may at any time without being required so to do pay to the

Principal the sum of

..... (\$

less any amount or amounts it may previously have paid under this undertaking or such lesser sum as may be required and specified by the *Principal* and thereupon the liability of the *Financial Institution* hereunder shall immediately cease.

Dated at this day of 20.....

Annexure to the Australian Standard

General conditions of contract for the provision of asset maintenance and services (Principal's version)

AS 4920—2003

Deletions, amendments and additions

The following changes have been made to AS 4920—2003

This image shows a full page of a handwriting practice worksheet. It consists of multiple rows of horizontal dashed lines spaced evenly down the page, providing a guide for letter height and placement. The background is plain white, and there are no margins or additional markings.

Clause	Clause
Acceleration.....29.4	liquidated damages.....29.6
Acceptance (see Approval)	on completion of work taken out of the hands of the Contractor .....34.6
Acceptance of tender	pricing variations .....31.3
date of, defined .....1	protection of people and property .....10
formal instrument of agreement .....4	set-offs by the Principal .....32.5
security—time for .....3, <i>Items</i> 12(d), 13(c)	suspension by Contractor .....34.9
Access (see also premises)	urgent protection .....10.2
compliance with Principal's arrangements .....21.2	Agreement
compliance with requirements .....21.2	Contract in absence of formal instrument.....4
during defects liability period .....30.2	formal instrument of .....4
failure to provide.....34.7(c), <i>Item</i> 36	interpretation of .....1, 6.1
for Contractor .....21.1	rectification when dispute .....37.1
particulars of .....21.1	Alternative clause .....15
Accident (see also Insurance, Urgent protection and Protection of persons and property)	Ambiguity in documents .....6.1
reinstatement of damage .....11.2	Approval
to employees .....16	effect of certificate .....32.2
to property .....12, 15	extension of time .....29.4, 29.5
to third parties .....12, 15	of documents .....6.3
to the Services .....14	of form of security .....1
Accord and satisfaction .....32.3	of insurance policies .....11, 15 Alt 1
Actions	of media releases .....6.5
arbitration .....37	of municipal and statutory authorities (see Legislative requirement)
indemnification by Contractor .....8, 12.1	of subcontracting .....7.2
indemnification by Principal .....8, 12.2	to suspension by Contractor .....28.2
limitation of liability for .....13, <i>Items</i> 18 & 19	working days .....26
Acts, (of Parliament) (see Legislative requirements)	working hours .....26
Additions and/or deductions	Approved form of unconditional undertaking
access, changes in .....21.1	security .....1
adjustment generally .....2	form of .....Annexure Part B
changes in legislative requirements .....9.2	Arbitration
contract sum definition, excluded in .....1	agreement to arbitrate .....37.2
discrepancies in documents .....6.1	ambit of dispute .....37.1
generally .....2	conference .....37.2
legislative requirements .....9.2	nomination of arbitrator .....37.3, <i>Item</i> 37(a)
order of work .....27	rules of .....37.3, <i>Item</i> 37(b)
pricing variations generally .....31.3	Assessment (see Principal, assessments by)
programming .....27	Assignment
suspension .....28.4	of Contract .....7.1
variations .....31.3	of subcontract .....7.2(a)
Address for service (see also Service) .....5	by subcontractor .....7.2(b)
change of .....5	Asterisk clauses .....6.5, 25.2
Contractor .....5, <i>Item</i> 4	Australasian Dispute Centre <i>Item</i> 37(a), (c)
Principal .....5, <i>Item</i> 2	Authorisation (see Direction)
Adjustment (for)	Awards (see Legislative requirements)
cost of suspension .....28.4	Bank guarantee (see Unconditional undertaking)
defective material and work .....25.3	Bank—place of business .....1, <i>Item</i> 11(c)
delay damages .....29.7	
directions on order of work .....27	
errors in documents .....6.1	
fees and charges .....9.2	
interest .....32.4	

Clause	Clause
Bankruptcy	
of Contractor.....34.11	
of Principal.....34.11	
Basis of payment.....2	
Bench mark (see Survey mark)	
Breach of contract	
claims for.....36	
default of the Contractor.....34.2	
default of the Principal.....34.7	
preservation of other rights.....34.1	
repudiation.....34.10	
substantial breaches.....34.2, 34.7	
By-laws (see Legislative requirements)	
Calendar days.....1(a)	
Care of the Services	
cleaning up.....21.2(e)	
Contractor's obligations for.....11.1	
excepted risks.....11.3	
generally.....11.1	
reinstatement of loss or damage.....11.2	
urgent protection of.....10.2	
Certificate(s) (see also Direction and Payment)	
effect of.....32.2	
final certificate.....32.3	
of cost to complete on default by Contractor.....34.6	
of municipal and statutory authorities (see Legislative requirements)	
progress certificate.....32.2	
Claims (see also Adjustment)	
arbitration of.....37.3	
compensation to third party.....10.1	
failure to notify, effect.....36.2	
for damages.....36.1, 37.1	
for EOT for performing Services.....29.3	
for EOT for single performance.....29.3	
for final payment.....32.3	
for progress payment.....32.1, <i>Item</i> 33	
indemnity by Contractor.....8, 12.1	
indemnity by Principal.....8, 12.2	
liability for.....36.3	
notice of dispute.....36.1, 36.3, 37.1	
notice of potential claims on insurance policies.....17.3	
notification of.....36	
settlement of claims under policy of insurance.....17.4	
settlement of disputes.....37	
valuation of.....32.2, 36.3	
Clause headings—effect.....1(c)	
Cleaning up.....21.2(e)	
Commencement of the Services	
generally.....29.1	
insurance, proof of.....17.1	
production of policies before.....17.1	
Communications between parties.....1(e)	
Compensable cause	
defined.....1	
delay damages for.....29.7	
others listed..... <i>Item</i> 29	
Completion	
by Principal on default.....34.4, 34.5, 34.6	
final certificate.....32.3	
Compliance	
with legislative requirements.....9.1	
with Principal's interpretation.....6.1	
Concurrent delay.....29.4	
Conditions, waiver of.....38	
Confidential information	
agreement as to.....6.4	
generally.....6.4	
Construction of Contract.....1, 6.1	
Consultants	
contract with, on default by Contractor.....34.5(b)(ii)	
Contract	
assignment.....7.1	
breach of (see Breach of Contract)	
construction of.....1	
defined.....1	
disputes under.....37	
documents.....6	
evidence of.....4	
formal instrument of.....4	
frustration of.....35, 37.1	
governing law of.....1(h), <i>Item</i> 10	
interpretation of.....1	
nature of.....2	
rectification of.....37.1	
subcontracting.....7.2	
termination—effect of.....34.10	
termination of	
by Principal.....34.4, 34.11	
by Contractor.....34.9, 34.11	
Contract documents.....6	
ambiguities in.....6.1	
construction of.....6.1	
discrepancies in.....6.1	
inconsistencies in.....6.1	
interpretation of.....6.1	
Contract sum	
defined.....1	
liability to pay.....13.2(a)	
Contractor	
access to premises by.....21	
address of..... <i>Item</i> 4	
appointment of representative.....19	

