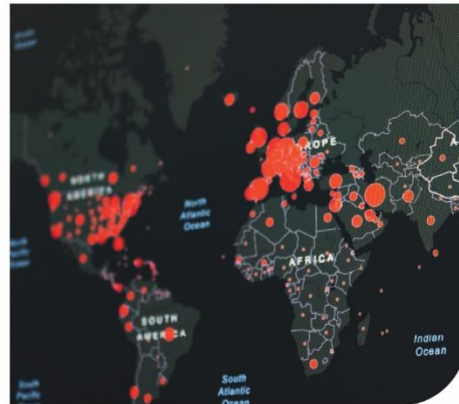
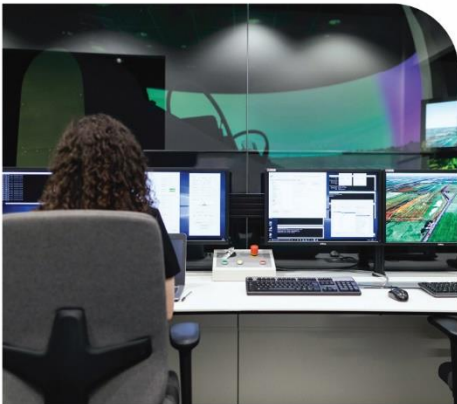
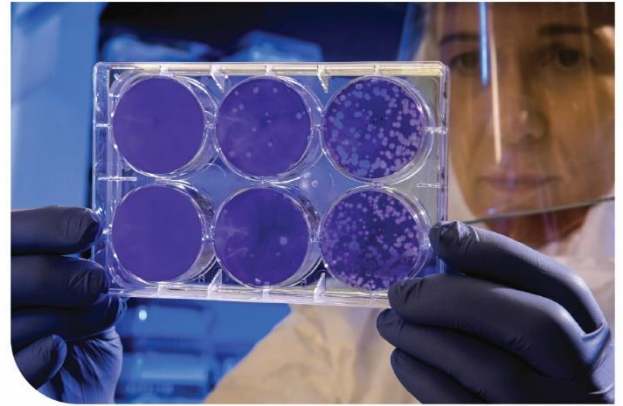
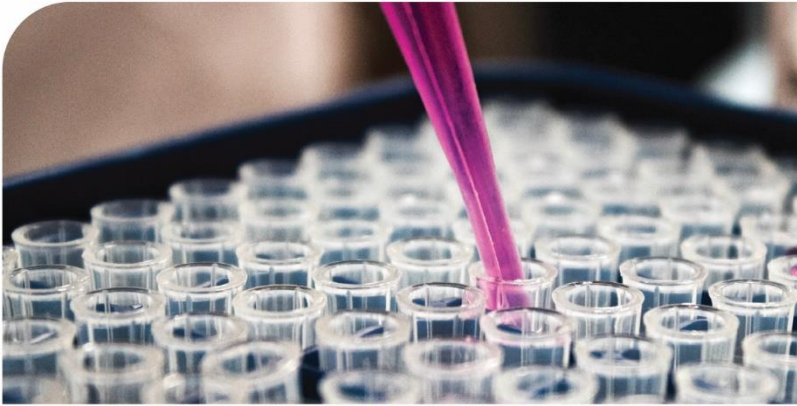


# MASS FEED

Model for Analysis, Sharing, and Standardizing  
Food Electronic Environmental Data (MASS FEED)  
**Best Practice Guide for Data Structure**



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## What is MASS FEED?

The Model for Analysis, Sharing, and Standardizing Food Electronic Environmental Data (MASS FEED) model is a structure and dictionary of fields, tables, and relationships that describe key jurisdiction, facility, and violation data.

The MASS FEED model is a tool to reliably collect, utilize, share, and assess food service facilities (e.g., cafes, restaurants, and mobile food units) alongside retail food facilities (e.g., grocery stores, vending operations, and farmers markets) using inspection data that comes from numerous agencies. It also provides a common data structure for building environmental health data collection systems.

MASS FEED is designed to be adaptable to changes in technology and regulatory practices, while accommodating diversity in restaurant and retail food facility inspection systems. The model is based on critical fields within risk-based inspection practices as found in the FDA *Food Code* and a sample of Georgia's statewide database of inspections. The fields were modified to accommodate differences across versions of the Food Code while leveraging data standardization incorporated in the Standard for Aquatic Facility Environments (SAFE-D) model. NEHA developed the SAFE-D model for sharing inspection data related to swimming pool, spas, and other recreational water venues.

**The model is a minimum representation of necessary data tables and fields and is not intended to limit any addition of locally essential fields or tables.** For example, no fee or financial transaction tables exist in this model but they can be added as separate tables with relationships to the relevant core tables. Every jurisdiction may need to add custom fields and tables relevant to their data and to fit local policies and practices.

## The Goal of MASS FEED

The goal of MASS FEED is to provide a flexible standard that reduces duplicate data, supports risk-based inspection practices, and increases the sharing of data for research and policy decisions.

## Why is MASS FEED Needed?

With over 3,000 environmental and public health agencies in the United States, each agency collects, manages, and stores food safety and sanitation data under unique methods which leads to difficulty in analyzing the data. Current practices have resulted in a variety of inspection forms, databases, spreadsheets, and screen scraping tools used to collect data across agencies. There is no standard to allow jurisdictions to compare and share this valuable data. This variety of methods in collecting and presenting data is reflected in the diverse ways inspection outcomes are shared with the public via placards, online posts, and portals, etc. This variability or failure to share data in a way that the public can reliably use the information limits analysis and correlates to poorer inspection outcomes.<sup>i</sup>

The MASS FEED model answers this need for standardized restaurant and retail food facility inspection data, empowering agencies to share data amongst themselves and with state and national organizations. MASS FEED addresses challenges faced by leaders, researchers, and the public in collecting, comparing, and using information on restaurant and retail food facility inspections.



## For Jurisdictions

The shared data structure can help jurisdictions identify trends, address challenges, develop resources to meet workforce needs, and improve food safety and sanitation policies and programs. A common structure can also lower the cost of developing environmental health information systems, thus providing a greater opportunity for agencies to implement data collection and sharing practices.

Standardizing food inspection data using the MASS FEED model can help environmental and public health jurisdictions improve their regulatory programs and bolster community health and safety. The model aims to provide value to federal, state, territorial, local, and tribal organizations responsible for sharing and analyzing restaurant and retail food facility inspection data.

## For the Public

The standardized data of food facility inspections using the MASS FEED model can also be made publicly available to patrons. The public can make informed decisions on whether to visit a particular restaurant or retail food establishment.

## For Decision Makers

Standardized data promotes transparency in regulation. Uniform data can be shared with decision makers and funders to improve state and local agency food inspection programs.

## Data Sharing Best Practices

Before publishing any dataset of inspection results, it's important to have a plan for keeping data up to date. Open data quickly becomes stale and impractical if it is not kept current. This is particularly important when working with environmental and public health data. To keep communities healthy and safe, jurisdictions need to ensure the public and operators can access the most timely information about food facilities, emerging disease threats, recall responses, and emergency actions. Data must be valid, reliable, and timely.

This list of best practices for keeping datasets up to date and accurate is not designed to be exhaustive. Organizations using the model must actively pursue current methods of data governance.

## Data Ownership

Work with data providers to make sure the technical, organizational, and legal mechanisms are in place to have regular access to the data. For an agency to ensure full data ownership, this may mean requiring a vendor to set up automatic data exports, working with other teams within the organization to ensure there is continuous access to data beyond the scope of the initial implementation, and verifying with the legal team that there is an ability for the agency to control any publishing or sharing data the agency collects or generates.

