

TARBALL REPORT DOCUMENTATION

Supervision under
()

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This document describes the functionality and design of the Tarball Report Module, a component developed to extract and display marine tarball sampling data from the MMS database. This module enables users to filter, search, and generate standardized PDF reports from existing records without modifying source data. It is intended to assist developers in maintaining the system and help end users understand its features.

Technical Implementation

This module uses the QuestPDF library for PDF report generation, providing standardized formatting compliant with company templates.

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1. System Diagram

1.1 Process Flow Diagram

This process flow illustrates how users interact with the Tarball Report module – from the moment they open the page to applying filters and search terms, and generating full reports in PDF format. The diagram reflects user-driven actions and decisions as they navigate through report data, and serves as a high-level behavioral map of the module’s intended functionality.

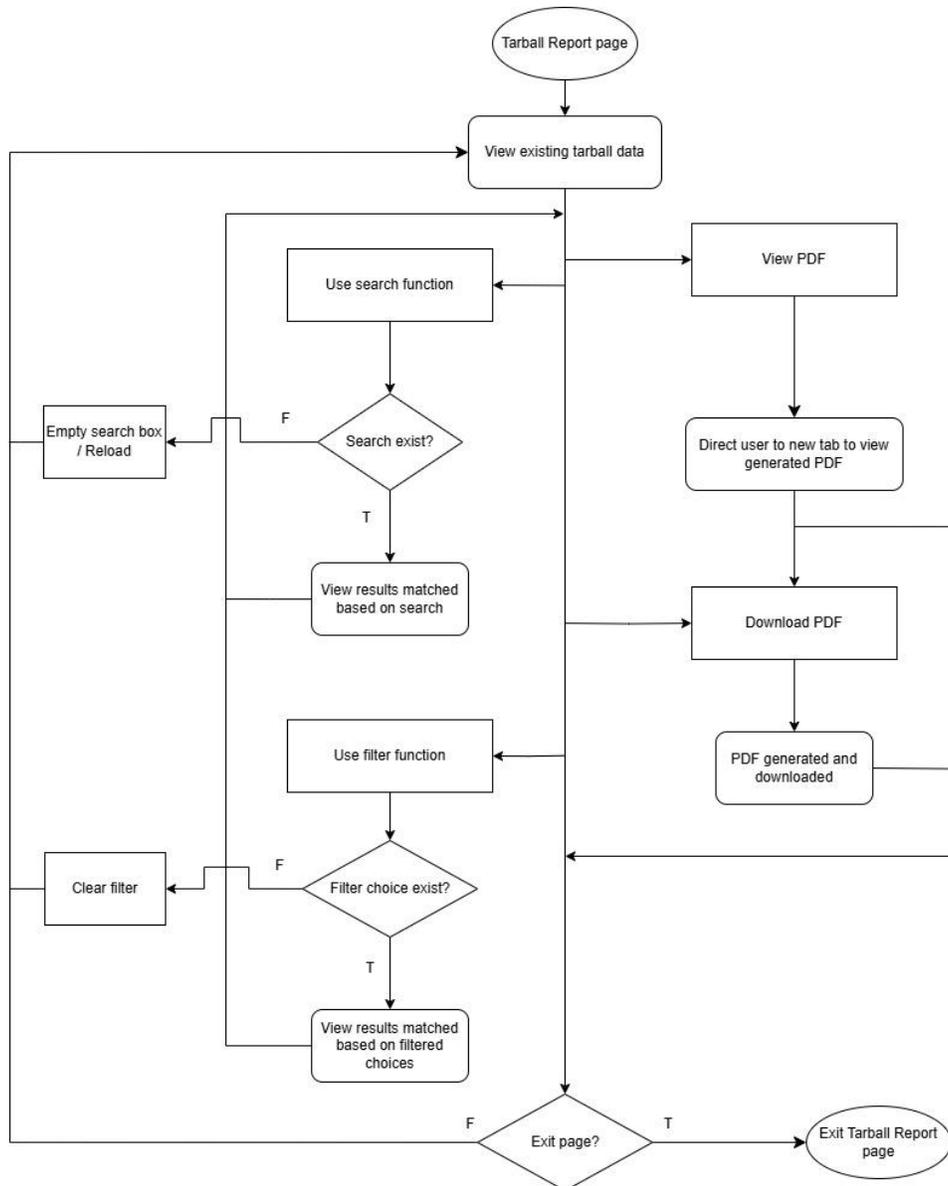


Figure 1.1.1 Process Flow Diagram for Tarball Report Module

1.2 Data Flow Diagram

The diagram consists the movement of data within the Tarball Report module. It outlines how the system interacts with the users, retrieves tarball-related data from the MMS database, fetches image assets from an external network repository, and processes this information to support features such as filtering, searching, and PDF generation.