Clause	Clause
default by .....34.2	Damage
defined .....1	prevention of.....10
design, warranty as to .....8	protection of property, etc.....10
named .....Item 3	reinstatement of.....11.2
rights of .....34.9, 34.11	to persons and property other than the Services .....12.1
security by.....3, Item 12	to the Services .....11.1
service on.....5	urgent protection.....10.2
to insure .....14, 15, 16	
use of premises by.....21	Damages (see also Adjustment and Claims)
Contractor-supplied documents	delay damages.....29.7
approval of.....6.3(b)	for breach of the Contract .....34.1
checking of .....6.3(a)	for delay by Contractor .....29.6, Item 28
copies of.....6.3	for delay due to compensable cause .....39.7
rejection of.....6.3(c)	liquidated .....29.6, Item 28
responsibility for.....6.3	on insolvency .....34.11
submission of.....6.3	on termination of the Contract .....34.10
suitability of.....6.3(c)	
supply of .....6.3	Date
Contractor's employees	of acceptance of tender .....1
accident or injury .....16	total performance period .....29.1, Item 9
control of .....20	
insurance of.....16	Date of acceptance of tender
liability for .....7.3	defined .....1
payment of.....33	
removal of, from premises .....20	Days
removal of, from Services .....20	mean calendar days .....1(a)
Contractor's representative .....19	working .....26
Contractor's responsibility	
for employees (see Contractor's employees)	Debt due to the Principal.....10.1, 10.2, 10.3, 25.3,
for payment of workers and subcontractors .....33.1	29.6, 32.5, 34.6
for subcontractors .....7.3	
to carry out Services .....2	Decision (see also Direction)
Contributory negligence	
indemnity as to.....12.1, 12.2	Deemed variation
reduction of liability for .....12.1, 12.2	as to acceptance of defective work .....25.4
Copyright (see Intellectual property right)	for latent condition.....22.3
Corporation (also see Person) .....1(a), 34.11(d)	reinstatement of damage .....11.2
Corporations Law .....33.3	repairs .....24
Cost(s) (see also Adjustment)	
completion of work taken out of	Default by Principal
the hands of the Contractor .....34.6	Contractor's rights on.....34.9
complying with legislative requirements.....9.2	Contractor's show cause notice.....34.8
latent conditions.....22.3	generally .....34.7
protection of person, etc.....10	in making due payment .....34.7(d)
set-offs by Principal .....32.5	in providing evidence of insurance .....34.7(b)
urgent protection .....10.2	in providing security .....34.7(a)
variations .....31.2, 31.3	in rectifying inadequate access.....34.7(c)
Cross liability clause.....17.5	on termination.....34.10
Currency .....1(g), Item 11(a)	rights of the Contractor .....34.1, 34.7, 34.8, 34.9
	show cause on .....34.7, 34.8
	Default by Contractor
	adjustment of costs on.....34.6
	assessment of cost to complete on.....34.6
	failing to comply with a direction of the
	Principal .....34.2(a)
	failing to maintain performance program .....34.2(d)
	failing to proceed with due expedition
	and without delay .....34.2(e)
	failing to provide evidence of insurance.....34.2(a)
	failing to use materials or standards of work.....34.2(a)
	in providing documentary evidence .....34.2(e)
	in providing security .....34.2(a)

Clause	Clause
may use plant and materials on 34.5	further delay 34.3
on termination 34.10	notice of 29.2
possession of plant and materials 34.5	overlapping 29.4
procedure on 34.2–34.6	performance program 27, 34.2(c)
records of cost to complete 34.5	rate of progress 29.1
retention of plant and materials 34.6	
rights of the Principal 34.1–34.6, 34.9	Delay damages
show cause notice to 34.3	claim for 29.7, 36.1
substantial breach by 34.2	due and payable 29.7, 36.3
substantial departure from performance	for compensable cause 29.7
program 34.2(c)	other compensable causes 1, 29.7, <i>Item</i> 29
suspension of payment on 34.4	rate of <i>Item</i> 30
when the Principal takes work	
out of hands of Contractor 34.5, 34.6	Deletion of clauses, etc.—effect 1(i)
Default of subcontractor, liability for 7.3	Deletions, amendments and
Default or insolvency	additions (generally) 1(i), Annexure Part C
by Contractor 34.2, 34.11	Demand (see also Direction)
by Principal 34.7, 34.11	Deposit (see Security)
generally 34	Design
preservation of other rights 34.1	defects in—excepted risk 11.3(h)
substantial breaches 34.2, 34.7	intellectual property rights in 8
show cause notices 34.3, 34.8	warranties, as to by Principal 8
Defective work	Determination (see also Direction)
acceptance of 25.4	defined in direction 1
correction of 25.3	disputes 37
cost of rectification 25.3	interpretation of discrepancy 6.1
demolition of 25.3	pricing of variation 31.3
generally 25.3	value of work 32.2
includes material 25.3	
not to deliver 25.3	Determination of Contract (see Termination of Contract)
quality assurance 25.2	Dimensions
reconstruction of 25.3	figured 6.1
removal of 25.3	scaled 6.1
replacement of 25.3	Direct payment to subcontractor 33.3
time of notice of 25.5	Direction (see also Approval)
Defects	defective materials or work 25.3, 25.4
costs of rectification 25.3, 30.2	defined 1
defined 1	oral, to be confirmed in writing 18.1
direction to rectify 30.2	order of work 27
in work 25.3, 25.4, 30.2	performance program 27
length of liability period 30.2, <i>Item</i> 32	relating to Contractor's employees 20
material and work 25.3, 25.4, 30.2	relating to subcontractors 20
remedying 25.3, 30.2	suspension of Services 28.1
removal and replacement 25.3	written 18.1
times for rectification 25.3, 30.2	Discrepancies
Defects liability period	Contract documents 6.1
defined 1	dimensions 6.1
duration of 30.2, <i>Item</i> 32	Dispute (see Dispute resolution)
generally 30.2, <i>Item</i> 32	
Definitions (generally) 1	
dispute 37.1	
Delay	
concurrent 29.4	
damages 4(c), 34.9	

Clause	Clause
Dispute resolution	Errors
after final certificate 32.3(d)	Contract documents 6.1
ambit of 37.1	Escrow
arbitration 37.3	security transferred in 5.1
conference 37.2	Excepted risk
continue performance of Contract 37.1	defined 1
dispute defined 1, 37.1	meaning 11.3
includes difference 37.1	Explanation (see also Direction)
meaning of dispute 1, 37.1	Extension of time (see EOT)
notice of dispute 36.1, 37.1	Facilities
summary relief 37.4	made available by Principal 23, <i>Item 22</i>
Documents	Failure of Contractor (see also Delay and Default of Contractor)
ambiguities in 6.1	to arrange urgent protection 10.2
approval of the Principal 6.3	to lodge security 34.2(a)
availability of 6.4	to make claims 36.2
confidential information 6.4	to produce proof of insurance 17.2, 34.2(a)
construction of 6.1	to show cause 34.3
Contractor-supplied 6.3	Failure of Principal (see also Default of Principal)
discrepancies in 6.1	to give access 34.7, <i>Item 36</i>
evidencing Contract 4	to insure 34.7(b)
generally 6	to make payment 34.7(d)
inconsistencies in 6.1	to provide security 34.7(a)
interpretation of 6.1	Faulty work (see Defective material or work)
Principal-supplied 6.2	Fees and charges (see Legislative requirements)
property in 6.2, 6.3	Figured dimensions 6.1
service of 5	Final payment
Due (see Moneys due)	accord and satisfaction 32.2
Due and owing (see Moneys due and owing)	defined 1
Due and payable (see Moneys due and payable)	meaning 32
Emergency work 10.2	Final payment claim
Employees	defined 1
control of 20	endorsement of 32.3
insurance of 16	includes all claims 32.3
of Contractor (see Contractor's employees)	meaning 1, 32.3
of subcontractor 20	payment on account, excepted 32.2
responsibility for 7.3	prescribed notice, excluded 36.1
English language 1(e)	time for 32.3
EOT (extension of time)	Financial institution
application for 29.3	form of unconditional
assessment of 29.4, 29.5	undertaking by Annexure Part B
claim for 29.3	security provided by 1
deemed assessment 29.5	Formal instrument of agreement
defined 1	execution of 4
exclusions 1, 29.3, <i>Item 25</i>	generally 4
failure to apply for, effect 36.2	stamping of 4
grant of 29.5	Form of unconditional undertaking Annexure Part B
in event of further delay 29.3	
partial grant of 29.5	
Principal may direct 29.5	
qualifying cause of delay 1, 29.3	
refusal of 29.5	
time for applying for 29.3, <i>Item 26</i>	
time to make EOT claim <i>Item 26</i>	
time to give assessment of claim <i>Item 27</i>	

