



# NR13 Module

V4.3.0.2.0



## **GE Digital APM NR13 Module V4.3.0.2.0**

### **Copyright Notice**

© 2017 General Electric Company.

GE, the GE Monogram, and Predix are either registered trademarks or trademarks of General Electric Company. All other trademarks are the property of their respective owners.

This document may contain Confidential/Proprietary information of General Electric Company and/or its suppliers or vendors. Distribution or reproduction is prohibited without permission.

THIS DOCUMENT AND ITS CONTENTS ARE PROVIDED "AS IS," WITH NO REPRESENTATION OR WARRANTIES OF ANY KIND, WHETHER EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTIES OF DESIGN, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE. ALL OTHER LIABILITY ARISING FROM RELIANCE UPON ANY INFORMATION CONTAINED HEREIN IS EXPRESSLY DISCLAIMED.

Access to and use of the software described in this document is conditioned on acceptance of the End User License Agreement and compliance with its terms.

# Table of Contents

---

<b>TABLE OF CONTENTS</b> .....	<b>1</b>
<b>NR13 BASICS</b> .....	<b>3</b>
OVERVIEW OF NR13 .....	3
Activate the NR13 Module and Setup .....	4
NR13 Workflow .....	5
<b>USE THE NR13 MODULE</b> .....	<b>6</b>
<b>MANAGE NR13 TECHNICAL DATA RECORDS</b> .....	<b>6</b>
Identify Existing Equipment as NR13 Equipment .....	6
Link NR13 Technical Data to Equipment .....	8
Unlink NR13 Technical Data from a Record .....	9
Modify an NR13 Technical Data Record .....	10
Create an NR13 Fluid Codes Record .....	11
<b>MANAGE PRD EQUIPMENT AND NR13 TECHNICAL DATA RECORDS</b> .....	<b>13</b>
Link PRD Equipment Records to NR13 Technical Data Records .....	13
Unlink NR13 Safety Devices from Protected Equipment .....	15
<b>REPORTS</b> .....	<b>16</b>
About the NR13 Full Inspection Report .....	16
Create an NR13 Full Inspection .....	17
Attach Photographs to the NR13 Full Inspection .....	18
View the NR13 Full Inspection Report .....	20
<b>REFERENCE INFORMATION</b> .....	<b>21</b>
<b>OVERVIEW OF NR13 INSPECTION INTERVAL CALCULATION</b> .....	<b>21</b>
Determine Inspection Intervals .....	22
Inspection Intervals .....	23
<b>FAMILY FIELD DESCRIPTIONS</b> .....	<b>25</b>
NR13 Technical Data .....	25
NR13 Fluid Codes .....	35
<b>NR13 CATALOG ITEMS</b> .....	<b>36</b>
<b>SYSTEM CODE TABLES USED BY NR13</b> .....	<b>37</b>

**Note:** In this document, hyperlinks are identified by **red** text. Hyperlinks that are **underlined** are *external*, and link you to help topics accessible via the Support website. All other **plain** hyperlinks are *internal*, and link you to topics within the document.

---

## NR13 BASICS

---

### Overview of NR13

NR13 is a Brazilian Regulatory Standard issued by the Department of Labor, applicable only to sites in Brazil. Its general purpose is to ensure safety in all aspects of designing, installing, operating, and maintaining certain types of equipment.

The NR13 module introduces the following items that are used by GE Digital APM to support NR13 compliance:

- *NR13 Technical Data* entity family
- *NR13 Fluid Codes* entity family
- *NR13 Reference Tables* entity family
- *Has NR13 Technical Data* relationship family
- *Has NR13 Equipment* relationship family
- *NR13 Equipment is Protected By* relationship family
- *NR13 Equipment Type* System Code Table
- *NR13\_FLAMMABLE* System Code Table
- *NR13\_FLUID\_CLASS* System Code Table
- *NR13 Full Inspection Report*
- *NR13 General Inspection Report*


The fields in the NR13 Technical Data family allow you to record additional data that is required for compliance with NR13 inspection standards.

## Activate the NR13 Module and Setup

---

The NR13 module requires a license file and customer PIN. To activate the NR13 module, follow the standard instructions about [Activating Licenses](#).

After activating the NR13 module, we recommend:

- **Create NR13 Fluid Codes records** for all fluids used in pressure vessels that require NR13-compliant inspection frequency.
- Identify existing boilers, pressure vessels, and attached safety devices and piping that require **NR13 Technical Data records**.
- Replace the NR13 Technical Data query to include the latest changes.
  - a. **Access the Query page**.
  - b. At the top of the **Query** page, select **Browse**.  
The **Select a query from the catalog** window appears.
  - c. In the left pane, navigate to: *Baseline\Meridium\Modules\Inspection\Report Queries*, select the query **NR13 Technical Data**, and then select **Open**.  
The **Enter Parameter Values** window appears.
  - d. Select **Done**.
  - e. Select the **SQL** tab, and then copy the query syntax.
  - f. **Access the Query page**.
  - g. At the top of the **Query** page, select **Browse**.  
The **Select a query from the catalog** window appears.
  - h. In the left pane, navigate to: *Public\Meridium\Modules\Inspection\Report Queries*, select the query **NR13 Technical Data**, and then select **Open**.  
The **Enter Parameter Values** window appears.
  - i. Select **Done**.
  - j. Select the **SQL** tab, and then replace the current query with the query syntax copied in Step e.
  - k. Select .  
The NR13 Technical Data query is updated.

## NR13 Workflow

The following workflow represents basic steps you could use to add NR13 compliance data to your equipment, and report on that data, assuming your database does not yet contain NR13 Technical Data and NR13 Fluid Codes records. After you have completed this workflow, you will probably find that you need to repeat certain steps at various times depending on your company's specific needs, changing conditions, and your role within the organization.