Engage your internal information technology (IT) professional to provide any technical support on the mechanisms for data collection, sharing, and security.



## Automated Processes

Leverage automated processes within data systems to efficiently collect, transform, and share data. Manually transforming data using spreadsheet tools can be an effective way to mockup data into the standard, but as early as possible, consider building an automated Extract, Transform, and Load (ETL) process to generate data files programmatically. That process can then be run on a programmed schedule to generate data automatically.

Establish the frequency dates for data to be published. Adhere to established publication dates and communicate if there are issues related to a missed/problematic publication date.

## Incorporate Feedback

Create and publicly document mechanisms by which to allow data users to provide feedback about any issues they find within the datasets.

## Avoid Ambiguity

Actively avoid ambiguity and flawed information in the data by using data governance rules and practices. This includes, but is not limited to:

- Avoid “Other” as an option wherever possible. Engage data collectors, entry staff, managers, analysts, and partners you will share the data with as part of system development and updates to define selection lists of data entry screens to prevent the need for raw text typed into a field. Raw text entered in an “other” box allows for misspellings, abbreviations, inappropriate text, space holding characters, or missing or flawed values to be recorded. These flaws can substantially complicate data analysis and compromise the legitimacy of regulatory actions.
- Apply system restrictions, or rules, to fields for validation. For example, temperature values should be within the range of that typically expected in the operations to be inspected. These limits should be applied to the data entry fields for recording temperature values.
- Require data entry into specific fields needed to populate essential reports before allowing users to save a record. Support data entry with auto-populated, default, and calculated values that can be edited, where appropriate. Include system users to help identify and define these fields and the policies and standard practices surrounding each field.
- Provide consistent and regular user training and reminders about data entry quality. Include feedback mechanisms in training and communications to gather user recommendations and questions.



## Additional Resources

The more you invest in making this process regular, automatic, and monitored, the easier it will be to maintain in the long term. A few references relevant to data quality, sharing practices and governance include:

- [Environmental Data Management Best Practices from the Interstate Technology and Regulatory Council \(edm-1.itrcweb.org\)](http://edm-1.itrcweb.org)
- [How to Improve Your Data Quality from Gartner \(www.gartner.com/smarterwithgartner/how-to-improve-your-data-quality\)](http://www.gartner.com/smarterwithgartner/how-to-improve-your-data-quality)
- [Data Quality Assessment and Review: Recommended Practices from the USGS \(www.usgs.gov/data-management/data-quality-assessment-and-review-recommended-practices\)](http://www.usgs.gov/data-management/data-quality-assessment-and-review-recommended-practices)

## Including Evaluation

Actively including evaluation efforts as a consistent practice ensures that food inspection operations remain effective, responsive to changes, and aligned with public health goals, ultimately leading to safer food for consumers. A standardized data model is essential for evaluating food service inspections due to its potential to enhance consistency, comparability, and accuracy in assessing food safety practices.

One of the greatest benefits of using a standard model is the reliability of active evaluation of practices and policies including, but not limited to:

- Data Collection and Analysis:
  - Regularly collect data on food safety violations, inspection outcomes, and compliance rates.
  - Analyze the data to identify trends, common issues, and areas of concern in food establishments.
- Risk Assessment:
  - Implement a risk-based approach to prioritize inspections, education, and outreach efforts based on factors such as the type of food, past violations, and history of compliance.
- Feedback Mechanisms:
  - Establish mechanisms for inspectors to provide feedback on challenges faced during inspections, including resource limitations or unclear guidelines.
  - Use analysis tools to gather feedback to refine inspection protocols and provide necessary training to address identified gaps.
- Stakeholder Involvement:
  - Engage with stakeholders such as food industry representatives, consumer groups, and health agencies to gather diverse perspectives on inspection effectiveness.
  - Use feedback from stakeholders to fine-tune policies, balancing industry needs with public health priorities.
- Continuous Improvement:
  - Conduct regular evaluations of inspection protocols to assess their effectiveness and relevance.



- Incorporate emerging scientific knowledge and best practices into food inspection policies, adapting to new risks and challenges.

By establishing a uniform structure for collecting, sharing, and analyzing inspection data, a standard model ensures that key metrics and information are consistently captured across various establishments and jurisdictions. This facilitates meaningful benchmarking, trend analysis, and identification of common issues that can help policymakers and regulatory agencies make informed policy decisions and allocate resources effectively.

Furthermore, a standardized data model streamlines reporting processes, allowing for transparent sharing of inspection outcomes to stakeholders within the food industry and the general public. Ultimately, a standardized data model strengthens the foundation for evidence-based policymaking and continuous improvement in food inspection operations, contributing to safer and healthier food environments.

## Other Referenced Standards

The MASS FEED specification references other data and measurement standards. This is done to leverage the work of respected standards frameworks such as the American National Standards Institute (ANSI) and International Organization for Standardization (ISO) to ensure consistency in how values are measured and recorded from one inspecting agency to the next. Examples of other standards include:

- ISO 8601 Date Time: A broadly adopted standard format for how dates and times are recorded in data files, in order to ensure consistent processing from one data file to the next.
- ISO 7393-2:2017: A commonly used standard for how to measure free chlorine in water sources.
- ASTM E1153: Standard Test Method for Efficacy of Sanitizers Recommended for Inanimate, Hard, Nonporous Non-Food Contact Surfaces.
- INCITS 38:2009: A geographic data standard for the commonly used two letter state codes like “WA” and “GA.”
- Federal Information Processing Standard Publication 6-4 (FIPS 6-4): A standardized set of state code abbreviations and geoid for state, county, and census blocks in the United States.
- GIS standards: Numerous standards exist that impact this dictionary. (Most can be found at <https://www.fgdc.gov/standards/list>) Key GIS standards are:
  - United States Thoroughfare, Landmark, and Postal Address Data Standard FGDC-STD-016-2011 Parts 1 through 7: Provides one standard that meets the diverse address data management requirements for local address administration, postal and package delivery, emergency response (and navigation generally), administrative recordkeeping,





- and address data aggregation. Supports the use of best practices in address data management. This provides a systematic, consistent basis for recording all addresses in the United States. Defines the elements needed to compose addresses and store them within relational databases and geographic information systems (GIS) by defining the attributes needed for address documentation, mapping, and quality testing, including address ID's, coordinates, and linear reference locations. This standard also offers a migration path from legacy formats to standards-compliant ones. Built on USPS Publication 28, the Census Bureau TIGER files, the FGDC Content Standard for Digital Geospatial Metadata, the FGDC's National Spatial Data Infrastructure (NSDI) Framework Data Content Standard, and previous FGDC address standard efforts.
- Geospatial Positioning Accuracy Standards, Parts 1 through 5, Reporting Methodology, FGDC-STD-007.1-1998: Provides a common methodology for reporting the accuracy of horizontal coordinate values and vertical coordinate values for clearly defined features where the location is represented by a single point coordinate.
  - INCITS 31-2009, Information technology, Codes for the Identification of Counties and Equivalent Areas of the United States, Puerto Rico, and the Insular Areas: Establishes a structure for the assignment of data codes to counties and county equivalents of the United States and its insular and associated areas, for the purpose of information interchange among data processing systems.
  - INCITS 38-2009 Information technology – Codes for the Identification of the States and Equivalent Areas within the United States, Puerto Rico, and the Insular Areas: Establishes a structure for the assignment of data codes to states and state equivalents of the United States and its insular areas, for the purpose of information interchange among data processing systems.
  - Geopolitical Entities, Names, and Codes (GENC) Standard (GENC) version 2: Specifies a profile of ISO 3166, Codes for the representation of names of countries and their subdivisions. This profile addresses U.S. Government requirements for recognition of the national sovereignty of a country; identification and recognition of geopolitical entities not included in ISO 3166; and names of countries and country subdivisions that the U.S. Board on Geographic Names (BGN) has approved.