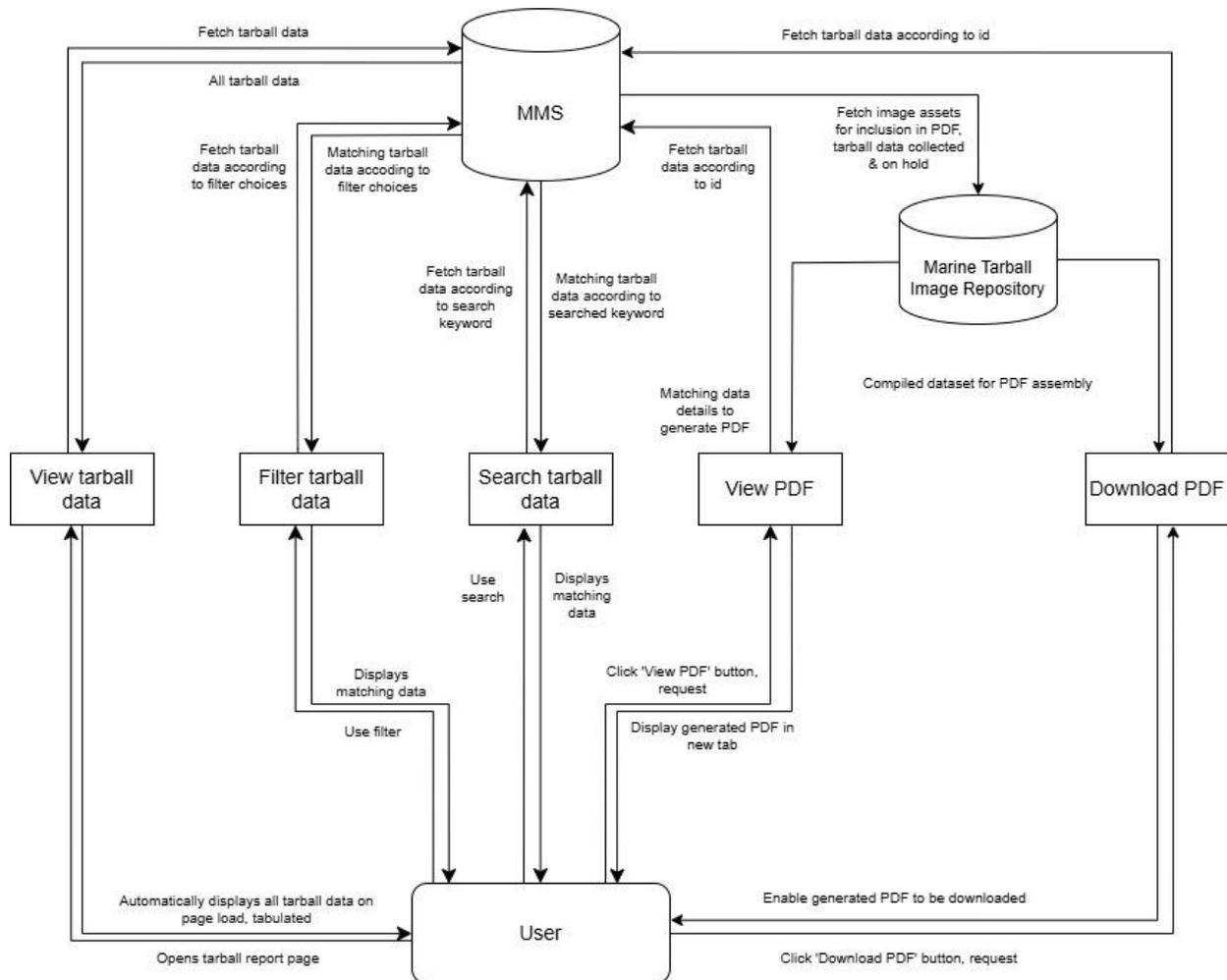


Figure 1.2.1 Data Flow Diagram for Tarball Report Module

2. User Stories

This section outlines how the Tarball Report module is intended to function from the end-user's perspective. Each user story focuses on a specific goal or task a typical user might perform, followed by clear acceptance criteria that define when the function is considered successfully implemented.

2.1 General Users

General users refer to all user types in general. They can access the functions of the module as intended, no level-restricted access to certain features.

2.1.1 View tarball data

User Story	As a user, I want to view the tarball data so I can either search, filter, view or download PDF report of the data
Acceptance Criteria	<ol style="list-style-type: none">1. When the user lands on the Tarball Report page, they should see tabulated tarball data2. The data displayed are sorted by station ID, time, and date3. User should be able to see unavailable approve/reject button status (for future updates) and each row data has their own "View PDF" and "Download PDF" buttons

2.1.2 Search data

User Story	As a user, I want to search for a specific report based on Station ID
Acceptance Criteria	<ol style="list-style-type: none">1. User can type in their search such as station ID, time, or date.2. The table automatically updates to display only based on what is searched3. Matching results to what is searched will appear.

2.1.3 Filter data

User Story	As a user, I want to only view the reports from a specific month or/and year.