1. **Activate the NR13 module.**
2. Identify an existing piece of equipment for which additional data is required to create NR13-compliant inspection reports.
3. If the piece of equipment is a pressure vessel, identify the fluid it contains.
4. If needed, **create an NR13 Fluid Codes record** for the fluid.
5. **Create an NR13 Technical Data record** linked to that piece of equipment.
6. **Create a Full or General Inspection** linked to that piece of equipment.
7. **Attach images to the Full Inspection via Reference Documents.**
8. **Run the NR13 Full or General Inspection Report.**

## USE THE NR13 MODULE


### Manage NR13 Technical Data Records

#### Identify Existing Equipment as NR13 Equipment

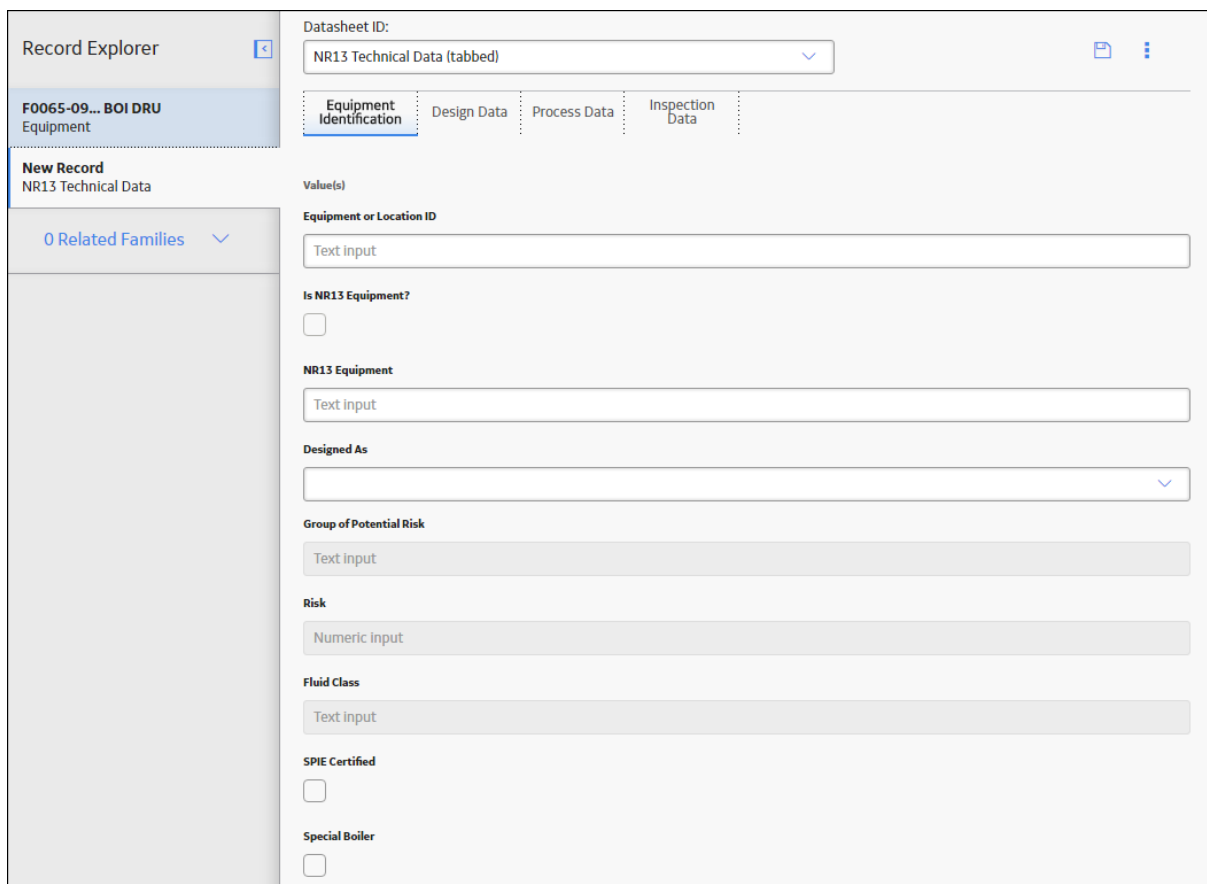
##### Steps

1. **Search for** and open the record for the existing piece of equipment you want to link to a new NR13 Technical Data record.

The **Record Manager** page appears.

2. In the left pane, **change the filtering option** to **All Possible Families**.
3. In the left pane, select the **NR13 Technical Data** family.
4. Select , and then select **Add New Record**.

A new NR13 Technical Data record appears in the left pane and is linked to the Equipment record selected in Step 1. The NR13 Technical Data datasheet appears on the **Record Manager** page.



The screenshot displays the Record Manager interface. On the left, the Record Explorer shows a tree view with 'F0065-09... BOI DRU Equipment' selected, and a 'New Record' section for 'NR13 Technical Data' with '0 Related Families'. The main area shows the 'Datasheet ID' dropdown set to 'NR13 Technical Data (tabbed)'. Below this are tabs for 'Equipment Identification', 'Design Data', 'Process Data', and 'Inspection Data'. The 'Equipment Identification' tab is active, showing a form with the following fields:

- Value(s)
- Equipment or Location ID: Text input
- Is NR13 Equipment?:
- NR13 Equipment: Text input
- Designed As: Dropdown menu
- Group of Potential Risk: Text input
- Risk: Numeric input
- Fluid Class: Text input
- SPIE Certified:
- Special Boiler:



5. In the Designed As field, select a value in the list. This determines the NR13-required equipment type of the piece of equipment.

The Designed As field is populated.

**Note:** The value in the Designed As field determines what fields are enabled on the NR13 Technical Data datasheet. For a complete list of the fields and how they become enabled, refer to the [NR13 Technical Data](#) section.