Clause	Clause
Frustration	Instruction (see also Direction)
generally .....35	Insurance
notice of dispute when 37.1(b)	cross-liability .....17.5
payment on 35(a)	failure to provide proof of 17.2, 34.2(a), 34.7(a)
release and return of security 35(c)	inspection of policies .....17.1
termination by .....35	notice of potential claims .....17.3
Gender includes every gender 1(d)	of employees .....16
Governing law 1, <i>Item</i> 10	of the Services 14, <i>Item</i> 20
Headings of clauses 1(c)	proof of insurance .....17.1
Hours of work .....26	public liability .....15
Incompetence of employees, etc. ....20	settlement of claims .....17.4
Indemnity	workers' compensation .....16
by Contractor 8, 12.1	Intellectual property rights
by Principal 8, 12.2	Contractor's warranty as to .....8
care of the Services .....11.1	defined .....1
damage to persons and property .....12	design documents .....8
infringement of intellectual	indemnity as to .....8
property rights .....8	licence in .....8
Information to be supplied	ownership of .....8
advance notice .....27	Principal's warranty as to .....8
by Principal .....27	Interpretation of Contract documents 1, 6.1
confidential information .....6.4	Interest
Contract documents .....6	on security .....3.5
examination of information made available	overdue payments .....32.4, <i>Item</i> 34
for tendering 22.1(a)	rate of .....32.4, <i>Item</i> 34
examination of information relevant to	Issue of
risks, contingencies, etc 22.1(b)	final certificate .....32.3
latent conditions .....22	progress certificate .....32.2
to media .....6.5	<i>Item</i>
working hours and days .....26	defined .....1
Injury to persons	Labour
generally 10.1, 12.1	provision by Contractor .....23
indemnity by Contractor .....12.1	Language of Contract 1(e)
insurance .....15, 16	Latent conditions
measures to prevent .....10.1	costs of .....22.3
Insolvency	deemed variation on .....22.3
bankruptcy 34.11(c)	defined .....1
Contractor's rights on .....34.11(B)	meaning .....22.1
deed of arrangement 34.11(d)	notification of .....22.2
generally .....34.11	scope of .....22.1
meeting of creditors 34.11(d)	Law
mortgagee in possession 34.11(d)	compliance with legislative requirements .....9.1
Principal's rights on 34.11(A)	Corporations .....33.3
voluntary winding up 34.11(d)	governing the Contract 1(h), <i>Item</i> 10
when corporation 34.11(d)	Legislative requirements
when exercisable .....34.11	changes in .....9.2
when individual .....34.11(c)	changes to the Services .....9.2(a)(i)
Inspection	compliance with .....9.1
insurance policies .....17.1	cost of .....9.2(c)
Institute of Arbitrators & Mediators Australia	defined .....1
rules of <i>Item</i> 37(b)	excepted .....9.1, <i>Item</i> 17

Clause	Clause
fees and charges 1, 9.2(a)(ii)	Moneys due
payment to subcontractor under 33.3	claim for 32.1
payment to worker under 33.3	cost of proposed variation 31.2
provision of services 9.2(a)	cost of protection 10.1
satisfaction of 9.1, <i>Item</i> 17	cost of urgent protection 10.2
time of effect of 9.2(b)	interest 32.4
variance in 9.1	occupational health and safety 10.3
Liability of the Contractor	on frustration 35(b)
for care of the Services 11.1	other moneys due 32.5
for compliance with legislative requirements 9.1	progress payment 32.2
Liability to reinstate	progress claim 32.1
amount of insurance for 13.1, <i>Item</i> 20	Moneys due and owing
generally 11	to Principal otherwise 32.5
insurance of 14	Moneys due and payable
limitation of liability for 13	claims generally 36.3
settlement of claims in respect of 17.4	cost of defect rectification 30.2
Licences (see Legislative requirements)	costs of suspension on breach 34.9
Limitation of liability	delay damages 29.7
amount of limit 13.1, <i>Items</i> 18, 19	final payment 32.3
exclusions 13.2	interest 32.4
generally 13.1	liquidated damages 29.6
Liquidated damages	on work taken out of the hands of Contractor 34.6
due and payable 29.6	to workers and subcontractors 33.2
rate of 29.6, <i>Item</i> 28	unpaid insurance premium 17.2
repayment of 29.6	Nature of Contract 2
Litigation 37.4	Negligence of employee 20
Local authorities 9	Notice (see also Direction, Notice of dispute)
Loss or damage to the Services	for urgent protection 10.2
care of the Services 11.1	of access to premises 21.1
excepted risks 11.3	of claim for EOT 29.3
generally 11	of claims generally 36
protection 10.1, 10.2	of default by the Contractor 34.3
reinstatement 11.2	of default by the Principal 34.8
urgent protection 10.2	of delay 29.2
Lump sum 2	of dispute 37.1
Making good (see also Reinstatement) 11.2, 25.3, 30.2	of latent conditions 22.2
Materials (see also Work)	of potential insurance claims 17.3
acceptance of defective 25.4	of working hours 26
defective 25.3, 25.4	oral or written 18.1
failure to use proper materials 34.2(a)	prescribed 36.1
possession on default 34.5	service of 5
provision of by Contractor 23, 25.1	statutory authorities 9.1
quality of 25.1	to suspend work 28.1
upon frustration of Contract 35	Notice of dispute
use of new materials 25.1	arbitration 37.3
Media releases 6.5	concerning claims 36.1, 36.3
Minor defects	conference following 37.2
practical completion, in definition of 1	generally 37
remedying 29.3, 35	how served 37.1
Misconduct of employee 20	includes difference 37.1
	when final payment 32.3(d)

Clause	Clause
Notification of claims (see also Claims)	
failure to comply .....36.2	to workers .....33
generally .....36	urgent protection .....10.3
notice of dispute concerning .....36.1, 36.3	within 21 days of claim .....32.2
prescribed notice .....36.1	withholding by Principal .....33.2
liability on .....36.3	
Omissions (see also Defects and Minor defects)	
at final certificate .....32.4(b)	Payment to workers and subcontractors
Oral direction .....18.1	direct payment to .....33.3
Order (see also Direction)	documentary evidence of .....33.1
Order of work .....27	Principal may withhold payment .....33.2
Orders (see Legislative requirements)	where required by law .....33.3
Ordinances (see Legislative requirements)	withholding of payment .....33.2
Ordinary working days .....26	Performance and payment .....2
Ordinary working hours .....26	Performance duration
Other moneys due .....32.5	defined .....1
Overlapping delays .....29.4	length of .....29.1, <i>Item 7</i>
Ownership of documents	Performance period cycle
supplied by Contractor .....6.3	defined .....1
supplied by Principal .....6.2	length of .....29.1, <i>Item 8</i>
Patent (see Intellectual property right)	Performance program
Payment(s) (see also Adjustments)	defined .....1
adjustment for fees to statutory authorities .....9.2	departure from .....27
and performance .....2	direction as to .....27
basis of .....2	failing to adhere to .....34.2(c)
calculated by rates .....2	meaning of .....27
calculation of .....32.2	proposed variation, effect on .....31.2(a)
claims for .....32.1	
currency of .....1(g), <i>Item 11(a)</i>	Permission (see also Direction)
deductions .....32.2	Permits (see Legislative requirements)
default by Principal .....34.7(d)	Person, meaning .....1(a)
delay damages .....29.7	Persons
during arbitration .....37.1	death of .....12
for defective materials and work .....25.3, 30.2	indemnity by Principal .....12.2
for progress claims .....32.2	injury to .....12.1
generally .....32	insurance of .....15, 16
insurance premiums, proof of .....17.2	protection of .....10.1
interest on overdue .....32.4	suspension, to protect .....28.1
liquidated damages .....29.6	urgent protection of .....10.2
of security and retention moneys .....3.1	Place for payment .....1(g), <i>Item 11(b)</i>
of workers and subcontractors .....33	Place of business of bank (security) .....1, <i>Item 11(c)</i>
on completion by Principal .....34.6	Premises
on final payment .....32.3	access to .....21.1
payment claim .....32.2	Contractor to observe requirements .....21.2
payment on account .....32.2	delay in providing .....21.1, 34.7(c), <i>Item 36</i>
place for .....1(g), <i>Item 11(b)</i>	facilities, etc., to be made available .....23, <i>Item 22</i>
retention moneys .....3.1, <i>Item 12(c)</i>	repairs to .....24
set-offs by Principal .....32.5	Prescribed notice
suspension of by Principal .....34.4	defined .....1
to subcontractors .....33	meaning .....1, 36.1
	Pricing
	variations .....31.3