Acceptance Criteria	<ol style="list-style-type: none">1. When user uses the filter search, the year should only be available within the range from the earliest year to the latest year2. Each month and year should be selectable3. No results will produce an empty table.

2.1.4 View PDF

User Story	As a user, I want to view the PDF of the tarball report.
Acceptance Criteria	<ol style="list-style-type: none">1. The 'View PDF' button should be available on all the tarball data.2. The tarball data has existing and matching images in its network path.3. The PDF should be generated and direct user to a new tab to view the PDF.

2.1.5 Download PDF

User Story	As a user, I want to download the tarball report.
Acceptance Criteria	<ol style="list-style-type: none">1. The 'Download PDF' button should be available on all the listed tarball data2. Network path should be accessible to fetch images3. Station folder must exist4. Images must match based on the station ID, date, and time5. PDF would only then be generated and downloaded into user's device.

3. Database

Notes:

△ The following attributes were used without official documentation.

- Tables/fields are documented as used in this module (not full schema)
- Assumes all stationIDs have matching images in the Marine Tarball Image Repository
- Data consistency is managed by the MMS system (this module only reads)

The Tarball Report module extracts data from several existing tables within the MMS database, including the following attributes:

- From tbl_marine_tarball: firstSampler, dateSample, timeSample, stationID, classifyID, latitude, longitude, optionalName1, optionalName2, optionalName3, optionalName4
- From tbl_marine_station: stateID, locationName
- From tbl_state: stateID, stateName
- From tbl_user: fullname, levelID
- From tbl_level: levelName