6. Select .

The record is saved.


## Link NR13 Technical Data to Equipment

If you [create a new, unlinked NR13 Technical Data record](#), you will need to link it to an Equipment or Functional Location record in order for the NR13 Technical Data Sub Report to collect data from the NR13 Technical Data record.

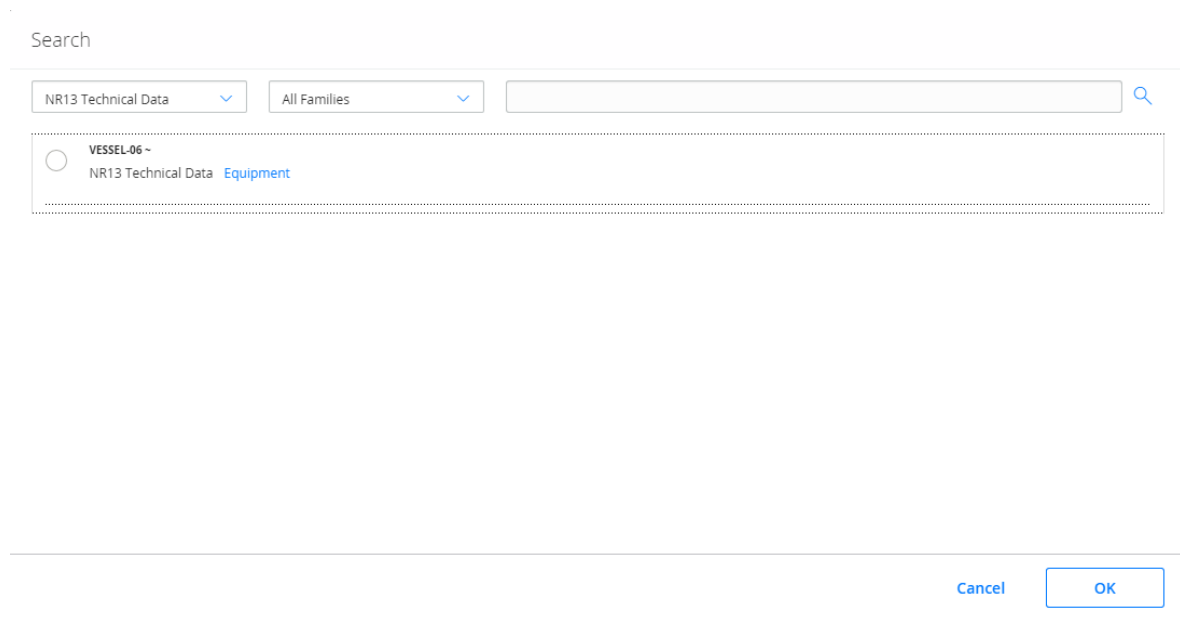
### Steps

1. **Search for** and open the record for the existing piece of equipment you want to link to a new NR13 Technical Data record.

The Record Manager page appears.

2. In the left pane, [change the filtering option](#) to **All Possible Families**.
3. In the left pane, select the **NR13 Technical Data** family.
4. Select , and then select **Link Existing Record**.

The **Search** window appears, and the **Look In** box is automatically populated. In the bottom of the window, a list of NR13 Technical Data records appears.



Search

NR13 Technical Data All Families

VESSEL-06 -  
NR13 Technical Data Equipment

Cancel OK

5. Select the NR13 Technical Data record you want to link to the active record, and select **OK**.

The records are linked.

## Unlink NR13 Technical Data from a Record

---



### Steps

1. **Search for** and open the record for the existing piece of equipment you want to unlink from a new NR13 Technical Data record.

The **Record Manager** page appears.

2. In the left pane, **change the filtering option** to **All Possible Families**.
3. In the left pane, select the **NR13 Technical Data** family.
4. Select the NR13 Technical Data record you want to unlink.

The datasheet for the selected NR13 Technical Data record appears.


5. Select  to edit the datasheet.
6. Select , and then select **Unlink this record**.

The records are unlinked.

## Modify an NR13 Technical Data Record

---

### Steps

1. **Search for** and open the NR13 Technical Data record that you want to modify.
2. Select  to edit the datasheet.
3. Make changes to the fields.

**Note:** Making changes to certain fields in the NR13 Technical Data record may result in altered inspection intervals.

4. Select .

The changes are saved.

## Create an NR13 Fluid Codes Record

Records in the NR13 Fluid Codes family are used to populate the list in the NR13 Technical Data datasheet's NR13 Fluid field. Because the NR13 module does *not* include any NR13 Fluid Codes records, it is important to create your own.