Copyright
Nauru Terminal Tank Upgrade
Request for Quote

Clause	Clause
Repairs	Service
Contractor's liability for 24, <i>Item</i> 23	by fax 5(b)(ii)
cost of 24	by hand 34.2, 34.7, 37.1
generally 24	by post 5(b)(iii)
Principal's liability for 24	by registered post 34.2, 34.7, 37.1
urgent (see Urgent protection) 10.2	by the Contractor on the Principal 34.7
Replacement (see Reinstatement)	by the Principal on the Contractor 34.2
Replacement of defective	notification of latent conditions 22.2
materials or work 25.3	of appointment of Principal's
Representative of	Representative 18.2
Contractor 19	of claims 36.1
Principal 18.2	of notice of dispute 37.1
Repudiation of Contract	of notice(s) (see also Notices) 5
parties rights on 34.1, 34.10	of potential (insurance) claims 17.3
Request (see also Direction)	of taking the work out of the hands
Requirement (see also Direction)	of Contractor 34.4
Requirements of legislation 9.1	of terminating the Contract 34.4, 34.9
Responsibility	personal service 5
of Contractor for subcontractors 7.3	Set-off
for performance 2	by Principal 32.5
Retention moneys (see Security)	Settlement
Risks	arbitration 37.2
excepted 1, 11.3	notice of dispute 37.1
Royalties (see Intellectual property rights)	of disputes 37.1
Schedule of prices	Single performance
included in definition of schedule of rates 1	assessment of EOT for 29.4
variations priced by 31.3(c)	claim for EOT for 29.3
Schedule of rates	defined 1
defined 1	frequency of 29.1
generally 2	grant of EOT for 29.5
payment by 2	liquidated damages 29.6
variations priced by 31.3(c)	Statutory requirements (see Legislative requirements)
Security (includes Retention moneys)	Subclause headings—effect 1(c)
change of 3.3	Subcontract work
Contractor's <i>Item</i> 12	generally 7
defined 1	requiring approval 7.2, <i>Item</i> 16
form of 3.1	Subcontractor
generally 3	approval of 7.2, <i>Item</i> 16
includes retention moneys 1	Contractor's responsibility for 7.3
interest earned on 3.5	defined 1
Principal's <i>Item</i> 13	removal of 20
provision of 3.1, <i>Items</i> 12, 13	terms of approval 7.2
recourse to 3.2	when Contract frustrated 35(b)
reduction of 3.4, <i>Items</i> 12, 13	Subcontractors' employees 20
release of 3.4	control of 20
return of 3.4	insurance of 16
substitution of 3.3	responsibility for 7.3
time of lodgement of 3.1, <i>Items</i> 12, 13	Substantial breaches 34.2, 34.7
trust 3.5	Suspension
upon frustration of the Contract 35(c)	by the Contractor 28.2, 34.9
	by the Principal 28.1
	cost of 28.4, 34.9

Clause	Clause
due to acts, etc. of Contractor..... 28.1(a)	for access to premises 21
due to acts, etc. of Principal 28.1(a)	for approval of Contractor's
effect of 28.4	documents 6.3(c), <i>Item</i> 15
end of 28.3	for arbitration 37.2
protection or safety 28.1(b)	for carrying performing Services 29.1
generally 28	for claiming EOT 29.3, <i>Item</i> 26
to comply with court order..... 28.1(c)	for completing Services 29.1
Suspension of payment by Principal 33.2, 34.4	for doing any act 1(b)
Taking over of Services by Principal 34.5	for effecting insurance 14, 15, 16
Tender (see Acceptance of tender)	for executing formal instrument of agreement 4
date of acceptance, defined 1	for final payment..... 32.3
Termination of the Contract (see Default, Frustration)	for granting an EOT 29.5, <i>Item</i> 27
by frustration..... 35	for lodging security 3.1, <i>Items</i> 12, 13
by the Contractor 34.9, 34.10	for making claims 36
by the Principal 34.4, 34.10	for notice of latent condition 22.2
insolvency..... 34.11	for notice to show cause..... 34.3, 34.8
rights of parties on 34.10	for notification of claims..... 36
The Services	for progress claims..... 32.1, <i>Item</i> 33
access to perform the Services 21	for progress payments 32.2
care of 11.1	for release of security or retention..... 3.4
changes to 9.2	for service of notices 5
claim concerning 32.1, 36	for Principal to confirm oral direction..... 18.1
default in respect of..... 34	for Principal's direction about documents 6.3, <i>Item</i> 18
defective work concerning 25.3, 30.2	for supply of Contractor's documents 6.3
defects liability period for 30.2	for supply of performance program..... 27
defined 1	for supply of Principal's documents..... 27
directions concerning 18.1	for urgent protection 10.2
disputes concerning 37	suspension of work 28.1
EOT for performing 29.3, 29.4, 29.5	to rectify inadequate access..... 34.7(c), <i>Item</i> 36
frustration in respect of performing 35	Trademark or name (see Intellectual property right)
indemnity in respect of performing 12.1	Unconditional undertaking (see Security)
information concerning 6.5	approved form..... Annexure Part B
insurance of liability to reinstate 14	UNCITRAL Rules <i>Items</i> 37(b), (c)
limitation of liability in respect of..... 13.1, <i>Items</i> 18, 19	Unpaid moneys 33.3
payment for 2, 32	Urgent protection 10.2
performance duration of..... 29.1, <i>Item</i> 7	Urgent relief..... 37.4
performance generally 2	Valuation
performance period cycle for 29.1, <i>Item</i> 8	of final payment claims..... 32.3
performance program concerning 27	of progress payment claims..... 32.2
provision of plant, materials, etc., to perform 23	pricing of variations 31.3
quality of..... 25	Variation
repairs to enable Services to be performed..... 24	character and extent of..... 31.1
security for..... 3	cost of complying 31.2
suspension of 28, 34.9	cost of proposed 31.2
total performance period for..... 29.1, <i>Item</i> 9	deductions—valuing 31.3
urgent protection of..... 10.2	deemed 10.3, 11.2, 22.3, 24, 25.4
variations concerning 31	defined 1
warranties concerning 30.1	directing of..... 31.1
Third party insurance	direction by Principal 31.1
(see Public liability insurance) 15	estimate for 31.2
Time (see also EOT)	generally 31
construction program 27	meaning 1, 31.1
defects liability period..... 30.2, <i>Item</i> 32	measurements..... 31.2
delay damages..... 29.7	

Index

AS 4920—2003

■ References to *Items* are to *Items* in Annexure Part A

	Clause		Clause
notice of proposed.....	31.2	Work (includes Materials)	
order of precedence in pricing.....	31.3	acceptance of defective work	25.4
pricing of	31.3	care of	11.1
proposed	31.2	deemed variation as to defective work	25.4
quotation for	31.2	defective.....	25.3
scope of	31.1	defined	1
valuation of	31.3	not complying with the Contract.....	25.3
Wages		order of work	27
of workers	33	outside working hours.....	26
Waiver of conditions		progress of	29
generally	38	quality of.....	25.1
in writing	38	remedial	25.3, 30.2
Warranties		subcontracting.....	7.2, Item 16
generally	30.1, Item 31	suspension of	28
items on which apply	30.1, Item 30	times for work	27
Winding up	34.11	variations (see Variations).....	31
Words—singular includes plural and		Workers' compensation	16
vice versa	1(d)	Workers, payment of.....	33
		Working days.....	26
		Working hours	26

AMENDMENT CONTROL SHEET

AS 4920—2003

Amendment No. 1 (2005)

REVISED TEXT

SUMMARY: This Amendment applies to Clause 37 (a) and (c) of Annexure Part A.

