**Digital Waste Manifest Management – Home Page Overview**

**Purpose**

The **Home Page** serves as the central hub for users after logging in. It provides immediate access to the platform's key functionalities, ensuring efficient management of waste manifests and associated entities. The page is designed to streamline operations, improve workflow visibility, and enhance user experience.

**Key Features & Business Value**

| **Feature** | **Description** | **Business Benefit** |
| --- | --- | --- |
| **Hero Section** | Introduces the platform and its purpose with a clear title and supporting text. | Communicates the platform’s value proposition instantly, reinforcing user confidence. |
| **Start New Manifest** | Allows users to initiate a new waste manifest quickly. | Reduces operational delays and encourages accurate, timely reporting. |
| **View Manifests** | Provides access to previously submitted manifests for review and tracking. | Supports compliance and auditing processes by ensuring historical records are easily accessible. |
| **Manage Manifests** | Enables users to update details of existing manifests. | Enhances data accuracy and operational flexibility, preventing errors in regulatory reporting. |
| **Manage Entities** | Provides management of waste generators and transporters. | Ensures the integrity of key operational data and supports business relationships. |

**User Experience Highlights**

* **Intuitive Navigation:** Users can access all major features directly from the home page without unnecessary clicks.
* **Visual Hierarchy:** Hero section establishes context, followed by actionable feature cards for easy decision-making.
* **Responsive Design:** Layout adapts seamlessly for desktop and mobile, ensuring usability across devices.
* **Consistent Branding:** Color schemes, typography, and iconography provide a professional and cohesive experience.

**Business Impact**

* **Efficiency:** Users can quickly create and manage manifests, reducing administrative overhead.
* **Compliance:** Easy access to historical and active manifest data supports regulatory compliance.
* **Data Accuracy:** Centralized management of entities and manifests minimizes errors.
* **Scalability:** Feature cards can be easily extended to include new functionalities as business needs evolve.

**Conclusion**

The Home Page acts as both an **operational dashboard** and a **gateway to the platform’s core capabilities**, directly supporting the business goal of efficient, accurate, and compliant waste management. Its design balances clarity, accessibility, and actionable insights, ensuring users can perform tasks with minimal friction while maintaining regulatory standards.

**Digital Waste Manifest Management – Create Manifest Page**

**Purpose**

The **Create Manifest Page** enables users to **initiate, edit, and manage waste manifests** for regulatory compliance. This page centralizes all data capture related to waste movement, ensuring accurate reporting, traceability, and adherence to environmental legislation.

**Key Features & Business Value**

| **Feature** | **Description** | **Business Benefit** |
| --- | --- | --- |
| **Reference Number Capture** | Unique identifier for each manifest. | Supports traceability, audit compliance, and prevents duplication. |
| **Transporter & Generator Selection** | Users select or create transporter and generator entities with full contact details. | Ensures correct legal entities are associated with the manifest and reduces errors. |
| **Entity Auto-Save & Validation** | New entities are automatically saved to the database; data is validated for completeness. | Minimizes administrative overhead and maintains data integrity. |
| **Waste Type & Form Selection** | Allows users to select multiple waste types (hazardous, non-hazardous, recyclable) and forms (solid, sludge, liquid). | Supports proper classification for compliance and operational planning. |
| **Waste Item Management** | Users can add, edit, and delete individual waste items with detailed descriptions, volume, weight, and packaging. | Provides granular waste data for operational tracking, audits, and reporting. |
| **Management Activity Capture** | Users specify activities related to waste (donation, reuse, sorting, recycling, treatment, storage) and add comments. | Offers operational insights for sustainability initiatives and compliance monitoring. |
| **Declaration Section** | Transporter or generator declares accuracy of waste description with name, date, and digital signature. | Legally secures the accuracy of submitted data and fulfills regulatory requirements. |
| **Final Disposal Section** | Captures final disposal facility details including contact, email, date, and optional email notification. | Ensures accountability for final waste treatment and supports regulatory reporting. |
| **Digital Signature Integration** | Users can sign manifests digitally via a signature SDK. | Provides secure and verifiable authorization, reducing paper-based processes. |
| **Email Notification System** | Sends manifest emails to generator and disposal contacts. | Ensures timely communication and record delivery, improving operational efficiency. |
| **Save for Later Functionality** | Users can save incomplete manifests for later completion. | Enhances workflow flexibility and reduces the risk of lost or incomplete data. |
| **Validation Indicators** | Visual check/cross icons indicate completion status of each section. | Provides immediate feedback, ensuring completeness before submission. |
| **Responsive Layout** | Fully functional on desktop and mobile devices. | Ensures accessibility across all user devices, improving adoption and usability. |

**Workflow & User Journey**

1. **Enter Reference Number** – Unique ID for the manifest.
2. **Select Transporter & Generator** – Users choose existing entities or add new ones.
3. **Define Waste Details** – Types, forms, and detailed items are captured.
4. **Management Activities** – Specify handling, recycling, or disposal operations.
5. **Declaration & Signature** – Legally bind the manifest information.
6. **Final Disposal Details** – Capture responsible facility and optionally notify via email.
7. **Submit or Save for Later** – Full validation ensures completeness before submission.