## Metadata Elements of Data Feed and Sharing Agreements

Metadata refers to descriptive information that provides context, details, and characteristics about a particular piece of data, helping to understand its origin, structure, meaning, and usage. The inspections feed provides detailed information about the inspections of food facilities and venues.

While this model is intended to represent the minimum of the data, every jurisdiction will have local custom fields relevant to coding their data to fit local policies and practices. An example of this would be how any scoring or similar inspection outcome is represented. Such customization must be described in the metadata if it is included in any repository or distribution effort.

The data feed can be divided into five sections:

1. Information about the facility, including unique identifier, regulatory jurisdiction, facility name, legal business name, and address information.
2. Primary contact record, such as phone number, email, and mailing address.
3. Information about the food venue, including venue type and risk categorization.
4. The details of the inspection, including the final score or grade, any critical violations that were recorded, temperatures and testing data, and other notes. Complete text of all violations of any inspection item are also included.
5. Metadata specific to any elements of the feed that are specific to the agency supplying the data, such as explanations of custom coding of data values or fields and tables unique to the supplying of organization's data.

Defining how items compare across published standards is part of metadata.

Example: FDA *Food Code* uses terminology such as Priority, Priority Foundation, and Core—not critical. They separate the most important violations into Foodborne Illness Risk Factors and Interventions. Less important violations are called Good Retail Practices. Local codes, however, use terms such as Critical, Risk Factor, and Good Retail Practice. How these two terminologies link together must be explained in the metadata.



## Region/District and Jurisdiction Information

Many agencies operate on a region or district-based system where multiple jurisdictions are administered under a state agency subdivision that provides administrative and managerial support. Where this intermediary management entity does not exist, a single record is needed in this table.

Field	Required/ Optional	Description
DistrictID	Required [Primary Key]	Unique identifier of the specific Item District record
Region/District Name	Required	Name of the collection of jurisdictions
Region/District Code Reference	Optional	User assigned code for district/region
Office Location	Optional	Primary address of office operations
Parent Agency	Required	State agency with overarching authority for policy and administering state laws
State	Required	Two-letter state abbreviation as used by U.S. Postal Service

### Jurisdiction Information

The local organization that directly provides the inspection services is the jurisdiction. These operations have assigned staff, geographic areas of authority, and specific local policies and practices. Since the records in the District and Jurisdiction tables are presented at the level of the jurisdiction, most reporting agencies will only provide a single data record in each table. However, if information about inspections from multiple jurisdictions is aggregated into a single inspections dataset or file, the district and jurisdiction data should include one record per jurisdiction represented.

Training should not be done in the production environment of any system. This can cause confusion between “practice records” and real records. Keep deleted records for audits that require a method to identify records that have been deleted in error or with intentional maleficence.



The Inspections CSV file includes three sets of fields, broken into three sections and described below. These fields provide information about the agency and jurisdiction itself.

Field	Required/ Optional	Description
Jurisdiction ID	Required [Primary Key]	Internal identifier used as the unique identifier of the record
District ID	Optional	Foreign key reference for relationship to a district record
Name of Jurisdiction	Required	Name of organization assigned authority for issuing permits, license, and conduct inspections
Jurisdiction Type	Required	Type of jurisdiction, such as state, city, county, etc.
County	Optional	Primary county of the jurisdiction's activities
County FIPS	Required	Federal Information Processing System code for the county
Director	Optional	Name of top management staff member
Office Location	Optional	Foreign key reference [LocationLink ID] for relationship to an address record
Jurisdiction Polygon	Optional	If a GIS coordinates delineating the boundaries of the jurisdiction are available as an object, include this as a data element

## Agency and Jurisdiction Details

Metadata supplied as part of any data feed or records request should be associated with these tables and include information about the scoring, regulations, and policies related to enforcement, and references to the respective laws, rules, and other policies that impact the regulation of food safety administered by the permitting and inspection operations of the jurisdiction. Such data should also include a relationship diagram or similar document indicating how each table is related to others.

## Scoring Information

If a value for Inspection Score is provided in the inspection data, this section must be included, and it is used to document the scoring system used in reported inspections. Any scoring or grading schema would need to be described in the metadata when data is shared and the system's calculation logic would need to be described. As this document is defining the tables and not the applicable policy for scoring or grading logic, the database interface developer has the freedom to structure the interface as needed by local policy. Some of the point system may be detailed in the Inspection Layout table, but further explanation of the use of these points are essential.





## Data Tables

The tables in this dictionary provide data at the inspection level and will be repeated for each inspection, recorded at the time of the inspection. This can be used to track changes in the facility over time. The fields in each table represent the most commonly used elements for their respective purpose and can have additional fields and naming aliases to accommodate local needs. However, if modifications are needed, every effort should be made to maintain a fully normalized relational database structure.

### Common Field Information

The following fields should be part of every database table and the respective CSV or similar common file output from the database to ensure data governance and support metadata.

Field	Required/ Optional	Description
Deleted	Required	Boolean field indicating if the record was deleted or not
Saved as draft	Optional	Boolean field indicating if the record is in draft status or not
Date added	Required	Datetime stamp of when the record was first added to the table
Last Modified	Required	Datetime stamp of when the record was most recently changed; defaults to datetime record was first added to the table



## Location Intermediary Table

Relational databases do not work well with many-to-many relationships because of relationship ambiguity. This table is required to facilitate the one-to-many and many-to-one relationships between location and the various other tables.

GOVERNANCE NOTE: Establish a selection list in the user interface to limit raw text entries. This will ensure higher functionality for users and analysis efforts.

Field	Required/Optional	Description
LocationLink ID	Required [Primary Key]	Internal identifier used as the unique identifier of the record
Location ID	Required	Foreign key reference for relationship to an address record
Parent Type	Required	Text field of the respective table name to be used as part of the relationship reference
Parent ID	Required	Foreign key reference for relationship to a related record that is used in conjunction with a table name and the primary key of the related record (example: combined "Facility" and [FacilityID])
Address Status	Optional	Indicates current or previous address. Note: If set as previous address, Is Primary must default to FALSE
Is Primary?	Optional	Boolean field that allows designating a location as the primary address for the related parent record
Address description	Optional	Use of the address (mailing, home, business, shipping, etc.)

## Location Information

The following fields represent a location that contains one or more facilities. A location is a geographic point coordinate and the related address information that is associated with a facility or where a service is provided.

GOVERNANCE NOTE: Adding data entry validation to adhere to U.S. Postal Service address standards as well as a search feature that prevents duplicate addresses greatly improves data quality and eases system



Field	Required/ Optional	Description
Location ID	Required [Primary Key]	The internal identifier, used as the unique identifier of the record
Facility Address	Required	The physical street address of the facility. Note: Address number may not be required but a street name is required for the access point to the operational location.
Facility Address 2	Optional	If provided, the second line of the street address for the facility
P.O. Box	Optional	Post office box for mailing addresses
Facility City	Required	The city that the facility resides within
Facility State	Required	The state that the facility resides within, following the ANSI two-letter state abbreviations from INCITS 38:2009
Facility Postal Code	Required	The USPS Zip Code, represented as a 5-digit Zip Code, or a ZIP+4 if available
Other Address Info	Optional	Any additional directions of the location to direct entry or activity. (Example: under back stairs)
Facility County	Required	The full name of the county, or equivalent governmental subdivision in which the facility resides
County FIPS	Required	Federal Information Processing System code for county
Latitude	Required	The decimal latitude for the facility (data systems must include this for the location of the facility via geocoding or location services for the latitude and longitude)
Longitude	Required	The decimal longitude for the facility (data systems must include this for the location of the facility via geocoding or location services for the latitude and longitude)
Parcel Number	Optional	Unique text identifier used by local tax assessor agency for the property parcel of the location
Subdivision	Optional	The common name of collection of adjacent property parcels as recorded on deeds and property tax records
Block	Optional	Subsection of subdivision identifying a smaller collection of property parcels
Lot	Optional	Text identifier of a single property parcel related to a recorded legal description or associated with a single taxable parcel
Province Name	Optional	The governmental subdivision of a nation (international records)
Mail Code	Optional	The country postal code (international records)
Country Name	Optional	The ISO country name
Country Code	Required	The two-letter (alpha-2) ISO 3166-1 code for one of the 243 countries





## Facility Information

The following fields represent a facility that contains one or more regulated operations that require a permit, license, or similar authorization to operate. A facility is an operation such as a food service, swimming pool, body art studio, tourist accommodation, or any other operation inspected or similarly regulated by the jurisdiction.