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Appendix X

Particular Conditions of Contract

Particular Conditions

Definitions

1.1

Definitions

In the Contract as defined below the words and expressions defined shall have the following meanings assigned to them except where the context requires otherwise:

The Contract

- 1.1.1 **“Hot Work”** shall mean the performance of work where heat is used or generated and is of such intensity as to possibly ignite flammable liquids, gases or other flammable materials. Hot work is permitted only when and where specifically authorized in writing on the Work Permit.
- 1.1.2 **“Hazardous Areas”** are those areas where an accumulation of petroleum vapours might occur in sufficient concentration to form a flammable mixture. A hazardous area can be one that is normally safe, but has become hazardous due to some performance or operation. Hazardous Areas are classified in accordance with AS2430, Part 1, as Zone 0, Zone 1 or Zone 2.
- 1.1.3 **“Hazardous Work”** shall mean:
 - a) Any work that may require or generate a form of heat or ignition source carried out in an atmosphere that may contain flammable liquid vapours or gases or other flammable materials.
 - b) Any work carried out on materials contaminated by toxic products, or any work carried out in a Confined Space;
 - c) Work that will entail use of equipment and materials that may produce static electricity discharge.
- 1.1.4 **“Gas Free”** means non-explosive atmosphere, but not necessarily a lead-free atmosphere.
- 1.1.5 **“Restricted Area”** is that area in which the **Employer** exercises control over all movements and operations, e.g. the area within the boundary fence of sites owned or leased by the **Employer**.
- 1.1.6 **“Confined Space”** is the interior of any tank, or compartment of a tank, vessel, manhole, sewer pump, pit of any excavation all as defined in Australian Standard AS 2865 “ Safe working in a confined space “
- 1.1.7 **“Entry”** shall refer to the entering of any Confined Space or working with any part of the body projecting into a manhole or opening of a tank or compartment of a tank or pit.
- 1.1.8 **“Authorized Equipment”** shall mean equipment which has had any ignition sources modified so that they will not ignite flammable vapors and which has been approved of in writing by the Issuing Authority It shall also mean equipment covered by a work permit or checklist which is considered in writing by the Issuing Authority not to constitute a hazard in the particular area which the work permit or checklist covers.

- 1.1.9 **"Checklist"** shall mean a written instruction of the conditions which must be observed by the Contractor when carrying out routine works for which he has been trained and approved by the Issuing Authority. When a checklist is issued it shall take the place of a work permit for that part of the work.
- 1.1.10 **"Work Permit"** shall mean the written instruction given by the Issuing Authority to the Contractor telling of the conditions under which each phase of all work described in the Contract or Purchase Order shall be done
- 1.1.11 **"Issuing Authority"** is the person with the authority delegated by **Employer** to issue a Work Permit and/or Gas Free Certificate.
- 1.1.12 **"Endorsing Authority"** is the person with the authority delegated by the by the Issuing Authority to re-endorse Work Permits and Checklists.
- 1.1.13 **"Gas Free Certificate"** shall mean the written certification given by the Issuing Authority that the equipment described on the form is free of flammable vapor and suitable for the work described on the form.
- 1.1.14 **"Site"** means the land and other places to be made available to the Contractor for the purpose of doing the work described in the Contract or Purchase Order. It may be fenced or un-fenced and may or may not be owned by **Employer**.
-

General Safety Policy

2.1 Provision of Site

It is a primary and continuing policy of the Employer that in the conduct of its activities it will endeavour to protect the health and safety of its employees, customers and others who may be affected by these activities and endeavour to limit adverse effects on the physical environment in which its activities are carried out.

These Conditions form part of the contract for work between the Employer and an approved contractor for work to be performed at any Employer property, or works under the control of the Employer. This includes works arranged by Purchase Order or Agreement.

2.2 Statutory Requirements

The Contractor shall comply with all Statutory Regulations governing the work area and work to be done. Where Codes of Practice apply to work, the Contractor shall be guided by these Codes of Practice.

2.3 Areas of Application

These Conditions shall apply at all times during which the Contractor is in connection with the works on the Site or within any of Employer premises or working on Employer facilities plant or fixtures whether or not within the boundaries of Employer premises.

The whole of the Employer premises within the boundary fence or wall shall constitute a Restricted Area (as herein defined) except where specifically exempted in work permit or checklist.

2.4

Clothing and Personal Protective Equipment (PPE)

All Contractors personnel shall be clearly identifiable in a distinct Uniform.

The minimum level of personal protection that Contractors and their employees shall wear:

- a) Standards approved Head Protection, for all construction work. Approved bump caps may be worn as an alternative for maintenance work if there is no overhead work.
- b) Appropriate eye protection.
- c) Neck to Toe clothing (long trousers, and long sleeved shirt).
- d) Standards Australia approved steel capped safety footwear.
- e) Visibility safety vests must be worn for all work in all areas that may be trafficked or where mobile equipment is operating.

Protective clothing and equipment required to carry out the work and to meet the safety requirements of Employer (and may be specified in the permit(s)) shall be provided and maintained by the Contractor who shall be responsible for ensuring that his employees and sub-contractors wear or use the clothing and equipment.

The Contractor shall ensure that all persons using protective equipment are trained in their use.

To manage the safety of Site visitors to construction works the Contractor will be required to have on Site spare sets of protective clothing and safety equipment to an agreed level to allow visitor access to the works.

2.5

Incident/Accident Reporting

The Contractor will report to Employer any accident, injury, loss or damage to any person or any property of a third party and to the property of Employer, this is to be in a form compatible with Employer incident reporting requirements as defined in Attachment 1.

2.6

Entry into Corporation Premises

Persons shall not enter or attempt to enter the Site or other facilities otherwise than by recognized gates or other entrances as directed by the Employer's Representative. The Contractor must report to an authorized person before entering the premises.

At Sites such as service stations where there may not be defined entrances to work area, the Contractor must report to the Employer's Representative before commencing work or placing equipment on Site.

2.7

Alcohol and Drugs

No intoxicating liquor or drugs shall be brought onto the Site or other facilities. Any persons reporting for duty in an intoxicated condition and / or with intoxicating liquor or drugs will be refused admission or not permitted on the Site.

Likewise Contractor employees found under the influence of drugs, either for medical or other purposes and constituting a health/safety issue, will be refused admission and/or sent from the Site.

2.8

Access to Work Areas

Neither the Contractor nor any of his employees or sub-contractors shall enter nor be upon any part of the Site other than the permitted location of their work except with the prior permission of the Employer's Representative.

Access to Site shall be permitted Daily.

2.9 Ignition Sources

Equipment capable of generating any ignition sources are not permitted into work areas, except where approved by work permit.

Failure to comply with these requirements will result in removal from the Site.

Some examples of ignition sources that are capable of igniting flammable substances are as follows:

- a) All naked flames, matches or lighters of any description, explosive powered tools or firearms.
- b) Electric and gas welding torches and gas welding igniters.
- c) Grit and sand blasting machines or spray painting equipment.
- d) Power-operated grinders and cutting machines and portable electric tools.
- e) Electrical equipment if industrial type, i.e. neither flameproof, intrinsically safe nor approved.
- f) Portable radios, mobile telephones, cameras with batteries, photographic flash units, pocket paging units (not intrinsically safe), pocket calculators, hearing aids - unless certified by a qualified Electrical Engineer as inherently safe - evidence of this will be required in advance of the work commencing.
- g) Hand-operated ferrous tools in contact with dry concrete, stone or masonry, aluminium in contact with corroded steel.
- h) Internal combustion engines and diesel engines that are not provided with approved exhaust and inlet systems and ancillary electrical equipment;
- i) Any other machine or equipment capable of producing a local source of ignition either by flame, static electricity, friction, heat, spark, exhaust temperature, etc.