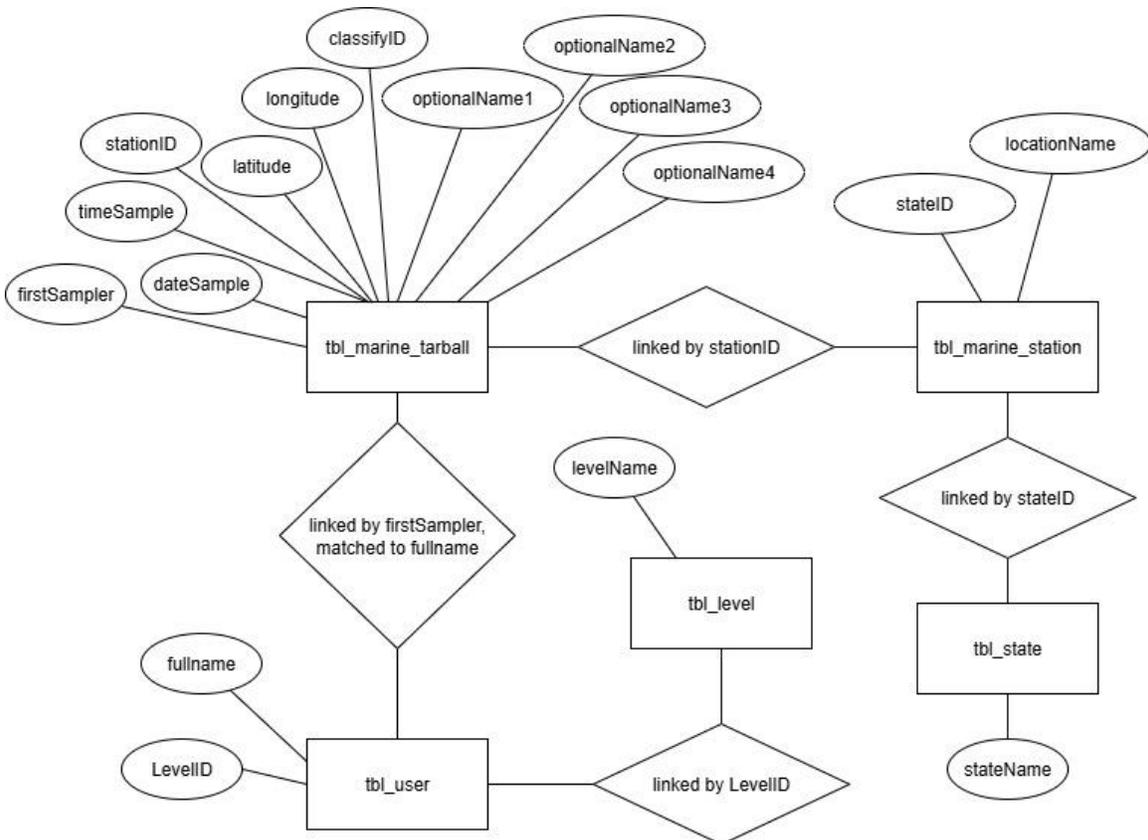


Figure 3.1 Simplified Entity Relationship Diagram for Tarball Report module

3.1 Database Schema



Figure 3.1.1.1 Attribute Block Diagram for tbl_marine_tarball



Figure 3.1.1.2 Attribute Block Diagram for tbl_marine_station



Figure 3.1.1.3 Attribute Block Diagram for tbl_state



Figure 3.1.1.4 Attribute Block Diagram for the tbl_user



Figure 3.1.1.5 Attribute Block Diagram for tbl_level

3.2 Database Flow

The module performs **read-only** operations on these tables:

1. Primary table: `tbl_marine_tarball`

- Fields used: `firstSampler`, `dateSample`, `timeSample`, `stationID`, `latitude`, `longitude`, `classifyID`, `optionalName1`, `optionalName2`, `optionalName3`, `optionalName4`

2. Table Joins:

- ➔ `tbl_marine_station` via `stationID` (gets `locationName`, `stateID`)
- ➔ `tbl_state` via `stateID` (gets `stateName`)
- ➔ `tbl_user` via `firstSampler` (gets `sampler fullname`)
 - ➔ `tbl_level` via `LevelID` (gets `levelName`)

Key Notes:

⚠ The mentioned attributes were used without official documentation. Table relationships were reverse-engineered.

4. Functional Features

The key UI features in this Tarball Report module consists of the search bar, filters, and buttons. These are crucial for the module as it enables user to view tarball data, search keywords of the data, generate a report form of the data, and download the PDF.