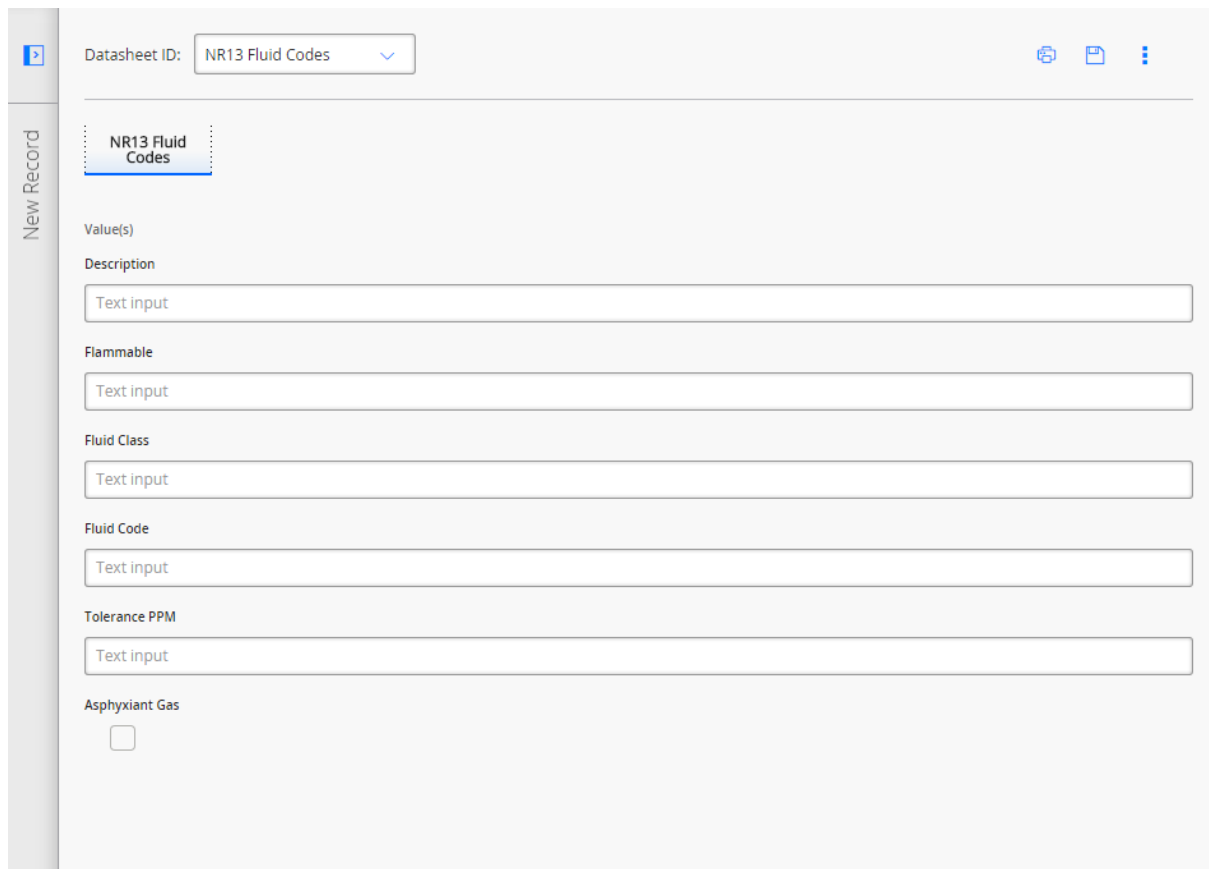
### Steps

1. On the top navigation bar, select .

The **Select Family** pane appears.

2. In the text box, enter **NR13 Fluid Codes**, and then select the **NR13 Fluid Codes** link.

The **Record Manager** page appears, displaying the new NR13 Fluid Codes record.



The screenshot shows a 'New Record' form for 'NR13 Fluid Codes'. The 'Datasheet ID' is set to 'NR13 Fluid Codes'. The form contains the following fields:

- Value(s)**: Text input field.
- Description**: Text input field.
- Flammable**: Text input field.
- Fluid Class**: Text input field.
- Fluid Code**: Text input field.
- Tolerance PPM**: Text input field.
- Asphyxiant Gas**: A checkbox that is currently unchecked.

3. Enter the fluid technical data into the fields.

**Note:** For an explanation of how each NR13 Fluid Codes family field is used, please refer to section the **NR13 Fluid Codes** section.

4. Select .

The record is saved.

**Tip:** To quickly create a large number of NR13 Fluid Codes records at once, you can utilize the [Bulk Data Form](#).

## Manage PRD Equipment and NR13 Technical Data Records

### Link PRD Equipment Records to NR13 Technical Data Records

---

#### Steps

1. **Search for** and open the record for the existing piece of Equipment that you want to protect with PRD Equipment.

The **Record Manager** page appears.

2. In the left pane, **change the filtering option** to **All Possible Families**.
3. In the left pane, select the **Equipment** family.
4. Select **⋮**, and then select **Link Existing Family**.  
The **Select Link Family** window appears.
5. On the **Select Link Family** window, select **NR13 Equipment Is Protected By (As Successor)** and then select **Select Link Family**.  
The **Search** window appears.

**Note:** If the PRD Equipment selected will protect multiple pieces of Equipment, on the **Select Link Family** window, select **NR14 Equipment is Protected By (As Predecessor)**.

6. On the **Search** window, select the PRD Equipment that you want to link to the NR13 Technical Data record through the Equipment Is Protected By relationship.  
The active **Equipment** datasheet from Step 1 appears, and the linked PRD equipment appears in the left pane.

	Value(s)	Description
Equipment ID	00000000001057047	VESSEL - ACCUMULATOR (WAS 21
Equipment Technical Number	F0065-097	
Unique ID	Text input	
SAP Category	F	FIXED EQUIPMENT
SAP Class	2006	PRESSURE VESSEL
Equipment Type	FIXBOIDRU	Drum
Equipment Status	INST	
Long Description	Asset was attached to 2112F0006 pre ADP	
Functional Location	MRD-ROA-REFN-RF097-F0065-09	VESSEL - ACCUMULATOR (WAS 21
Maintenance Plant	Text input	Text input

**Note:** If a NR13 Technical Data record is not linked to the Equipment record, you must add one. If you **create a new, unlinked NR13 Equipment is Protected By record**, you will need to link it to an Equipment or Functional Location record in order for the NR13 Technical Data Sub Report to collect data from the NR13 Equipment is Protected By relationship.

7. **Link the PRD Equipment** to the NR13 Technical Data record.  
The equipment is now protected, and the NR13 Technical Data record appears.
8. On the NR13 Technical Data record, In the Designed As field, select **Safety Device**.

**Note:** The value in the Designed As field determines what fields are enabled on the NR13 Technical Data datasheet. For a complete list of the fields and how they become enabled, refer to the **NR13 Technical Data** section.