2.10 Smoking

Smoking within the Site is prohibited except in declared areas which shall be nominated.

2.11 Motor Vehicles, Plant and Equipment including Motorcycles and Bicycles

Vehicles, plant and equipment other than required for the execution of the works are not permitted on the Site or work areas.

Vehicles, plant and equipment may be required to undergo a safety check by the Employer's Representative, who will reject any equipment found to be unsafe.

Operators of vehicles or equipment entering Site or works areas must ensure that their entry or exit is noted by the Employer's Representative, supervisor or other authorized persons.

- a) Contractor's equipment within Employer's premises or on work sites must not:
- b) Block any entry, gateway or access so as to prevent the free access of other vehicles.
- c) Obstruct foam pump houses, fire hydrants, hose boxes or other safety equipment.
- d) Contractor's vehicles must be parked facing the exit of the premises or Site with engines switched off and doors unlocked, but ignition / starter key left in the ignition / starter lock. This does not apply to vehicles on Retail Service Stations as vehicle should be secure.

2.12 Entry into Confined Spaces

Entry into a Confined Space is prohibited except as authorized by a current Work Permit.

2.13 Hazardous Work (Hot Work)	Hazardous, or Hot Work shall not be performed except as authorized by a current Work Permit or approved Checklist.
2.14 Authorized Equipment 2.15 Gas Free	<p>Only authorized equipment is to be used by the Contractor, his employees and sub-contractor.</p> <p>Before working on or in tanks or vessels or in excavations/open drains, sumps, etc., which have or may have contained hydrocarbon liquids or vapours, a Gas Free Certificate and work permit must be obtained by the Contractor from the Issuing Authority. The conditions shown on this Certificate or permit must be strictly adhered to.</p>
2.16 Minimum requirements for Working at Heights	<p>The following minimum requirements shall be applied when working at heights on Employer installations.</p> <p>Employer defines "working at heights" as work performed above 2.0 meters (m) or approximately 6 feet (ft). This is further defined as the lowest part of the body is above 2m, or within 2.0m of an edge where a 2.0m or greater fall may occur.</p> <p>In all cases where legislation or local requirements are more rigorous, the more rigorous rules shall be applied.</p> <p>Before work is to occur at height a specific hazard identification and risk assessment of the work and specific task(s) must be conducted for each individual case. This is to address all safety aspects of the task and ensure that the correct procedures are applied and appropriate equipment is available. Any rescue methods must also be specified.</p> <p>Note, where the term "fall arrest system" is used in this document it can be of several different types, a body harness and anchor points or static line, scaffolding (with hand rails) to within 600mm below the exposed edge or temporary handrails etc.</p> <p>Any fall arrest system shall comply with OSHA, ANSI and CSA Requirements "Industrial fall-arrest systems and devices".</p> <p>A parapet or hand rail along an exposed edge must be at least 900mm high and in the case of a hand rail have fender boards and intermediate rails to stop a person from sliding underneath the top rail.</p>
Access above 2.0m	<p>Access can be gained via ladders or scaffolding. The following rules must be followed for accessing areas above 2.0m:</p> <p>Ladders</p> <ul style="list-style-type: none"> a) may only be used for access to areas that are protected by a fall arrest system. b) are required to be secured before using i.e. a ladder fixing point must be used. c) the ladder must be tied off to the fixing point by the first user. d) no work shall be performed from a ladder (over 2.0m) they are for access only. <p>Scaffolding</p> <ul style="list-style-type: none"> a) must be erected by competent persons in accordance with local OSHA requirements. b) may be used for access to areas that are protected by a fall arrest system. c) Note the scaffold may be part of the fall arrest system.

Cherry pickers may be used for access to roofs and canopies (excluding new Harmony solar canopies) where the basket is lowered onto the roof more than 2.0m from an edge. While in the basket of a cherry picker a body harness must be worn at all times.

Egress from a scissor lift at height is prohibited. OSHA, if specifically requested for a particular task, can waive this rule.

**Working within
2 m of an
exposed edge**

A fall arrest system must be installed whenever work is to occur within 2m of an exposed edge i.e. working within 2m of the roof edge. An exposed edge is any edge that a fall of over 2m can occur.

**2.17
Fall Arrest Systems**

Fall arrest systems shall not be used as the main protection system unless there are no alternatives.

If fall arrest system is to be used, rescue must be assured within 10 to 15 minutes, In most of our applications that will mean that we have to have a full time safety watch

If we can't be assured that a rescue can be carried out within 10 to 15 minutes the fall arrest system must have a device that automatically lowers the person to ground safely

If we can't comply with the above an alternative safe working procedures must be used refer to local legislative requirements.

**Scheduled
Maintenance**

Where a procedure is considered scheduled maintenance (e.g. a task that is repeated at regular intervals up to 12 months apart) a permanent fall arrest system must be installed if work is to occur within 2m of an exposed edge. Unscheduled tasks can be done from a temporary fall arrest system.

Site Security

**3.1
Site Security**

The Contractor shall provide security fencing to ensure the Site perimeter is cordoned off to prevent unauthorised public entry. The security fence shall be 1830mm high Cyclone wire mesh with steel posts to achieve a safe secure Site.

The work areas shall be cordoned off at all times to prevent accidental or unauthorized entry and shall carry signage identifying the area as a construction site with warning signs as appropriate. Arrangements for public/operator access across and around work area, trenches, construction materials and equipment storage areas shall be carefully considered to ensure safety to public is maintained at all times.

Additional warnings and / or barricades shall be used where vehicle movements present a risk to the work area.

All demolition areas shall be barricaded off to prevent accidental entry to the works area.

**3.2
Site Safety
Requirements**

Electrical Leads

Only electrical leads equipped with earth leakage devices and inspection tags shall be used on Site. Electrical leads shall be kept clear of the ground at all times.

In the event a suspended lead obstructs access to a work area it shall be placed through a steel conduit on the ground.

Under no circumstances shall vehicles be driven over unprotected electrical leads.

Rubbish

The Contractor is responsible for maintaining the Site in a clean and safe condition.

During demolition or excavation activities a maximum of 1 (one) truck load of debris will be permitted to be held on Site. Prompt removal of all debris is required.

In the event it is necessary to hold more than one truck load of debris on Site, the debris will be mounded into a tidy heap and barricaded off, to prevent accidental access.

Signs

The Contractor shall install and maintain, as applicable to work scope, the following safety / warning signs on the Site – as approved by the Corporations Authorized Representative.

- a) Safety Helmet Area - On barricades around tank excavation or overhead work.
- b) Danger - Construction Site, Unauthorized Persons Keep Out - At entry to work area.
- c) Danger - Flammable Liquids - on free standing frames or on barricades at hazardous work areas exposed to the public.
- d) Danger - Keep Out No Access - free standing frames or on barricades on all visible public approaches to work areas.
- e) Danger - Do Not Operate - tags with securing cord for all isolations of valving and electrics.

Angle Grinders

The maximum size angle grinder allowed on Site is 7 inch and must be fitted with a double acting switch. They shall only be used for grinding. Cutting with grinders is not allowed. Angle grinders must have all guards in place and current inspection and test tag attached.

During grinding all of the following Safety equipment is used at all times;

- Eye protection (full-face shield and glasses or goggles).
- Hearing protection (ear plugs or muffs).
- No loose fitting or flammable clothing is to be worn.

The use of welding shields alone is not permitted

3.3**Works Control**

The construction will take place within the Restricted Area where the existing Office Building is situated.