This document is limited to only food handling operations not directly regulated by the FDA or USDA.

A Facility Record is the information about a permit or license. The policies applicable to when a new permit is required also require that a new Facility Record must be created. This ensures the ability to maintain a historic record of past permits for analysis

Field	Required/Optional	Description
Facility ID	Required [Primary Key]	Internal unique identifier used by the agency supplying the data, for this facility
Location ID	Required	Foreign key value to relate Facility with a Location
Jurisdiction ID	Required	Foreign key value to relate Facility with the applicable regulating jurisdiction
NAICS_code	Optional	Federal agencies use the North American Industry Classification System (NAICS) to classify businesses when collecting, analyzing, and publishing statistical data about the United States economy. This numeric coding system is also used for administrative, regulatory, contracting, and taxation purposes.
Type of Operation (FDA)	Optional	Selection of current FDA firm types from FDA Office of Regulatory Affairs Data eXchange (ORA DX)
Facility Name	Required	The official business name as used in advertisements or similar publications
D.B.A.	Optional	"Doing Business As" name, where applicable, to ensure ability to identify the operation in search tools of the system and on public portals
Major Type	Required	The primary categorization of the operation (food, pool, body art, etc.) This document focuses on food facilities, while the SAFE-D focuses on pool venues. Similar documents may result in other inspection processes in environmental health practice.
Minor Type	Required	Initial subcategorization of operation as defined in applicable regulations (example: mobile food, fixed permanent, temporary, seasonal, etc.)
Facility Type 1	Optional	Subcategorization describing local parameter impacting regulatory actions or analysis, such as generalized menu



Field	Required/ Optional	Description
		description (Asian fusion, American, Mexican) or ownership structure (Corporate, Franchise, Individual Owned, etc.). This field provides for the categorization as applicable to the local policies.
Facility Type 2	Optional	Subcategorization describing local parameter impacting regulatory actions or analysis, such as generalized menu description (Asian fusion, American, Mexican) or ownership structure (Corporate, Franchise, Individual Owned, etc.). This field provides for the categorization as applicable to the local policies.
Business Model	Optional	Subcategorization describing common handling and operational parameters. (e.g., fast food, full service, catering, long-term care, school base kitchen, offsite kitchen, receiving kitchen, etc.)
Application Date	Required	Date of initial application for permit or license
Plan Review Date	Optional	Date of latest plan review communication to applicant. This should be a read-only value based on the maximum date value of Final approval date field from the Plan_Reviews table.
Initial Permit Date	Optional	Date of first permit issuance. Note: Where permits have an expiration, the initial permit date is essential to maintain the historical record for the count of active food facilities across a jurisdiction.
Permit Number	Optional	Unique file reference identifier related to the authorization to operate
Date Opened	Optional	The first date the facility is fully operational and authorized to open for food handling and service
Date Closed	Optional	Date that the operation permanently stopped providing service or access
Closure Code	Optional	Short text indicating cause for closure (e.g., Out of business, Permit revoked, Change of Ownership, etc.)
Issuing Official	Optional	Name of jurisdiction official staff member authorizing the food facility to operate
Number of Meals or Seats	Optional	Quantity of expected maximum elements as established by jurisdiction to be associated with review of the menu construction designs, and operational plans provided by the applicant
Assigned List	Optional	Allows for assigning a facility to a jurisdiction staff member for inspections.
Tax ID - FEIN	Optional	Federal Employer Identification Number



Field	Required/ Optional	Description
Type Water Supply	Required	Description of the potable water supply used in operation (e.g., private well, public, private community)
Water System Name	Optional	The name of the branch of a public water supply (Example: Anytown Water, Flat creek WTP)
Sewage Disposal	Required	Description of the sewage disposal method used in operation (e.g., onsite sewage, public, community)
Sewage System Name	Optional	The name of the branch of a public sewage utility. (Example: Anytown Sewer, Flat creek WWRP)
Construction Permit Date	Optional	Date the facility was authorized to begin construction
Construction Permit	Optional	Unique file reference identifier related to the authorization to build or renovate
Is a HACCP Plan Required?	Optional	Indicator of requirements for HACCP plans for operation
Is a Variance Required?	Optional	Indicator of issuance of a variance to law, rules, or policies for the facility food handling or preparation processes
Permit Holder Contact	Required	The foreign key reference [lkcontID] of the contact record for the person or entity that is issued the permit or license
Billing Contact	Optional	The foreign key reference [lkcontID] of the contact record for the billing information
Owner Contact	Optional	The foreign key reference [lkcontID] of the contact record for the facility owner information
Other Contact	Optional	The foreign key reference [lkcontID] of the contact record for the additional contact information, such as emergency contact or translator
Primary Phone	Optional	The main phone number for the facility
Can Primary Number receive texts?	Optional	Yes/No field indicating if the primary phone number can receive text messages
Alternate Phone	Optional	A second phone number for the facility. This may be a fax, mobile phone, or other secondary contact number to reach the facility.
Can Alternate Number receive texts?	Optional	Yes/No field indicating if the alternate phone number can receive text messages
Facility Email	Optional	Primary email address to contact the facility
Work Notes	Optional	This field is for open text of general notes
Permit Status	Required	Current status of permit (e.g., Plan review, Pending, Issued, Suspended, Voided, Closed)
Base of Operations	Optional	For mobile food operations to link the base with each mobile unit permit



Field	Required/ Optional	Description
Permit		
License Plate	Optional	For mobile food operations to record plate/tag information
VIN Number	Optional	For mobile food operations to record Vehicle Identification Number information

## Plan Reviews

The following fields represent the minimum elements of general plan review of a facility for initial construction and any significant renovation. Having a separate record from the facility allows maintaining the historical records over the life of the operation. Local practices and policies may require adding custom fields, such as recording the specific measurement of the approved water heater or walk-in refrigeration.