**User Experience Highlights**

* **Accordion-Based Sections:** Organizes content logically and reduces cognitive load.
* **Inline Validation:** Immediate feedback for all fields to ensure accurate data capture.
* **Interactive Tables & Modals:** Waste items can be added, edited, or removed dynamically.
* **Visual Status Indicators:** Green check or red cross icons communicate completion status for each section.
* **Digital Workflow Integration:** Email notifications and digital signatures streamline operational processes.

**Business Impact**

* **Compliance Assurance:** All regulatory fields are captured with validation and signature confirmation.
* **Operational Efficiency:** Reduces administrative burden with entity auto-save, email notifications, and modular section validation.
* **Data Accuracy & Traceability:** Ensures detailed waste data is recorded and easily auditable.
* **Flexibility & Workflow Continuity:** “Save for later” allows users to pause and resume manifest creation without losing data.
* **Digital Transformation:** Replaces manual forms with a secure, cloud-enabled, and mobile-accessible solution.

**Conclusion**

The **Create Manifest Page** is a **mission-critical operational tool** for waste management. It enables users to efficiently capture, validate, and submit waste manifests while supporting legal compliance, operational transparency, and process automation. Its modular design, combined with digital signature and notification capabilities, ensures that waste manifests are accurate, traceable, and actionable for both internal operations and regulatory reporting.

**Digital Waste Manifest Management – View Manifests Page**

**Purpose**

The **View Manifests Page** allows authorized users to **view, search, paginate, and export all waste manifests** stored in the system. It provides a centralized dashboard for managing and reviewing manifests, ensuring regulatory compliance and operational transparency.

**Features**

1. **Search and Filter**
   * Users can search manifests by **generator** or **manifest number**.
   * Dynamic filtering updates the table instantly as the user types.
2. **Paginated Table**
   * Displays manifests in a clean tabular format.
   * Key columns include:
     + Date
     + Time
     + Transporter
     + Generator
     + Reference No.
     + Manifest No.
     + Description
   * Supports pagination (10 rows per page) for efficient navigation of large datasets.
3. **View Individual Manifest**
   * Each manifest has a **View** button.
   * Clicking the button navigates to a **detailed view of the manifest**, including all its data in PDF format for review or printing.
4. **Export to Excel**
   * Users can export all manifests (or filtered results) to **Excel** for reporting, auditing, or offline record-keeping.
   * Exported fields include:
     + Date, Time, Transporter, Generator, Reference No., Manifest No., Description, Packaging, Waste Type, Waste Form, Volume, Weight, Process, Final Disposal, and Planned Disposal Date.
5. **Loading and Feedback**
   * Displays a **loading overlay** while fetching data.
   * Shows a **success message Snackbar** for notifications, e.g., after a successful export.
6. **Navigation**
   * Includes a **Back button** to return to the previous page.
   * Integrates with the site’s **Header** component for user profile, logout, and home navigation.

**Users**

* **Environmental Officers**: Track and review waste manifest submissions.
* **Administrators**: Export manifests for auditing and reporting.
* **Regulatory Inspectors**: Access detailed records for compliance checks.

**Business Benefits**

* **Operational Efficiency**: Quickly search and view manifests without navigating multiple pages.
* **Regulatory Compliance**: Maintain accurate records and export them for audits.
* **Data Transparency**: Centralized access ensures all users see the latest manifest data.
* **Error Reduction**: Validates manifest access with token-based authentication and handles failed fetches gracefully.

**Integration Points**

* **Backend API Endpoints**
  + GET /manifests – retrieves all manifests for display.
  + GET /manifests-exports – retrieves all manifests for Excel export.
* **React Router**
  + Navigates to /manifest/:id/view for detailed manifest view.
* **Excel Export**
  + Uses XLSX and file-saver libraries to generate and download Excel files.

**Assumptions & Notes**

* User must be authenticated; otherwise, tokens are cleared and data is not displayed.
* Only authorized users can view or export manifests.
* The table is optimized for desktop screens but supports horizontal scrolling for smaller screens.
* Date formatting is standardized to YYYY-MM-DD.

**Digital Waste Manifest Management – Manage Manifests Page**

**Purpose**

The **Manage Manifests Page** provides authorized users with the ability to **edit, delete, and search waste manifests**. It centralizes manifest management, enabling operational efficiency, accurate record-keeping, and regulatory compliance.