9. Select .

The record is saved. You can select the **Design Data** tab to see the Equipment that the Safety Device protects.



## Unlink NR13 Safety Devices from Protected Equipment

---



### Steps

1. **Search for** and open the record for the existing piece of equipment you want to unlink from its protected NR13 Technical Data record.

The **Record Manager** page appears.

2. In the left pane, **change the filtering option** to **All Possible Families**.
3. In the left pane, select the **NR13 Technical Data** family.
4. Select the NR 13 Technical Data record with the NR13 Equipment Is Protected By relationship you want to unlink.

The datasheet for the selected NR13 Technical Data record appears.

5. Select  to edit the datasheet.
6. Select , and then select **Unlink this record**.

The records are unlinked.

## Reports

### About the NR13 Full Inspection Report

---

The NR13 Full Inspection Report is a report that provides the same data as a normal Full Inspection Report, and also utilizes two subreports to provide additional NR13-related data:

- The NR13 Technical Data Sub Report is used to include data related to NR13 compliance from the linked NR13 Technical Data record.
- The NR13 Ref Doc Images Sub Report is used to include any images attached as reference documents to a linked NR13 Full Inspection Report.

Using the NR13 Full Inspection Report, you can create a basic, NR13-compliant inspection report.


**Note:** The following procedures, while specifying NR13 Full Inspections, can also be used for NR13 General Inspections.

## Create an NR13 Full Inspection

### Steps

1. Using the Asset Hierarchy, select the asset for which you want to create an NR13 Full Inspection.
2. Below the workspace heading, select the **Strategy** tab, and then in the **Inspection Management** row, select the **Inspections** link.

The **Inspection Management Overview** workspace for the asset appears.

3. In the upper-right corner of the workspace, select , and then select **Create Inspection**.

The **Create Inspection** window appears.

4. In the **Inspection Families** box, select **Full Inspection**.
5. If you do not want to link a Task record to link to the Full Inspection record, select the **None** option, and skip to step 7 of these instructions.
6. In the **Inspection Tasks** box, select a Task to associate with the Inspection.
7. Select **Create**.

A new Full Inspection is created and linked to the selected asset. The **Inspection Overview** workspace appears, displaying the **Full Inspection** datasheet.

8. Enter or modify data in the available fields, and then select .

The Full Inspection record and its links to the selected Task and asset are saved.

**Note:** After completing this procedure, if you have photographs to attach, you can skip directly to Step 2 of the following procedure.

## Attach Photographs to the NR13 Full Inspection

---


To include photographs on a report, you need to include them as Reference Documents for the NR13 Full Inspection linked to the piece of equipment.

### Steps

1. Use the Asset Hierarchy to select the asset that contains the Full Inspection, or **search for** and open the Full Inspection to which you want to attach photographs.

The **Inspection Overview** workspace appears, displaying the **Full Inspection** datasheet.

**IMPORTANT:** This must be a Full Inspection record linked to a piece of equipment with a **linked NR13 Technical Data record**.

2. In the upper-right corner of the datasheet, select , and then select **Reference documents**.

The Reference Documents section appears.

3. In the upper-right corner of the section, select .

The New Reference Document section appears.

4. If the image you want to attach is located in a local folder, below Document Path, select the **Upload a Local File** option. Proceed to Step 5.

-or-

If the image you want to attach is located in a network folder, below Document Path, select the **Link to an external network file** option, and then enter the path to the image file. Skip to Step 6.

5. Select **Browse**, and use Windows Explorer to select the image you want to include.

Below the **Upload a Local File** option, the box is populated with the image filename and extension.

6. If you want to store the file in the database, select the **Store Document?** check box.
7. Enter data into the available fields, and then select **Save**.

The Reference Document is saved, and the **Last Updated Date** box is populated with the current date and time. If you selected the **Store Document?** check box, the **Stored By** box is also populated.

**Note:** After completing this procedure, if you want to immediately view the report, you can skip directly to Step 2 of the following procedure.

When you run the NR13 Full Inspection Report, the photographs will automatically be included in the completed report.

## View the NR13 Full Inspection Report


---

### Steps

1. Use the Asset Hierarchy to select the asset that contains the Full Inspection, or **search for** and open the Full Inspection that you want to view.

The **Inspection Overview** workspace appears, displaying the **Full Inspection** datasheet.


**IMPORTANT:** This must be a Full Inspection record linked to a piece of equipment with a **linked NR13 Technical Data record**.

2. In the upper-right corner of the workspace, select , and then select **NR13 Full Inspection Report**.

The **NR13 Full Inspection Report** page appears, displaying the Entity Key of the asset you selected in Step 1.

3. Select **View Report**.

A new browser tab appears, displaying the **NR13 Full Inspection Report**.

4. To export the report, select , and then select one of the following format options:
  - XML file with report data
  - CSV (comma delimited)
  - PDF
  - MHTML (web archive)
  - Excel
  - TIFF file
  - Word

**Note:** If you want to print the NR13 Full Inspection Report, you should first export it using one of the above format options.