Field	Required/ Optional	Description
ReviewID	Required [Primary Key]	Internal unique identifier used by the agency supplying the data, for this plan review record
Facility ID	Required	Foreign key value to relate Period with a Facility
Review Type	Required	Selection list of common types of plan reviews, including "Other"
Other Review Type	Required	Text field available if "Other" selected in Review Type field
Initial Date Plans Submitted	Required	Date the plans were first submitted for review
Requested number of units (seats/meals)	Optional	Number field to assist with the calculations for determining the required size of the facility, water systems elements, equipment, and other factors
Primary contact for plans:	Required	Foreign key reference to Contact record for the primary contact for communications relevant to the submitted plans
Reviewer	Required	Selection list of users with responsibility to conduct plan reviews
Date Assigned	Optional	Date the plans were provided to a staff member for the purpose of conducting a complete plan review
Initial plan review date	Optional	Date the plan review began
Preliminary approval date	Optional	Date preliminary approval was provided
Final review completed	Optional	Date plan review was complete and approved



Field	Required/ Optional	Description
Final approval date	Required	Date the notice of approval was provided to the submitting entity
Plan review status	Required	Selection list of status options applicable to Jurisdiction policies and practice
Are all plans required submitted?	Required	Boolean field to indicate yes or no
Date complete plans received	Optional	Date the final set of plans were received
Onsite Sewage File Reference	Optional	Text field for onsite sewage record file or reference identifier
Is sewage management public or private	Optional	Selection list indicating type of sewage management planned: Onsite Management Private Community system Public sewer TBD.
Sewer management contact	Optional	Foreign key to Contact record for primary contact of the applicable sewage management provider
Water provider name	Optional	Text field for the name of organization providing water to the facility
Contact for water supply	Optional	Foreign key to Contact record for primary contact of the applicable water supplier
Is water supply public or private	Optional	Selection list: Well, Private system, Community system, Public, TBD
Engineer or Firm supplying plans	Optional	Text field to records the name of the firm or individual supplying the plans
Review Notes and Communication records	Optional	User interface view of listing of links to all related Plan review Notes records



## Plan Review Note

The following fields represent minimum elements of the communications and general comments or notes related to plan review activities. Local policies and practices may require adding custom fields and values to this table to accommodate requirements.

Field	Required/ Optional	Description
prdataID	Required [Primary Key]	Internal unique identifier used by the agency supplying the data, for this review note
Review ID	Required	Foreign key value to relate Period with a Plan Review record
Person conducting review action	Required	Selection list of users with responsibility to conduct plan reviews
Date of review action	Required	Date activity occurred
Start time of review action	Optional	Time review activity started
End time of review action	Optional	Time review activity completed
Type of review work	Required	Selection list of common names for review tasks Examples: plumbing, lighting, surface schedule, process flow, storage area, menu review
Notes/comments	Required	Open text for any review findings and communication notes
Contact notified	Required	Search field for Contact records within Jurisdiction



## Operational Period Information

The following fields represent the periods the permit is issued and authorizes a facility to operate. This table allows jurisdictions to address the need for seasonal facilities, as well as where regulations require an expiration date for each permit or license.

This table is essential to allow tracking the count of active facilities at any one time or over time when expiration or seasonal activity are regulated.

Field	Required/ Optional	Description
Operational Period ID	Required [Primary Key]	Internal unique identifier used by the agency supplying the data, for this operational period record
Facility ID	Required	Foreign key value to relate Period with a Facility
Operation Period Start Date	Required	Date the Facility is authorized to begin operations
Operation Period End Date	Required	Date the authorization to operate expires
Approved By	Required	Name of the jurisdiction staff member that issued authorization (foreign key to User ID)
Notice of Approval Sent To	Optional	Reference (foreign key: lkcontID) to a contact record that was sent notice of approval



## Contact Intermediary Table

Relational databases do not work well with many-to-many relationships because of relationship ambiguity. This table is required to establish the one-to-many relationships between contact information and the various other tables.

Field	Required/ Optional	Description
lkcontID	Required [Primary Key]	Internal identifier, used as the unique identifier of the record
Parent ID	Required	Foreign key reference for relationship to a contact record
Parent Type	Required	Text field of the respective table name to be used as part of the relationship reference
Child ID	Required	Foreign key reference for relationship to a related record that is used in conjunction with a table name and the primary key of the related record Example: combined "Facility" and [FacilityID]
Contact Type	Optional	Multiselecting field that allows for designating the various types of relationships apply between a contact and the related records
Primary Contact	Required	Boolean field indicating if the lined contact is the primary communication point for a linked record
Active Contact	Required	Boolean field indicating if the lined contact is actively connected to a particular related record linked record.





## Contact Information

The following fields represent a contact record that is related to one or more other record types. A contact is a person or legal entity and the associated routes for communication.

Field	Required/ Optional	Description
Contact ID	Required [Primary Key]	Internal identifier used as the unique identifier of the record
Contact location ID	Required	Foreign key value to relate Contact with a Location
ContactTypeID	Optional	Foreign key to value to relate a contact to a Contact Type
Title	Optional	Selection of common titles as are used in address blocks
First Name	Required	The individual or the authorized agent of a legal entity
Last Name	Required	
Middle Name	Optional	
Suffix	Optional	Example: Sr., Jr, III
Organization Name	Optional	The legal entity name of a business or organization
DBA Name	Optional	The “doing business as” alternate name for the contact
Gender	Optional	Selection of genders (using latest list from U.S. Census)
Other Name 1	Optional	Any alternate name used by the contact.
Other Name 2	Optional	Any alternate name used by the contact
Primary Phone-Country code	Optional	Country code of primary phone number for contact
Primary Phone-Phone Number	Required	Primary phone number for the contact
Primary Phone-Extension	Optional	Extension number of the primary phone
Can Primary Number receive texts?	Optional	Yes/No field indicating if the primary phone number can receive text messages
Alternate Phone-Country code	Optional	Country code of alternate phone number for contact
Alternate Phone-Phone Number	Optional	Alternate phone number for the contact. This may include mobile, fixed, or fax numbers
Can Primary Number receive texts?	Optional	Yes/No field indicating if the primary phone number can receive text messages
Alternate Phone-Extension	Optional	Extension number of the alternate phone
Primary Email	Optional	Email address most used by contact
Alternate Email	Optional	Alternate email address



Add Addresses	Optional	Search field to find existing Location records or add new Location records related to this Contact record
Notes	Optional	Open text field

## Contact Types Table

The variety of contact types can be extensive, including owners, authorized agents, emergency contacts, builders, and others. This requires a table for managing the contact types. However, this table should be managed by a system administrator to prevent duplicate values and maintain a valid selection list for the user interface to remain functional.

Having a feature that allows for searching location addresses already in the database prevents duplicate location records and increased data quality and reliability.

Field	Required/ Optional	Description
ContactTypeID	Required	Internal identifier used as the unique identifier
Contact Type		Text description of the most common contact types that can be used as a selection list within the user interface for entering contact data

## Food Service Inspection

The bulk of the fields in the data are those related to the inspection itself. This section includes the details of when and why the facility was inspected, the outcome of the inspection (such as a numerical score or pass/fail), and the connection to the status records of every related inspection item, recorded temperature, and attachment. Note that this record is not an environmental assessment as is used in a foodborne illness investigation, as such it would be limited to the suspected food or process that is implicated in the epidemiologic investigation.

## Inspection Details

Field	Required/ Optional	Description
InspectionID	Required [Primary Key]	Unique identifier of the specific inspection record
FacilityID	Required	Foreign key that defines the relationship to the parent Facility record.
Purpose	Required	Reason for the inspection; May use a coding or any alternate words desired, but should be mapped to one of the following values: <ul style="list-style-type: none"> <li>• Initial (a.k.a. Preoperational)</li> <li>• Temporary Operation</li> <li>• Routine</li> <li>• Requested</li> <li>• Complaint</li> <li>• Outbreak Investigation (may be excluded if Environmental</li> </ul>