**Features**

1. **Search and Filter**
   * Users can search manifests by **manifest number**.
   * Instant filtering updates the displayed table results dynamically.
2. **Paginated Table**
   * Displays manifests in a structured tabular format.
   * Key columns include:
     + Date
     + Time
     + Transporter
     + Generator
     + Reference No.
     + Manifest No.
     + Description
   * Supports pagination (10 rows per page) for easier navigation of large datasets.
3. **Edit Manifest**
   * Each manifest row includes an **Edit button**.
   * Clicking the button navigates to a **detailed form** where users can modify manifest data.
4. **Delete Manifest**
   * Each manifest row includes a **Delete button**.
   * Clicking delete triggers a **confirmation dialog**.
   * Upon confirmation, the manifest is deleted from the database and removed from the UI.
   * Displays a **success message Snackbar** after successful deletion.
5. **Loading and Feedback**
   * Shows a **loading overlay** while fetching or deleting data.
   * Provides **success notifications** to confirm actions (e.g., manifest deleted).
6. **Navigation**
   * Includes a **Back button** to return to the previous page.
   * Integrates with the site’s **Header** component for user profile, logout, and home navigation.

**Users**

* **Environmental Officers**: Edit and correct manifests as needed.
* **Administrators**: Remove obsolete or incorrect manifest records.
* **Regulatory Inspectors**: Oversee record integrity and ensure compliance.

**Business Benefits**

* **Operational Efficiency**: Quickly locate, edit, or delete manifests without navigating multiple screens.
* **Regulatory Compliance**: Ensures all waste manifests are up-to-date and accurate.
* **Data Accuracy**: Reduces errors by centralizing manifest management and confirming deletion actions.
* **User Transparency**: Provides visual feedback for all critical actions.

**Integration Points**

* **Backend API Endpoints**
  + GET /manifests – retrieves all manifests for display.
  + DELETE /manifests/:id – deletes a specific manifest.
* **React Router**
  + Navigates to /manifest/:id/edit for editing manifest details.
* **Material UI Components**
  + Uses tables, dialogs, buttons, snackbars, and pagination for a consistent user experience.

**Assumptions & Notes**

* User must be authenticated; otherwise, tokens are cleared and data is not displayed.
* Only authorized users can edit or delete manifests.
* The table is optimized for desktop screens but supports horizontal scrolling for smaller screens.
* Deletion actions require user confirmation to prevent accidental data loss.
* Date formatting is standardized to YYYY-MM-DD.

**Digital Waste Manifest Management – Manage Entities Page**

**Purpose**

The **Manage Entities Page** allows authorized users to **view, search, edit, and delete organizational entities** (e.g., waste generators, transporters, treatment facilities). This ensures that all entities in the system are **accurate, up-to-date, and compliant** with business and regulatory requirements.

**Features**

1. **Search and Filter**
   * Users can search entities by **name**.
   * Table updates dynamically to reflect search input.
2. **Paginated Table**
   * Displays entities in a structured table format.
   * Key columns include:
     + ID
     + Type
     + Name
     + Address
     + Contact Person
     + Contact Number
     + Email
     + IPWIS Number
     + Date Created
   * Supports **pagination** (10 rows per page) for easier navigation of large datasets.
3. **Edit Entity**
   * Each entity row includes an **Edit button**.
   * Opens a **modal dialog** to update entity details:
     + Name, Address, Contact Person, Contact No, Email, IPWIS No.
   * Input fields include validation for phone numbers and emails.
   * After submission, the table is refreshed to show updated data.
   * Displays a **success Snackbar** on successful update.
4. **Delete Entity**
   * Each entity row includes a **Delete button**.
   * Opens a **confirmation dialog** to prevent accidental deletions.
   * On confirmation, deletes the entity from the database and refreshes the table.
   * Displays a **success Snackbar** after successful deletion.
5. **Loading and Feedback**
   * Shows a **loading overlay** during fetch, update, or delete operations.
   * Provides visual feedback via Snackbars for successful updates or deletions.
6. **Navigation**
   * Includes a **Back button** to return to the previous page.
   * Integrated **Header component** provides access to user profile, logout, and home navigation.

**Users**

* **Administrators**: Manage and maintain accurate records of all entities.
* **Environmental Officers**: Ensure entities are correctly registered and updated.
* **Regulatory Inspectors**: Verify entity data for compliance purposes.

**Business Benefits**

* **Operational Efficiency**: Quickly locate, edit, or remove entities without navigating multiple screens.
* **Data Accuracy & Integrity**: Maintains up-to-date information on all entities, reducing errors.
* **Regulatory Compliance**: Ensures entity records are current and accurate for audits.
* **User Transparency**: Provides confirmation dialogs and visual feedback for all critical actions.

**Integration Points**

* **Backend API Endpoints**
  + GET /entities – fetches all entities for display.
  + PUT /entities/:id – updates an entity.
  + DELETE /entities/:id – deletes an entity.
* **React Router**
  + Navigation handled with useNavigate.
* **Material UI Components**
  + Tables, dialogs, buttons, pagination, and Snackbars provide a **consistent user experience**.
* **Custom Input Components**
  + FinField handles validated input for phone numbers and emails.

**Assumptions & Notes**

* Users must be **authenticated**; otherwise, tokens are cleared and data is not displayed.
* Only authorized users can **edit or delete entities**.
* The table supports **horizontal scrolling** for smaller screens.
* All modifications require **explicit confirmation** to avoid accidental changes or deletions.
* Ensures standardization of entity contact data and identifiers for integration with other modules.