## REFERENCE INFORMATION

---

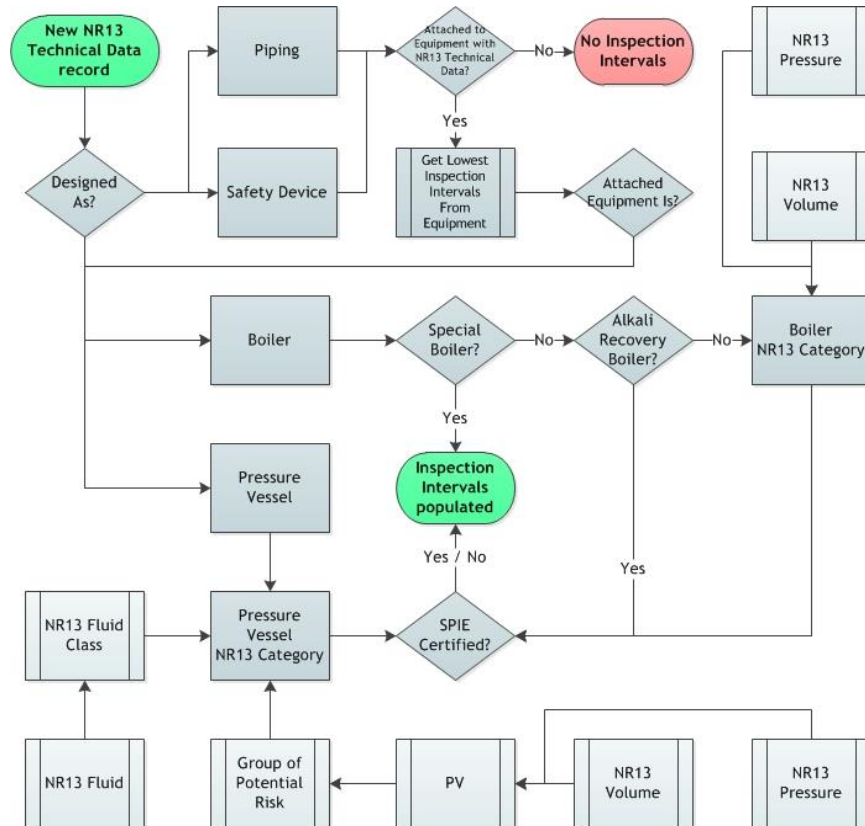
### Overview of NR13 Inspection Interval Calculation

As you enter data in fields in an NR13 Technical Data record, various calculations are performed, and determinations made. The results of these calculations are stored in the NR13 Technical Data record, and used to determine the frequency of certain inspections based on NR13 specifications.

## Determine Inspection Intervals

The values of a number of fields are considered before the NR13 Technical Data datasheet populates the values of the Inspection Interval fields. After you enter data into the fields like this, the datasheet will automatically populate other values, including the values in the Inspection Interval fields.

The following diagram illustrates the logic used when determining the intervals, based on the value in the Designed As field.





## Inspection Intervals

The frequency of inspection populated in the Internal Inspection Interval and External Inspection Interval fields of the NR13 Technical Data family is determined using the following table:

NR13 Category	Internal Inspection Frequency (Months)	External Inspection Frequency (Months)
<i>NR13 Category for Boiler (No SPIE Certification)</i>		
A	12/24 <sup>1</sup>	12/24 <sup>1</sup>
B	12	12
C	12	12
Alkali Recovery Boiler	15	15
<i>NR13 Category for Boiler (SPIE Certification)</i>		
A	30	30
B	24	24
C	24	24
Alkali Recovery Boiler	24	24
Special Boiler	40	40
<i>NR13 Category for Pressure Vessel (No SPIE Certification)</i>		
I	36	12
II	48	24
III	72	36
IV	96	48
V	120	60
<i>NR13 Category for Pressure Vessel (SPIE Certification)</i>		
I	72	36
II	96	48
III	120	60
IV	144	72
V	See note. <sup>2</sup>	84

<sup>1</sup> The inspection frequency may be modified by the frequency of relief valve testing.

<sup>2</sup> The Internal Inspection Frequency of a Pressure Vessel in this NR13 Category is determined by the Qualified Professional.

## Family Field Descriptions

### NR13 Technical Data

Each NR13 Technical Data record stores, for a single piece of equipment, all data that is required to calculate NR13 equipment classifications, the resulting classification, and related inspection intervals.

The NR13 Technical Data datasheet can be viewed as *Flat* or *Tabbed*. When *Tabbed*, it contains four tabs: **Equipment Identification**, **Design Data**, **Process Data**, and **Inspection Data**.

The following table provides a list of all the fields in the NR13 Technical Data family. The table, arranged alphabetically, includes a description of the function and behavior of each field.

Field	Data Type	Description	Behavior and Usage
Adjusted External Inspection Interval	Number	Specifies, in months, the frequency of external inspections as adjusted by the Qualified Professional.	None.
Adjusted Hydrostatic Inspection Interval	Number	Specifies, in months, the frequency of hydrostatic testing as adjusted by the Qualified Professional.	None.
Adjusted Internal Inspection Interval	Number	Specifies, in months, the frequency of internal inspections as adjusted by the Qualified Professional.	None.
Alkali Recovery	Logical	Indicates whether the piece of equipment is an Alkali Recovery Boiler.	None.

Field	Data Type	Description	Behavior and Usage
Asphyxiant Gas	Logical	Indicates whether the fluid contained in the Pressure Vessel is an asphyxiant gas.	Always disabled.  The value in this field is based on the value in the NR13 Fluid field, and is populated with the value in the Asphyxiant Gas field in the corresponding NR13 Fluid Codes record.
Assembly Mode	Character	None.	None.
Catalyzer	Logical	None.	None.
Combustible	Logical	Indicates whether the fluid contained in the Pressure Vessel is combustible.	Always disabled.  The value in this field is based on the value in the NR13 Fluid field, and is populated when the value in the Flammable field in the corresponding NR13 Fluid Codes record is C.
Condition for Exemption	Character	None.	Enabled only when the Designed As field contains the value <i>Pressure Vessel</i> .
Cryogenic	Logical	None.	Always disabled.
Designed As	Character	Specifies the type of equipment, as required by NR13.	This field is populated by the NR13 Equipment Type System Code Table.  On the datasheet, this field displays a list with the following values: <ul style="list-style-type: none"> <li>• Boiler</li> <li>• Pressure Vessel</li> <li>• Piping</li> <li>• Safety Device</li> </ul>

Field	Data Type	Description	Behavior and Usage
Equipment or Location ID	Character	The ID of the associated Equipment or Functional Location record.	<p>This value in this field is the same as the value in the Equipment ID field of the Equipment record to which it is linked, or the Functional Location field of the Functional Location to which it is linked.</p> <p>If the NR13 Technical Data record is linked to both an Equipment and a Functional Location record, then the value in the Equipment or Location ID field will reflect whichever record it was linked to most recently.</p>
External Access	Logical	Indicates whether external access to the Pressure Vessel is possible.	Enabled only when the Designed As field contains the value <i>Pressure Vessel</i> .