Field	Required/ Optional	Description
		<p>Assessment as used in NEARS or similar is used)</p> <ul style="list-style-type: none"> <li>• Follow-up</li> <li>• Incident (For situations where the facility is damaged and an inspection is required to allow continued operation.)</li> <li>• Informal</li> <li>• Other</li> </ul>
Inspection Date	Required	The date which the inspection began. If possible, include the time of the inspection, but it is acceptable to provide only a date. For data entry validation, this value must be encoded as an ISO 8601 DateTime
Inspection Start Time	Required	Time that the inspector entered the premises of the Facility for the purpose to conduct an inspection. For data entry validation, this value must be encoded as an ISO 8601 DateTime formatted in the user interface using a 24-hour clock reference. Do not use AM/PM options and selection errors may result
Inspection End Time	Required	Time that the inspector completed the full inspection and provided results to the person in charge. For data entry validation, this value must be encoded as an ISO 8601 DateTime and be neither any value less than the actual Inspection Start Time, formatted in the user interface using a 24-hour clock reference. Do not use AM/PM options and selection errors may result...
Inspection Duration	Optional	Calculated value of the difference between the Inspection Start Time and the Inspection End Time. For data quality, having a data validation rule that is part of data entry interface to prevent negative or excessive duration values is prudent
Inspection Refused	Optional	Boolean field indication of access to perform the inspection was refused
Previous Score	Optional	Read-only field providing the value of the most recent previous inspection's Final Score
Previous Inspection Date	Optional	Read-only field providing the value of the most recent previous inspection's Inspection Date
Previous Inspection Purpose	Optional	Read-only field providing the value of the most recent previous inspection's Purpose
Second past score	Optional	Read-only field providing the value of the second most recent previous inspection's Final Score
Inspected By	Required	Selection list of users assigned inspection responsibilities used to record the name of the person who was the primary inspector
Risk Type	Optional	Selection list of categorization element assigned to the operations of the facility being inspected as defined in the local laws, rules, and regulations. Each jurisdiction will need to maintain this selection list



Field	Required/ Optional	Description
		table. Jurisdictions need to describe the method of assigning risk type within the metadata because there is no national standard for assigning risk type.
Is a follow-up inspection required	Optional	Boolean field indicating if the results of the inspection observations justify requiring a follow-up inspection to validate corrective actions
Date follow-up due	Optional	The date that the follow-up inspection is due to occur. This value must be encoded as an ISO 8601 DateTime and be neither any value less than the Inspection Date value
General Comments	Optional	Open text field to allow free entry of comments and notes. As a free-text field, the General Comments field must be checked to make sure it is not inappropriately divulging any personally identifiable information about individuals involved with the facility, such as names, email addresses, or phone numbers. These values can be redacted by replacing them with other text or removed entirely. If necessary, reporting agencies may need to omit optional fields like the General Comments field if it is determined they cannot reliably redact them
Final Score	Optional	Calculated field utilizing numeric scoring based on local policies and protocols
Final Grade	Optional	Calculated field utilizing any categorization system required by local policies and protocols to indicate inspection findings and enforcement outcomes
Overall Enforcement Action	Optional	Selection list to record the status of or requirement for enforcement actions. This field could be limited by values in other fields of the inspection, such as Risk Type, Score, and Purpose, to ensure appropriate data entry
Discussed with	Required	Name of the person in charge or similar person to whom the inspection finding was discussed
Signature	Optional	Image capture field to be able to record the electronic signature of the person who is receiving the inspection record. The electronic signature should be secure and include a datetime value
Title	Optional	Job or position title of the person recorded in the Discussed with field
CFPM Certification Identifier	Optional	Certificate or similar reference number from the facility records showing a person in the facility is a Certified Food Safety Manager
Next Inspection Due By	Optional	Calculated field that allows editing indicating the date when the facility should be inspected as part of a routine inspection policy. The calculation should be based on local laws, rules, and policies



*Examples of risk type from New Jersey:*

- "Risk type 1 food facilities" - establishments that do not prepare any potentially hazardous foods. They may have limited storage of pre-packaged potentially hazardous foods. (ex: snow cone carts, liquor stores, dollar stores and candy stores)
- "Risk type 2 food facilities" - store a significant amount of potentially hazardous foods, sell or prepare potentially hazardous foods. These establishments have limited menus and do not cool more than 2 potentially hazardous foods. (ex: grocery stores; bakeries; schools that do not serve a highly susceptible population; and quick service operations)
- "Risk type 3 food facilities" have an extensive menu which requires the handling of raw ingredients; and is involved in the complex preparation of menu items that includes the cooking, cooling, and reheating of at least three or more potentially hazardous foods; or prepare and serve food for a highly susceptible population. (ex: full-service restaurants; diners; bakeries; delis; commissaries; catering operations; hospitals, nursing homes, and preschools preparing and serving potentially hazardous foods)
- "Risk type 4 food facilities" are retail food facilities that conduct specialized processes such as smoking, curing, canning, bottling, acidification designed to control pathogen proliferation, or any reduced oxygen packaging intended for extended shelf-life.

#### **GOVERNANCE NOTE: Date and time values**

Date and time values are essential for analyzing the compliance of operations, such as receiving and end of shift cleaning. Errors in selecting the correct year or month are common. User interfaces should prompt the user to correct the values if any value less than or greater than 180 days from the current system date. (ex: date > (180 days before now) AND date <tomorrow) If historic data is to be added, the interface should allow bypassing this field rule.



## Temperature Values

The following are values for temperature checks conducted as part of an inspection. Data entry validation rules should be built into the system to ensure that the required checks are recorded, as well as that the values recorded are within the partial limit of the applicable item being recorded. The need to specify complete details of the food checked, location, and what process the food may be undergoing is essential to support corrective actions and policy analysis.

**GOVERNANCE NOTE:** The use of “Other” as an option for any data should be avoided due to the inability to address the variety of text that may be entered to describe the alternate value. See notes about use of “Other” as an option in Best Practices.

Field	Required/Optional	Description
TemperatureID	Required [Primary Key]	Unique identifier of the specific temperature record
InspectionID	Required	Foreign key that defines the relationship to the parent Inspection record
Item Location	Required	<p>Selection list of common locations in kitchens</p> <p>Examples include:</p> <ul style="list-style-type: none"> <li>• Prep line</li> <li>• Buffet</li> <li>• Receiving dining area</li> <li>• Buffett area</li> <li>• Bar</li> <li>• Ware washing area</li> <li>• Walk-in freezer</li> <li>• Other (This option for any data should be avoided due to the inability to address the variety of text that may be entered to describe the alternate value. See notes about use of “Other” as an option in Best Practices.)</li> </ul> <p>This is not an exhaustive list Each jurisdiction should identify the most common terms used in inspections.</p>
Location Description	Optional	Text field for detailed description of location in which the temperature of the food checked
Equipment	Required	<p>Selection list of common food handing appliances. Examples:</p> <ul style="list-style-type: none"> <li>• Prep line cooler</li> <li>• Salad bar</li> <li>• Walk-in freezer</li> <li>• Walk-in refrigerator</li> <li>• Hot holding cabinet</li> <li>• Prep line cooler</li> </ul>



Field	Required/ Optional	Description
		<ul style="list-style-type: none"> <li>• Fryer</li> <li>• Grill</li> <li>• Three compartment sink (for wash and sanitizing temperatures)</li> <li>• Dishwasher (for wash and sanitizing temperatures)</li> <li>• Reach-in freezer</li> <li>• Bain-marie</li> <li>• Food preparation sink</li> <li>• Other (See previous notes about using “Other”)</li> </ul> <p>This is not an exhaustive list. Each jurisdiction should identify the most common terms used in inspections.</p>
Process	Required	Text field for detailed description of process in which food temperature was checked
Food Item	Required	<p>Selection list of common food items' primary ingredient common names. Examples:</p> <ul style="list-style-type: none"> <li>• Beef</li> <li>• Chicken</li> <li>• Cheese</li> <li>• Lamb</li> <li>• Tomatoes</li> <li>• Other (See previous notes about using “Other”)</li> </ul> <p>This is not an exhaustive list. Each jurisdiction should identify the most common terms used in inspections.</p>
Food Description	Optional	Text field for detailed description of the specific food item which the temperature was checked
Temperature	Required	Numeric field to record the temperature of food item. Best if range is limited to between -70 to 500. Local policies will determine if the values are in Fahrenheit or Celsius, and the user interface must show which unit is used and metadata must include this unit for all published data



## Sampling Values

The following are values for samples collected as part of an inspection. These records may be part of chain of custody requirements, so may require field level change logs for auditing purposes.