4.1 Search bar

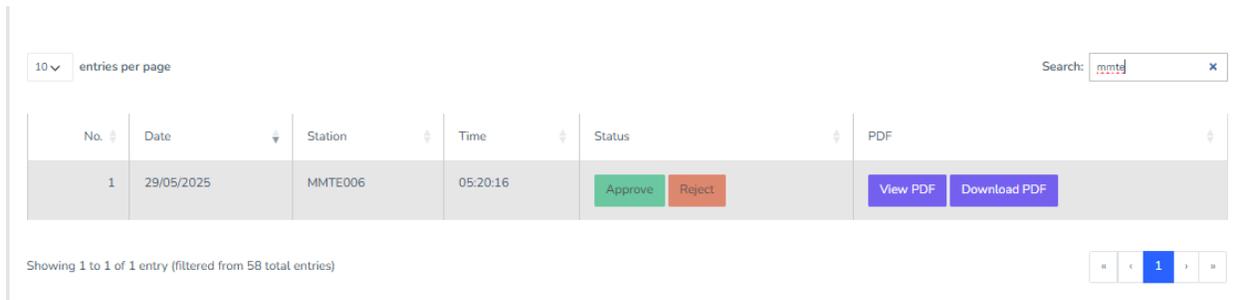
Purpose: Lets users find tarball records by typing keywords

Behavior:

- Instantly filters the table as user types
- Searches Station IDs, dates, and location names
- Shows “No matching records found” if no matches exist

Search:

Figure 4.1.1 Search bar feature



The screenshot shows a web interface with a search bar at the top right containing the text 'mmte'. Below the search bar is a table with the following columns: No., Date, Station, Time, Status, and PDF. The first row of the table contains the following data: No. 1, Date 29/05/2025, Station MMTE006, Time 05:20:16, Status (with 'Approve' and 'Reject' buttons), and PDF (with 'View PDF' and 'Download PDF' buttons). At the bottom left, it says 'Showing 1 to 1 of 1 entry (filtered from 58 total entries)'. At the bottom right, there are pagination controls showing '1' as the current page.

No.	Date	Station	Time	Status	PDF
1	29/05/2025	MMTE006	05:20:16	Approve Reject	View PDF Download PDF

Figure 4.1.2 Table instantly filters as user types

4.2 Dropdowns

4.2.1 Filter

Purpose: Narrow down records by month and/or year

Components:

- **Month dropdown:** Lists months of the year
- **Year dropdown:** Lists the year from the range of the earliest to newest year

Behavior:

- Selections apply immediately
- “Clear Filter” button to reset filters

Month

Filter by Month ▼

Year

Filter by Year ▼

[Clear Filter](#)

Figure 4.2.1.1 Filter dropdowns feature

Month

January ▼

Year

Filter by Year ▼

[Clear Filter](#)

10 ▼ entries per page Search:

No. ↕	Date ▼	Station ↕	Time ↕	Status ↕	PDF ↕
1	30/01/2025	MMCC010	17:02:02	Approve Reject	View PDF Download PDF
2	30/01/2025	MMCC014	17:00:05	Approve Reject	View PDF Download PDF
3	30/01/2025	MMCC015	16:58:00	Approve Reject	View PDF Download PDF
4	30/01/2025	MMCC013	16:51:06	Approve Reject	View PDF Download PDF
5	30/01/2025	MMCC015	16:49:02	Approve Reject	View PDF Download PDF
6	30/01/2025	MMCC015	16:49:02	Approve Reject	View PDF Download PDF

Showing 1 to 6 of 6 entries ◀ 1 ▶

Figure 4.2.1.2 Table instantly updated upon filter choices

4.2.2 Pagination Control

Purpose: Lets users select 5/10/15/20 entries per page

Behavior:

- Always shows total entries matching current filters
- Auto-resets to page 1 when filters change
- Disables navigation when only 1 page exists

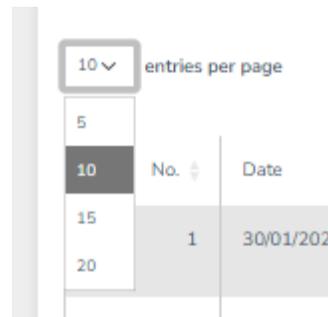


Figure 4.2.2.1 Pagination control

4.3 Buttons

4.3.1 View PDF

Purpose: Opens generated PDF report in new tab

Requirements:

- Network path to repository must be accessible.
- Station must have at least mandatory images in the repository. The mandatory images are as follows:
 1. Left Side Coastal View
 2. Right Side Coastal View
 3. Drawing Vertical Lines
 4. Drawing Horizontal Lines (Racking)