Field	Data Type	Description	Behavior and Usage
External Inspection Interval	Number	Specifies, in months, the NR13-compliant frequency of external inspections based on the NR13 Category of the piece of equipment and SPIE certification.	<p>Always disabled.</p> <p>When the Designed As field is <i>Boiler</i>, the value in this field is determined by the values in the Special Boiler, Alkali Recovery, NR13 Category, and SPIE fields.</p> <p>When the Designed As field is <i>Pressure Vessel</i>, the value in this field is determined by the values in the NR13 Category and SPIE fields.</p> <p>When the Designed As field is <i>Piping</i> or <i>Safety Device</i>, the value in this field is determined by the most frequent External Inspection Interval from a linked Boiler or Pressure Vessel.</p>
Flammable	Logical	Indicates whether the fluid contained in the Pressure Vessel is flammable.	<p>Always disabled.</p> <p>The value in this field is based on the value in the NR13 Fluid field, and is populated when the value typed in the Flammable field in the corresponding NR13 Fluid Codes record is I.</p>

Field	Data Type	Description	Behavior and Usage
Fluid Class	Character	Specifies the NR13 classification of the fluid contained in the Pressure Vessel as <i>A</i> , <i>B</i> , <i>C</i> , or <i>D</i> .	<p>Always disabled.</p> <p>The value in this field is based on the value in the NR13 Fluid field, and is populated with the value in the Fluid Class field in the corresponding NR13 Fluid Codes record.</p>
Fluid Description	Character	Specifies a description of the NR13 Fluid.	<p>Enabled only when the Designed As field contains the value <i>Pressure Vessel</i>.</p> <p>The value in this field is based on the value in the NR13 Fluid field, and is populated with the value in the Fluid Description field in the corresponding NR13 Fluid Codes record.</p>
Frequency of Relief Valve Test	Number	Specifies the frequency of testing of relief valves on the piece of equipment.	None.
Group of Potential Risk	Character	Specifies the Group of Potential Risk as <i>1</i> , <i>2</i> , <i>3</i> , <i>4</i> , or <i>5</i> .	<p>Always disabled.</p> <p>The value in this field is determined by the value in the PV field.</p>
Hydrostatic Inspection Interval	Number	This field is currently unused.	Always disabled.
Hydrostatic Test Condition	Logical	None.	None.
Hygroscopic Lining	Logical	None.	None.

Field	Data Type	Description	Behavior and Usage
Internal Access	Logical	None.	Enabled only when the Designed As field contains the value <i>Pressure Vessel</i> .
Internal Diameter Less or Eq 150mm	Logical	Indicates whether the internal diameter of the Pressure Vessel is less than or equal to 150mm.	Enabled only when the Designed As field contains the value <i>Pressure Vessel</i> .
Internal Filling	Logical	Indicates whether the Pressure Vessel has an internal filling.	Enabled only when the Designed As field contains the value <i>Pressure Vessel</i> .
Internal Inspection Access	Logical	None.	Enabled only when the Designed As field contains the value <i>Pressure Vessel</i> .
Internal Inspection Interval	Number	Specifies, in months, the NR13-compliant frequency of internal inspections based on the NR13 Category of the piece of equipment and SPIE certification.	<p>Always disabled.</p> <p>When the Designed As field is <i>Boiler</i>, the value in this field is determined by the values in the Special Boiler, Alkali Recovery, NR13 Category, and SPIE fields.</p> <p>When the Designed As field is <i>Pressure Vessel</i>, the value in this field is determined by the values in the NR13 Category and SPIE fields.</p> <p>When the Designed As field is <i>Piping</i> or <i>Safety Device</i>, the value in this field is determined by the most frequent Internal Inspection Interval from a linked Boiler or Pressure Vessel.</p>



Field	Data Type	Description	Behavior and Usage
Interval Adjustment Factors	Text	Used by the Qualified Professional to explain adjusted inspection intervals.	None.
Is NR13 Equipment?	Logical	None.	None.
NR13 Category	Character	<p>Specifies the category for the Boiler or Pressure Vessel, as classified by NR13.</p> <p>Boilers are categorized as <i>A</i>, <i>B</i>, or <i>C</i>.</p> <p>Pressure Vessels are categorized as <i>I</i>, <i>II</i>, <i>III</i>, <i>IV</i>, or <i>V</i>.</p>	<p>Always disabled.</p> <p>When the Designed As field contains the value <i>Boiler</i>, the value in this field is determined by the values in the NR13 Pressure and NR13 Volume fields.</p> <p>When the Designed As field contains the value <i>Pressure Vessel</i>, the value in this field is determined by the values in the Group of Potential Risk and Fluid Class fields. If no value is found in the Fluid Class field, the fluid will be considered Class D.</p>
NR13 Equipment	Character	None.	None.
NR13 Fluid	Character	Specifies the fluid contained by the Pressure Vessel.	<p>Enabled only when the Designed As field contains the value <i>Pressure Vessel</i>.</p> <p>When enabled, this field contains a list. The values in the list are determined by the Fluid Description and Fluid Code fields in each NR13 Fluid Codes record.</p>