Works shall be suspended within the area whenever a Tanker is in port for discharge.

At all other times works will be controlled under the Employer's Work Control Procedures.

Fire Watch

If the scope of work involves "naked flame" work in a hazardous area a Fire Watch will be required.

Provision of a fire watch for hot works will rest with contractor.

The Fire Watch will have to be trained in accordance with Employer's Fire Watch Procedures which involves reading and understanding the duties of a Fire Watch.

Control of the Site and Works will rest with the Contractor, and sub-contractors shall be required to work under their control whilst on Site.

Critical Path

Within 7 days of award of Contract, the Contractor shall present to the Employer's Representative a "Critical Path" network expanded from the Tendered time-chart.

Such expansion of the Tender time-chart shall not change the Starting or Completion Dates of the works, or separate sections of the works listed therein, but shall add greater detail and information such that a detailed "Critical Path" network is obtained.

Should the Contractor wish to vary any dates shown in his Tender time-chart, he shall obtain the Superintendent's approval in writing prior to including such a variation in the "Critical Path" network.

The Contractor shall allow in his scheduling anticipated delays due to days when no works may be permitted on W due to tankers or other operational activities within the terminal. The number of days allowed for such delays shall be clearly stated in the Contractors scheduling.

Project Management

4.1 Contractors Project Management

The Contractor shall appoint for this Contract a Project Manager who shall be responsible for the efficient management and control of the works, for the quality of the work and its performance in the manner specified. The Project Manager shall be suitably experienced in Contracts of this size or larger, and works of this nature and class.

4.2 Responsible Foreman

The Contractor shall have at the Works, from start to finish, a responsible Foreman with appropriate professional qualifications, experienced in all aspects of works in the Contract and who must be on duty or suitably and responsibly represented during all working hours.

A suitably qualified and experienced foreman shall be present at all times at each location of works, work front or item of works as appropriate.

The foreman shall be able to receive and carry out instructions from the Superintendent.

The foreman shall not be replaced by the Contractor without the approval of the Superintendent.

4.3 Appointment

The Employer's Representative reserves the right to approve the appointment of the Contractor's Project Manager and Foremen and to withdraw such approval at any time during the Contract for any cause whatsoever.

Should at any time the Contractor's representatives or project organization be adversely affecting the progress or standard of works, the Employer's Representative may direct the Contractor to take whatever measures are necessary to rectify the situation. Any measures shall be at no cost to the Contract.

Permits and Approvals

5.1 Safe Work Permit / Checklist

Unless otherwise agreed in writing between the Employer and the Contractor, each section of all work shall be covered by the issue of a safe work permit or checklist. All Contractors and persons under their control shall understand and comply with all instructions on the work permit and checklist.

5.2 Daily Endorsement

Work permits and checklists **must be re-endorsed at the beginning of each shift** or daily working period by the Endorsing Authority.

- 5.3
Safety Induction** All Contractors employees shall undergo a Safety Induction by the Employer's Representative. No employee is allowed onto the Site without the Safety Induction.
Safety Induction shall be carried out every four (4) weeks.
- 5.4
Gas Free Certificate
Revalidation** If a gas free certificate has been issued in conjunction with the work permit or checklist it must be re-endorsed at the beginning of each shift or daily working period.
- 5.5
Site Safety
Management Plan** Prior to any works beginning on Site, the contractor must supply to Employer's Representative a Site Safety Management Plan (SSMP) specific to the project. The SSMP shall include a detailed Inspection and Test Plan, and a Method Statement detailing the proposed risk control methods for stages of the Works.
- 5.6
Method Statement** The Method Statement must be accepted by the Employer's Representative before any works can commence, and will be referenced in Work Permits issued by the Site to carry out works. All work will be carried out according to the contractors Safety Health and Environmental Management plan and Quality Manual, copies are to be kept on Site at all times.
- 5.7
Other Permits** The contractor will be responsible for providing any other permits associated with the construction of the facilities, e.g. permits for tie in for wastewater and electrical inspection.

The Contractor assumes full and complete responsibility for any and all Subcontractors working under their direction in performing the scope of work as outlined herein. A list of all Subcontractors proposed by the Contractor shall be submitted to the Owner including a breakdown of the percentage of work to be performed by the subcontractor. Subcontractor(s) shall be subjected to the same safety requirements, verifications, and certifications as the Contractor.
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Appendix Y

Tender and Price Submission Forms

MILESTONE	DESCRIPTION OF WORK PACKAGE	SUPPLY COST	INSTALLATION COST	TOTAL PRICE
M1	Contracting & Project Management			
M2	Mobilization			
M3	Tank Cleaning, Isolation, Sludge/Slops Treatment			
M4	API653 Out of Service Inspection			
M5	Tank Foundation Works			
M6	Floor Repairs			
M7	Nozzle & Apperatures			
M8	Shell Repairs			
M9	Tank Roof Repairs			
M10	Tank Handrails & Stairways			
M11	Tank Fittings & Equipment			
M12	Post Repair Inspections			
M13	Tank Inlet Pipeline Modifications			
M14	Tank Outlet Pipeline Modifications			
M15	Tank Water Drain & Quick Flash Tank Pipework			
M16	Tank Coating Internal			
M17	Tank Coating External			
M18	Tank Calibration			
M19	Tank Fitness for Service			
M20	Tank Commissioning			

SUB TOTAL

LUMP SUMP PRICING

ANY OTHER ITEMS not included above but for which the Contractor requires compensation to complete the work under the Contract shall be list in page 2 of this form

All Materials shall be approved by Vital appointed Tank Engineer's. Contractor bidding must have clear understanding of all relevant Tank and Aviation Standards for Bulk Fuel Storage.

[illegible]

TENDER'S SIGNATURE: _____

DATE: _____

DESCRIPTION	SIZE	RATES	UOM
Blasting & Painting			
Internal Blasting – Tank Floor		\$ _____	/SQ.FT
Internal Blasting – Tank Shell		\$ _____	/SQ.FT
Internal Blasting – Tank Roof		\$ _____	/SQ.FT
Internal Coating Floor @ 300microns (2 coats)		\$ _____	/SQ.FT
Internal Coating Shell @ 300microns (2 coats)		\$ _____	/SQ.FT
Internal Coating Roof @ 300microns (2 coats)		\$ _____	/SQ.FT
External Blasting – Shell		\$ _____	/SQ.FT
External Blasting – Roof		\$ _____	/SQ.FT
External Blasting – Stairs & Handrails		\$ _____	/SQ.FT
External Coating Shell @ 450microns (3 coats)		\$ _____	/SQ.FT
External Coating Roof @ 450microns (3 coats)		\$ _____	/SQ.FT
External Coating Stairs & Handrails @ 450microns (3 coats)		\$ _____	/SQ.FT
Carbon Steel Pipe welding-			
butt , flange, fitting, including fabrication handling	BUTT WELD		
	NB25	\$ _____	/each Weld
	NB50	\$ _____	/each Weld
	NB80	\$ _____	/each Weld
	NB100	\$ _____	/each Weld
	NB150	\$ _____	/each Weld
	NB200	\$ _____	/each Weld
	FILLET WELD		
	NB25	\$ _____	/each Weld
	NB50	\$ _____	/each Weld
	NB80	\$ _____	/each Weld
	NB100	\$ _____	/each Weld
	NB150	\$ _____	/each Weld
	NB200	\$ _____	/each Weld
Carbon Steel Nozzle			
Removal & Installation with reinforcing plate	NB25	\$ _____	/each Nozzle
	NB50	\$ _____	/each Nozzle
	NB80	\$ _____	/each Nozzle
	NB100	\$ _____	/each Nozzle
	NB150	\$ _____	/each Nozzle
	NB200	\$ _____	/each Nozzle
	24" Manway	\$ _____	/each Nozzle
Welding Rate – Carbon Steel Plates Down-hand Groove Weld Horizontal Groove Weld			
Vertical Groove Weld			
Plate, Stairs & Handrail Welding & Repairs		\$ _____	/SQ.FT
6mm Thick plate floor insertion replacement		\$ _____	/SQ.FT
8mm Thick plate floor insertion replacement		\$ _____	/SQ.FT