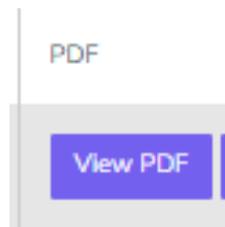


Figure 4.3.1.1 View PDF button

4.3.2 Download PDF

Purpose: Saves generated PDF to user's device

Requirements:

- Station must have at least mandatory images in the repository. The mandatory images are as follows:
 1. Left Side Coastal View
 2. Right Side Coastal View
 3. Drawing Vertical Lines
 4. Drawing Horizontal Lines (Racking)

- Network path to repository must be accessible

Behavior: File is named with the format stationID_dateSample_timeSample.pdf by default



Figure 4.2.2.1 Download PDF button

4.3.3 Navigation Buttons

Purpose: Enable users to browse through paginated tarball data results

Behavior:

1. Display

- Shows current range (e.g., "1-10 of 25 entries")
- Updates instantly when:
 - i. Filters/Search change
 - ii. Entries-per-page selection changes

2. Button States

- Previous: Disabled on first page
- Next: Disabled on last page

3. Interaction:

- Maintains active filters/search during navigation

Showing 1 to 10 of 58 entries

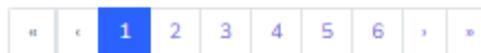


Figure 4.3.3.1 Pagination display showing active range (1-10 of 58 entries)

5. User Interface

5.1 Tarball Report Page

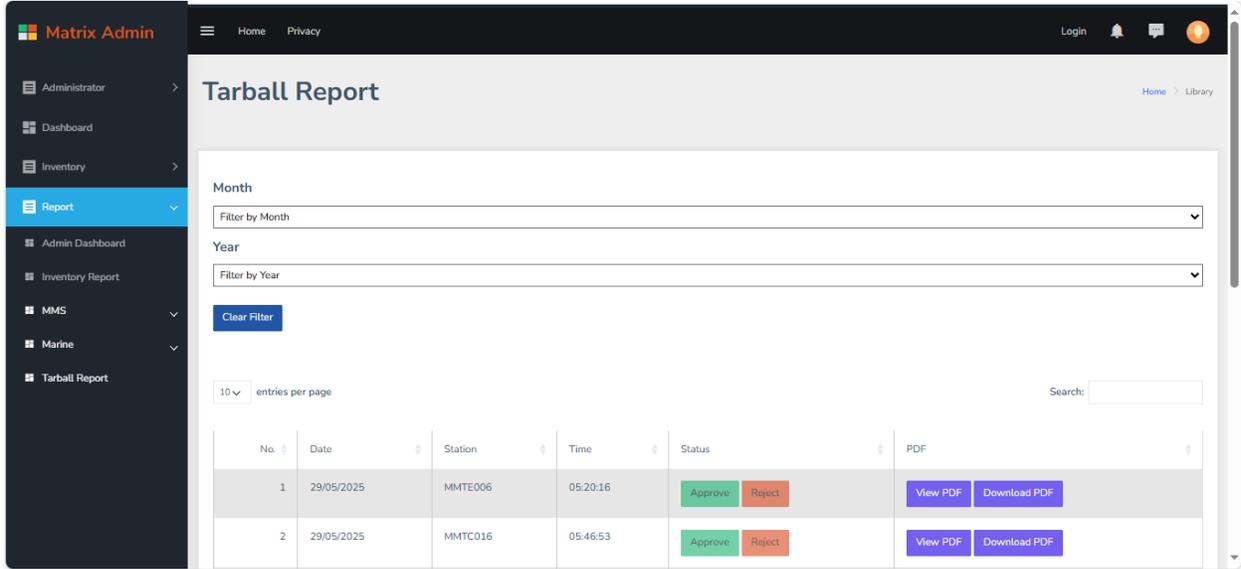


Figure 5.1.1 Top section of the tarball report interface



Figure 5.1.2 Bottom section of the tarball report interface

Components:

1. **Navigation Path:** Report > MMS > Marine > Tarball Report
2. **Month:** All 12 months selectable (January – December)
3. **Year:** Auto-populated from min/max dates in database
4. **Clear Filter button:** Resets to show all records
5. **Entries per page:** 5, 10, 15, or 20 entries per page
6. **Search bar:** Enable users to search data using keywords of Station, Date, or Time
7. **“No.” column:** auto-count
8. **Date:** From tbl_marine_tarball (dateSample)

- 9. Station:** From `tbl_marine_tarball (stationID)`
- 10. Time:** From `tbl_marine_tarball (timeSample)`
- 11. Status:** Was considered an incomplete feature. Hence, greyed out as unavailable in case for future use.
- 12. PDF:** Enable user to either view or directly download the generated PDF report from the data retrieved
- 13. Pagination button:** Navigate users to view other data displayed, according to chosen number of entry per page

5.2 Tarball Report PDF

 PAKAR SCIENO TW <i>Integrated Environmental Solutions</i>	TARBALL SAMPLING FORM	Document:	F-MM06
		Effective Date:	1 April 2025
		Revision No.	02

Please be informed that we have observed the following conditions:

STATE	PAHANG
STATION ID	MMCC022
LOCATION	PANTAI LANJUT
TARBALL SURVEY LOCATION LONGITUDE & LATITUDE	103.47200, 2.84378
DATE / TIME	2025-05-21 15:19:21

SURVEY FINDING:

Tar Ball: YES NO

If YES, Tar Ball falls under the Classification of:

Sand Non-sandy Coquina

**tick wherever applicable*

PHOTOGRAPHS OF SAMPLING

	
Figure 1: Left Side Coastal View	Figure 2: Right Side Coastal View
	
Figure 3: Drawing Vertical Lines	Figure 4: Drawing Horizontal Lines (Racking)

Figure 5.2.1 Page 1 of the generated PDF for tarball report sample

	TARBALL SAMPLING FORM	Document:	F-MM06
		Effective Date:	1 April 2025
		Revision No.	02
			
Figure 5: test1		Figure 6: test2	
			
Figure 7: test3		Figure 8: test4	

* If there are any event observe at the current station it is compulsory to add optional photo with description (figure 5 to figure 8)

REPORTED BY: ALIM AIDRUS	Signature		Date	21/05/2025
	Designation	Technician		
CHECKED BY: RIFAIE AZHARI	Signature			
	Designation	Executive		
VERIFIED BY: J SOMU	Signature			
	Designation	Technical Manager		

Figure 5.2.2 Page 2 of the generated PDF for tarball report sample

Components:

1. **State:** From tbl_state (stateName)
2. **Station ID:** From tbl_marine_tarball (stationID)
3. **Location:** From tbl_marine_station (locationName).
4. **Tarball Survey Location Longitude & Latitude:** from tbl_marine_tarball (longitude and latitude)
5. **Date /Time:** From tbl_marine_tarball (timeSample, and dateSample)
6. **Survey Finding:** From tbl_marine_tarball (classifyID)
7. **Photographs of Sampling:** from MMS image repository
8. **Figure 5, 6, 7 and 8:** From tbl_marine_tarball (optionalName1, optionalName2, optionalName3, and optionalName4 respectively)
9. **Reported by:** From tbl_marine_tarball (firstSampler)
 - a. **Signature:** Manually signed
 - b. **Date:** From tbl_marine_tarball (dateSample)
 - c. **Designation:** From tbl_level (levelName)
10. **Checked by:** Hardcoded "Rifaie Azhari"
 - a. **Signature:** Manually signed
 - b. **Date:** Manually filled
 - c. **Designation:** Hardcoded "Executive"
11. **Verified by:** Hardcoded "J Somu"
 - a. **Signature:** Manually signed
 - b. **Date:** Manually filled
 - c. **Designation:** Hardcoded "Technical Manager"