Field	Data Type	Description	Behavior and Usage
NR13 Pressure	Number	Specifies the operational pressure for the Boiler or Pressure Vessel.	Enabled only when the Designed As field contains the value <i>Boiler or Pressure Vessel</i> .
NR13 Temperature	Number	Specifies the operational temperature of the Pressure Vessel.	Enabled only when the Designed As field contains the value <i>Pressure Vessel</i> .
NR13 Volume	Number	Specifies the internal volume of the Boiler or Pressure Vessel.	Enabled only when the Designed As field contains the value <i>Boiler or Pressure Vessel</i> .
Operates with Vacuum	Logical	Indicates whether the Pressure Vessel operates with a vacuum.	Enabled only when the Designed As field contains the value <i>Pressure Vessel</i> .
Operates in Non-Degrading Condition	Logical	Indicates whether the Pressure Vessel operates in non-degrading condition.	Enabled only when the Designed As field contains the value <i>Pressure Vessel</i> .
Operational Start Date	Date	Specifies the date on which the piece of equipment entered operation.	Enabled only when the Designed As field contains the value <i>Boiler or Pressure Vessel</i> .
PV	Number	Specifies the PV rating of the Pressure Vessel.	Always disabled.  The value in this field is calculated by multiplying the values in the NR13 Volume and NR13 Pressure fields.
Phosgene	Logical	None.	Enabled only when the Designed As field contains the value <i>Pressure Vessel</i> .

Field	Data Type	Description	Behavior and Usage
Protected Equipment Type	Text	Specifies if a Pressure Relief Device (PRD) protects the equipment.	When the value in the Designed As field is set to <i>Safety Device</i> , then the value in this field is set to Equipment ID of the protected equipment.
Risk	Number	Currently unused.	Always disabled.
Special Boiler	Logical	Indicates whether the Boiler has a special classification under NR13.	Always disabled.  The value in this field is set to <i>True</i> when the Designed As field contains the value <i>Boiler</i> , the SPIE Certified field is set to <i>True</i> , the Water Treatment field is set to <i>True</i> , and the value in the Frequency of Relief Valve Test field is 12 or less.
SPIE Certified	Logical	Indicates whether an organization is SPIE-certified.	Enabled only when the Designed As field contains the value <i>Boiler</i> or <i>Pressure Vessel</i> .
Steaming Capacity	Number	None.	None.
Thermal Fluid Vaporizer	Logical	None.	None.
Tolerance PPM	Character	Specifies the tolerance of the fluid, if toxic.	Always disabled.  The value in this field is based on the value in the NR13 Fluid field, and is populated with the value in the Tolerance PPM field in the corresponding NR13 Fluid Codes record.

Field	Data Type	Description	Behavior and Usage
Toxic	Logical	Indicates whether the fluid contained in the Pressure Vessel is toxic.	Always disabled.  This check box is automatically selected when there is a value in the Tolerance PPM field.
Type of Equipment Protected	Character	None.	None.
Water Treatment	Logical	Indicates whether the piece of equipment uses water treatment.	None.

## NR13 Fluid Codes

The NR13 Fluid Codes family contains all data that is related to any fluids that can be associated with a Pressure Vessel. This includes technical characteristics of the fluid, as well as the NR13 Fluid Class.

The following table lists, in alphabetical order, the fields in the NR13 Fluid Codes family.

Field	Data Type	Description	Behavior and Usage
Asphyxiant Gas	Logical	Indicates whether the fluid is an asphyxiant gas.	None.
Description	Character	Specifies the name of the fluid.	None.
Flammable	Character	Specifies whether the fluid is flammable (I) or combustible (C).	<p>This field is populated by the NR13_FLAMMABLE System Code Table.</p> <p>You can select either of the following baseline values:</p> <ul style="list-style-type: none"> <li>• I</li> <li>• C</li> </ul>
Fluid Class	Character	Specifies the NR13 classification of the fluid as <i>A</i> , <i>B</i> , <i>C</i> , or <i>D</i> .	<p>This field is populated by the NR13_FLUID_CLASS System Code Table.</p> <p>You can select one of the following baseline values:</p> <ul style="list-style-type: none"> <li>• A</li> <li>• B</li> <li>• C</li> <li>• D</li> </ul>
Fluid Code	Character	Specifies a code for the fluid.	None.
Tolerance PPM	Number	Specifies the tolerance of the fluid, if toxic.	None.

## NR13 Catalog Items

The following table is a list of Catalog items related to the NR13 module.

Name	Type	Location
MIR_HSNR13T	Project	\\Public\Rules Library\Meridium\Relationship Families\
MI_NR13TCHD	Project	\\Public\Rules Library\Meridium\Root Entity Families\
NR13 Full Inspection Report	Report	\\Public\Meridium\Modules\Inspection\Reports\
NR13 General Inspection Report	Report	\\Public\Meridium\Modules\Inspection\Reports\
NR13 Ref Doc Images	Query	\\Public\Meridium\Modules\Inspection\Report Queries\
NR13 Ref Doc Images Sub Report	Report	\\Public\Meridium\Modules\Inspection\Reports\
NR13 Technical Data	Query	\\Public\Meridium\Modules\Inspection\Report Queries\
NR13 Technical Data Sub Report	Report	\\Public\Meridium\Modules\Inspection\Reports\

## System Code Tables Used by NR13

The following table lists the System Code Tables used to support various functions throughout the NR13 module.

Table ID	Table Description	Usage
NR13 Equipment Type	Equipment Type	Populates the Designed As field in NR13 Technical Data records.
NR13_FLAMMABLE	Flammable	Populates the Flammable field in NR13 Fluid Codes records.
NR13_FLUID_CLASS	Fluid Class	Populates the Fluid Class field in NR13 Fluid Codes records.