Field	Required/ Optional	Description
SampleID	Required [Primary Key]	Unique identifier of the specific sample record
InspectionID	Required	Foreign key that defines the relationship to the parent Inspection record
Item Location	Required	<p>Selection list of common locations in kitchens. The list of selections should include the most common location terms used in inspection comments by the jurisdiction's staff. Examples:</p> <ul style="list-style-type: none"> <li>• Prep line</li> <li>• Buffet</li> <li>• Receiving</li> <li>• Walk-in freezer</li> <li>• Ware washing area</li> <li>• Handwash station</li> <li>• Restroom</li> <li>• Dining area</li> <li>• Other (This option for any data should be avoided due to the inability to address the variety of text that may be entered to describe the alternate value. See notes about use of "Other" as an option in Best Practices.)</li> </ul> <p>This is not an exhaustive list. Each jurisdiction should identify the most common terms used in inspections.</p>
Location Description	Required	Text field for detailed description of location in which the temperature of the food checked
Equipment	Required	<p>Selection list of common food handling appliances. Examples include:</p> <ul style="list-style-type: none"> <li>• Prep line cooler</li> <li>• Salad bar</li> <li>• Reach-in freezer</li> <li>• Bain-marie</li> <li>• Food preparation sink</li> <li>• Three-compartment sink</li> <li>• Ware washing machine</li> <li>• Other (See previous notes about using "Other")</li> </ul>
Food Handling Process	Required	Text field for detailed description of process in which item was sampled
Food Item	Optional	<p>Selection list of common food items' primary ingredient common names. Examples include:</p> <ul style="list-style-type: none"> <li>• Sanitizer Solution</li> </ul>





		<ul style="list-style-type: none"> <li>• Beef</li> <li>• Chicken</li> <li>• Cheese</li> <li>• Lamb</li> <li>• Tomatoes</li> <li>• Environmental Sample</li> <li>• Other (See previous notes about using “Other”)</li> </ul>
Food Description	Optional	Text field for detailed description of the specific food item which the temperature was checked
Sample Type	Required	Selection of approved sampling types. These should be based on well-established laboratory protocols and practices
Results	Optional	Value of the testing or analysis results. This information may be delayed data entry or part of an established data feed from a related laboratory information system
Sanitizer tested	Optional	Selection list of approved sanitizers
Units	Optional	Applicable unit to the results. This information may be delayed data entry or part of an established data feed from a related laboratory information system



## Inspection Layout

The following records provide the ability to manage the items available in the inspection records for recording observations and findings. Establishing this table provides the flexibility to use data across jurisdictions and inspection programs.

Field	Required/ Optional	Description
QuestionID	Required [Primary Key]	Unique identifier of the specific inspection item record
JurisdictionID	Required	Foreign key that defines the relationship to the parent Jurisdiction record
Official Name of Jurisdiction	Required	Read-only value from the related Inspection Item record
Operation Type	Required	Type of operation being inspected (e.g., food, recreational water, tourist lodging, body art...)
Sanitation Type	Optional	Selection field of FDA-ORA-DX categorization. This field is to allow for cooperative efforts utilizing the U.S. Food and Drug Administration's Office of Regulatory Affairs Data Exchange (ORA-DX): <ul style="list-style-type: none"> <li>• SAFETY OF WATER</li> <li>• FOOD CONTACT</li> <li>• CROSS CONTAMINATION</li> <li>• HAND WASH, TOILETS</li> <li>• TOXIC COMPOUNDS</li> <li>• ADULTERANTS</li> <li>• EMPLOYEE HEALTH</li> <li>• EXCLUDE PESTS</li> </ul>
Hazard Type	Optional	Selection field of FDA-ORA-DX categorization <ul style="list-style-type: none"> <li>• PATHOGENS</li> <li>• PARASITES</li> <li>• SCOMBROTOXIN</li> <li>• ENVIRONMENTAL CHEMICALS</li> <li>• AQUACULTURE DRUGS</li> <li>• ALLERGENS/ADDITIVES</li> <li>• PHYSICAL</li> <li>• NATURAL TOXINS</li> </ul>
Item order on inspection	Required	Sequence of order that the item is listed on the inspection form
Item number label	Required	Item identifying label to be used on inspection form
Points if violated	Optional	Number of point lost for a score-based inspection result.
Text of Inspection Item / question	Required	Full text of inspection item to be used on inspection form



Field	Required/ Optional	Description
Item is critical	Optional	Identifier if an inspection item is a critical violation requiring immediate action. This field will be determined by the jurisdiction policies
Status Options	Required	Multi-selection list of possible status options that are to be available for the user to select for the inspection item. Example: <ul style="list-style-type: none"> <li>• OUT</li> <li>• IN</li> <li>• NO (Not Observed)</li> <li>• NA (Not Applicable)</li> </ul>
Inspection Item Group	Required	Grouping of categories or similar for analysis purposes



## Inspection Code Reference

The following records provide the ability to associate proper citation of regulations within the inspection observations of violations. Establishing this table provide the flexibility to use data across jurisdictions and inspection programs.

Field	Required/ Optional	Description
CodeID	Required [Primary Key]	Unique identifier of the specific inspection item record
QuestionID	Required	Foreign key that defines the relationship to the parent Inspection Item record
JurisdictionID	Required	Foreign key that defines the relationship to the parent Jurisdiction record
Code Citation	Required	Code citation nomenclature
Code Title	Optional	Text title of code section
Complete Code Language	Optional	Quoted text of section of code for reference by user to validate proper selection or to provide to operator
Current Code?	Optional	Boolean field. Indicator if the record is for the most current rules/law or code. This field can be used to limit the selection list in the inspection interface to just the active regulatory codes while maintaining the citations recorded in inspections when earlier regulations were applicable
Code Crosswalk	Optional but <b>highly recommended</b>	Citation of the section or subsection of a matching national law, rule, or model code to allow for converting and combining the various local data based on local codes for analysis across jurisdictions



## Inspection Item Findings

The following records represent required observations recorded in each inspection. Note that the Inspection Items Findings table will contain the most records of any in the data system and should be key to defining the scale of resources needed to maintain and host the data system. To calculate the number of records, multiply the number of inspections by the number of inspection items that could include a status value. Example: 10,000 Facilities inspected 2 times a year over 5 years, and 36 inspection items = **3,600,000 rows**.

Field	Required/ Optional	Description
DataID	Required [Primary Key]	Unique identifier of the specific Item Finding record
InspectionID	Required	Foreign key that defines the relationship to the parent Inspection Item record
QuestionID	Required	Foreign key that defines the relationship to the related Inspection Item record
Code Cited	Optional	Selection listing of text title of code sections limited to those related to the respective QuestionID
CodeCitedID	Optional	Foreign key that defines the relationship to the selected Code Cited
Code Citation	Optional	Read-only test of code citation nomenclature of the selected Code Cited
Status	Required	Status of inspection item based on selection list limited by the related QuestionID
Observations	Required	Open text field to record observations of violations, corrective actions required, and recommended actions. As a free-text field, the Observations field must be checked to make sure it is not inappropriately divulging any personally identifiable information about individuals involved with the venue or facility, such as names, email addresses, or phone numbers. These values can be redacted by replacing them with other text or removed entirely. If necessary, reporting agencies may need to omit optional fields like the Observations field if it is determined they cannot reliably redact them
Repeat Violation	Required	Boolean field to allow recording if the violation is a repeat from a previous inspection typically the most recent inspection
Corrected on Site	Optional	Boolean field to allow recording if the violation was corrected before the end of the inspection
Critical	Optional	Boolean field to allow recording if the violation is critical as determined by local policy
Correct By Date	Optional	Date field to record when a violation must be corrected, and that the inspector will validate the correction. Data entry validation rules should require this date value be greater than the Inspection Date value in the parent inspection record



## Project Background

To standardize data across agencies, the Centers for Disease Control and Prevention (CDC) and the National Environmental Health Association (NEHA) collaborated to develop a data standard for restaurant and retail food facility inspection information. This project was supported by CDC cooperative agreement OT18-1802 Strengthening Public Health Systems and Services through National Partnerships to Improve and Protect the Nation's Health.