6. Known Behaviors or Constraints

6.1 Empty results

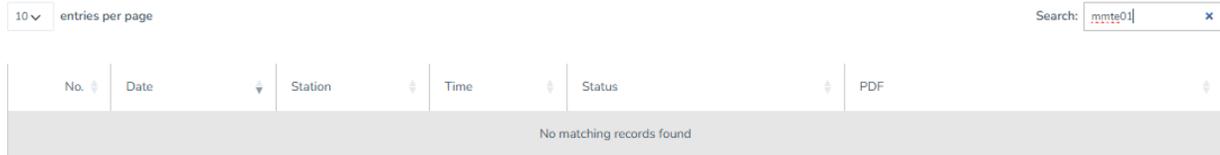


Figure 6.1.1 No matching searched keywords found

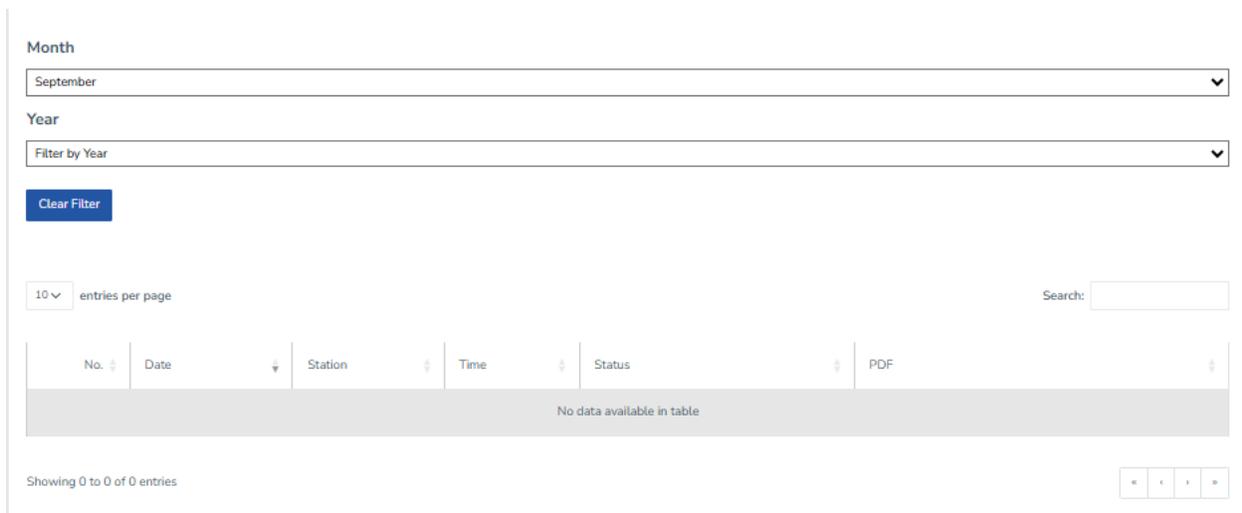


Figure 6.1.2 Filter search yielded no results

6.2 Errors

Error	Expected Results
Data record exist in database, but not in network path (MMS image repository)	Display “ Record not found ”
Missing mandatory images	Display message: “ Missing mandatory image: {type} ”
Network path (MMS image repository) cannot be accessed	Display “ Cannot access network: {ex.Message} ”
No images found	Display message: “ No images found for this record ”
PDF generation > 30 seconds	Display “ PDF generation took too long ”

7. Limitations & Assumptions

7.1 Database Schema

Relationships inferred from existing tables (not officially documented).

7.2 Image Dependency

Requires pre-existing images in network path with exact naming conventions as followed:

- `stationID_dateSample(yyyyMMdd)_timeSample(hhmmss)_type`

'type' is as followed:

- a. LEFTSIDECOASTALVIEW
- b. RIGHTSIDECOASTALVIEW
- c. DRAWINGVERTICALLINES
- d. DRAWINGHORIZONTALINES
- e. OPTIONAL01
- f. OPTIONAL02
- g. OPTIONAL03
- h. OPTIONAL04

7.3 PDF Generation

Depends on QuestPDF library; template changes may require code updates.

8. Appendices

8.1 Technology Stack

8.1.1 Frontend Libraries

Library	Version	Purpose
Vue.js	2.6.10	UI Framework
vuejs-datepicker	1.6.2	Date selection in filters
vue-multiselect	2.1.6	Dropdown select components

8.1.2 Backend Libraries

Library	Version	Version
QuestPDF	2025.*	PDF report generation
QuestPDF.HTML	1.4-mod	HTML-to-PDF conversion