10mm Thick plate floor insertion replacement		\$ _____	/SQ.FT
6mm Thick floor patch plate		\$ _____	/SQ.FT
8mm Thick floor patch plate		\$ _____	/SQ.FT
10mm thick floor patch plate		\$ _____	/SQ.FT
6mm Thick plate Shell/Roof insertion replacement		\$ _____	/SQ.FT
8mm Thick plate Shell/Roof insertion replacement		\$ _____	/SQ.FT
10mm Thick plate Shell/Roof insertion replacement		\$ _____	/SQ.FT
6mm Thick Shell/Roof patch plate		\$ _____	/SQ.FT
8mm Thick Shell/Roof patch plate		\$ _____	/SQ.FT
10mm thick Shell/Roof patch plate		\$ _____	/SQ.FT
Stairs Replacement – MS Plate		\$ _____	/SQ.FT
Handrail replacement		\$ _____	/L.FT
Resources & Consumables			
Blasting Equipment (Wet Blasting system)		\$ _____	/Day
Welding Plant (Mobile Equipment)		\$ _____	/Day
Abrasive Blast operator		\$ _____	/Day
Oxy Cutting Set		\$ _____	/Day
General Hand Tools		\$ _____	/Day
Industrial Painter		\$ _____	/Hour
Trade Assistant		\$ _____	/Hour
Pipe Fitter		\$ _____	/Hour
Welder (ASME IX 6G Qualified)		\$ _____	/Hour
Welder (ASME IX 3G Qualified)		\$ _____	/Hour
On Site Supervisor		\$ _____	/Hour
Project Manager – On Site		\$ _____	/Hour
Project Manager – Off Site		\$ _____	/Hour
Off Site Administration & Management		\$ _____	/Hour
Stand- By Rate		\$ _____	/Day
Delay Rate		\$ _____	/Day

Add Items that many not be list above in a separate sheet

TENDER'S SIGNATURE: _____

DATE: _____



VITAL ENERGY SUPPLIED ITEMS

Project Management Office
Tank Contracting Pricing Forms

ITEM DESCRIPTION	QTY	SUPPLIER
Ground Level Indicator	01	Vital Energy
6" Aluminum Dip Hatch	01	Vital Energy
6" Aluminum Sample Hatch	01	Vital Energy

Note:

No Equipment or Tools shall not be supplied by Vital Energy.

All tools and Equipments on site are for Vital Energy's own use and not for hire

TENDER'S SIGNATURE: _____

DATE: _____

[illegible]

The Tenderer shall provide the list of equipments for the project for successful completion. Add additional sheets if required.

TENDER'S SIGNATURE: _____

DATE: _____

[illegible]

The Tenderer shall provide the list of personnel for the project with qualification and experience in similar projects, preferred tank works or similar works for Oil & Gas Industry would be an advantage.

TENDER'S SIGNATURE: _____

DATE: _____



EXCLUSION FORM

Project Management Office
Tank Contracting Pricing Forms

The Tenderer shall provide the list of of works that they will not be completing or items that they cannot furnish as per the scope of the applicable Standard

TENDER'S SIGNATURE: _____

DATE: _____



PROGRESS CLAIM FORM

Project Management Office
Tank Contracting Pricing Forms

CONTRACT NAME: _____

CONTRACT NO: _____

DATE: _____

PROJECT #: _____

PROGRESS CLAIM # _____

PROJECT MANAGER: _____

AUTHORISED CONTRACT VALUE \$ _____

TOTAL PC SUMS \$ _____

AUTHORISED VARIATIONS \$ _____

VO#	PO#	Description	
_____	_____	_____	\$ _____
_____	_____	_____	\$ _____
_____	_____	_____	\$ _____
_____	_____	_____	\$ _____
_____	_____	_____	\$ _____

TOTAL CONTRACT VALUE

Total Completed To Date: \$ _____

Claim #	Invoice #	Inv. Date	Milestone Description	Amount of Claim	Amount Remaining
001	_____	_____	Contracting & Project Management	\$ _____	\$ _____
002	_____	_____	Mobilization	\$ _____	\$ _____
003	_____	_____	Tank Cleaning, Isolation, Sludge Treatment	\$ _____	\$ _____
004	_____	_____	API653 Out of Service Inspection	\$ _____	\$ _____
005	_____	_____	Tank Foundation Works	\$ _____	\$ _____
006	_____	_____	Floor Repairs	\$ _____	\$ _____
007	_____	_____	Nozzle & Apperatures	\$ _____	\$ _____
008	_____	_____	Shell Repairs	\$ _____	\$ _____
009	_____	_____	Tank Roof Repairs	\$ _____	\$ _____
010	_____	_____	Tank Handrails & Stairways	\$ _____	\$ _____
011	_____	_____	Tank Fittings & Equipment	\$ _____	\$ _____
012	_____	_____	Post Repair Inspections	\$ _____	\$ _____
013	_____	_____	Tank Inlet Pipeline Modifications	\$ _____	\$ _____
014	_____	_____	Tank Outlet Pipeline Modifications	\$ _____	\$ _____
015	_____	_____	Tank Water Drain & Quick Flash Tank Pipework	\$ _____	\$ _____
016	_____	_____	Tank Coating Internal	\$ _____	\$ _____
017	_____	_____	Tank Coating External	\$ _____	\$ _____
018	_____	_____	Tank Calibration	\$ _____	\$ _____
019	_____	_____	Tank Fitness for Service	\$ _____	\$ _____
020	_____	_____	Tank Commissioning	\$ _____	\$ _____

Less Previous Claims \$ _____

Less Previous Retentions \$ _____

Retention from this Claim \$ _____

Current Payment Due \$ _____

Contract Payment Remaining \$ _____

Total Retentions held To-Date \$ _____

PROJECT MANAGER'S CERTIFICATE FOR PAYMENT:

The Project Manager hereby confirms that based on site observations & to the best of his/her knowledge, this payment application accurately reflects the progression of work and that this work meets contract requirements sufficient enough to justify payment in the amount certified below:

AMOUNT CERTIFIED \$ _____

Project Manager _____

Contract Manager _____

Date Nauru Terminal Tank Upgrade
Request for Quote

Date _____



CONTRACT VARIATION INSTRUCTION (CVI)

PROJECT NAME:

CVI#:

SUBCONTRACTOR:

DATE :

LOCATION:

REF:

You are instructed to proceed with the changes to the work described below. Unless otherwise stated all materials and workmanship are to be in accordance with the requirements of the Contract. The cost of the work described in the Contractor's Instruction shall be determined by the requirements and Conditions of the Contract

THIS CHANGE ORDER INSTRUCTION IS NOT VALID UNLESS SIGNED IN THE SPACE PROVIDED BY THE AUTHORISED REPRESENTATIVES OF THE MAIN CONTRACTOR. ALL CHANGE ORDER THAT HAS COST SHALL BE FOLLOWED UP BY VITAL ENERGY PURCHASE ORDER.

SUBJECT

REASON FOR VARIATION ORDER

- ☐ Revised Design information
☐ Engineer Instruction
☐ Client Requirement

- ☐ Safety
☐ Quality
☐ Site Condition Change

- ☐ Deletion of Contract Works
☐ Addition to Contract Works
☐ Other

INSTRUCTION

DOCUMENTS ATTACHED

SIGNATURES: MAIN CONTRACTOR

Client

PRINT NAME

SINGATURE

Project Manager

PRINT NAME

SINGATURE

CONFIRMATION OF RECEIPT

Sub-Contractor

PRINT NAME

SINGATURE

DISTRIBUTION:

Original: Contractor

Copies: Contract Admin. / PMO / OSS /Accounts / File