This data dictionary is not intended as a replacement or addition to the Food and Drug Administration Office of Regulatory Affairs Data Exchange (FDA-ORA-DX).

The MASS FEED dictionary is focused on food service and retail sales. NEHA worked to map restaurant and retail food facility inspection data sets for 159 counties under 18 districts' management of these home-rule jurisdictions in Georgia to identify the most common data elements, and relationships between data tables for a normalized relational database. Georgia's historically had numerous and diverse practices that were joined under the umbrella of a single data model which provides a significant foundation for further development of this standard dictionary going forward.

The approach internationally ignored any specific version of food rule or model code beyond including a crosswalk capacity to the FDA Food Code. This resulted in a data model focused on the common process flows of permitting and risk-based inspections to allow use of the model for any jurisdiction. This method of data standardization can lead to a better understanding of the current landscape of restaurant and retail food facility inspection data and inform on improvements for food safety and sanitation standardized practices.



## Definitions

**Boolean:** A binary variable, having two possible values called “true” and “false.”

**Comma-separated values (CSV) file:** A text file that has a specific format which allows data to be saved in a table structured format.

**Critical:** An indicator that an item not in compliance requires immediate corrective action due to the condition observed being substantially correlated to foodborne illness. The policies related to critical violations vary across jurisdictions and these differences must be documented in the metadata of any published datasets.

**Data Dictionary:** A collection of names, definitions, and attributes about data elements that are being used or captured in a database, information system, or part of a research project.

**Dataset:** A collection of related data which may be accessed individually or in combination or managed as a whole entity.

**Data Type:** A particular kind of data item, as defined by the values it can take, the programming language used, or the operations that can be performed on it.

**Extract, Transform, Load (ETL):** A data integration process that combines data from multiple data sources into a single, consistent data store which is located into a data warehouse or other system.

**Facility:** A licensed or permitted location, business, or organization that contains one or more regulated operations (e.g., café, body art studio, mobile food operation, hotel, school, amusement park, etc.)

**FDA-ORA-DX:** Food and Drug Administration Office of Regulatory Affairs Data Exchange - A system that facilitates the electronic exchange of information between the FDA and its regulatory partners. It enables the secure and efficient sharing of data related to regulatory activities, inspections, compliance, and enforcement efforts.

**Governance:** Refers to the set of processes, policies, and procedures that ensure the appropriate and responsible management, protection, and utilization of data within the public health domain. It involves the establishment of rules and guidelines that dictate how data is collected, stored, accessed, shared, and used by various stakeholders within the public health ecosystem. Key components of data governance in public health data include:

- Data Collection: Defining standardized protocols for data collection, ensuring data accuracy, and maintaining data quality to ensure reliable and meaningful insights.



- **Data Security and Privacy:** Implementing measures to safeguard sensitive health information, adhering to data privacy laws and regulations, and protecting against unauthorized access or breaches.
- **Data Access and Sharing:** Establishing guidelines for who can access specific data, under what conditions, and for what purposes. This involves determining appropriate data-sharing agreements and ensuring data is shared securely and ethically.
- **Data Standards and Interoperability:** Promoting the use of standardized formats and terminology to enhance data exchange and interoperability between different public health systems and organizations.
- **Data Ownership and Accountability:** Clearly defining roles and responsibilities for data ownership and accountability to ensure that data custodians and stewards are responsible for maintaining data integrity and compliance.
- **Data Ethics:** Ensuring that the collection and use of public health data adhere to ethical principles, protecting the rights and interests of individuals whose data is being collected and used.
- **Data Quality and Assurance:** Implementing mechanisms to continuously monitor and improve data quality, validating data accuracy, and addressing any issues that may arise.
- **Data Retention and Disposal:** Establishing policies for data retention and disposal, adhering to legal requirements and best practices for the responsible handling of data.

**Imminent Health Hazard:** A significant threat or danger to health that is considered to exist when there is evidence sufficient to show that a product, practice, circumstance, or event creates a situation that requires immediate correction or cessation of operation to prevent injury based on: (1) The number of potential injuries, and (2) The nature, severity, and duration of the anticipated injury.

**Inspecting Agency:** The government agency of the jurisdiction managing the staff performing the inspection itself.

**Inspection:** An instance where an inspector visits a facility, performs and documents checks of health and safety regulations, optionally assigns an outcome status, and determines whether the facility is allowed to remain open

**Interoperability:** The ability of different information technology systems and applications to communicate, exchange data, and work together effectively. It is the capability of disparate systems to understand, interpret, and use data from one another without encountering significant obstacles or requiring manual intervention.

**Jurisdiction:** A geographic region over which the inspecting agency performs inspections and the





organization assigned the authority or responsibility to regulate food sales or food service operations within this region.

**Normalization:** the process of organizing data in a database. This includes creating tables and establishing relationships between those tables according to rules designed both to protect the data and to make the database more flexible by eliminating redundancy and inconsistent dependency.

**Open Data:** Refers to data that is made freely available to the public, without any restrictions on access, usage, or distribution. It is typically released in a machine-readable format and can be used, reused, and redistributed by anyone for various purposes, including research, analysis, innovation, and decision-making. Open data is a key component of the broader concept of open government, where transparency, collaboration, and citizen engagement are emphasized. Characteristics of open data include:

- **Availability:** Open data is published and accessible to the public through online platforms or repositories. This availability ensures that anyone interested in the data can find and access it easily.
- **Licensing:** Open data is typically accompanied by an open license that specifies the terms of use. These licenses often grant users the right to use, modify, and share the data, usually with the requirement that attribution is given to the data source.
- **Machine-Readable Format:** Open data is provided in formats that are machine-readable, such as CSV, JSON, XML, or APIs (Application Programming Interfaces). This makes it easier for computers and software to process and analyze the data efficiently.
- **No Discrimination:** Open data should be made available to all, without any discrimination based on who the users are or their intended use of the data.
- **No Copyright or Patent Restrictions:** Open data is usually released without copyright restrictions or patents that could limit its use or reusability.
- **Timeliness:** Open data is updated regularly, ensuring that users have access to the most current information available.

**Publish:** The act of making information, datasets, or raw facts available to the public or a targeted audience through various means, such as online platforms, databases, reports, or publications. The goal of publishing data is to share knowledge, promote transparency, enable data-driven decision-making, and foster collaboration and innovation. A key element of publishing data is validation and cleaning of data.



**Standardization:** The process of establishing uniform formats, structures, and definitions for data across an organization or within a specific domain. It ensures consistency, interoperability, and accuracy, making data more easily understood, shared, and analyzed.

**User Interface (UI):** The graphical or visual representation that allows users, such as EHS, researchers, customers, and policymakers, to interact with and access the data stored within the system. It serves as the primary medium through which users can input, retrieve, analyze, and visualize health-related information to make informed decisions and gain valuable insights. The UI components and characteristics include:

- **Accessibility:** The UI should be designed to be user-friendly, accessible, and intuitive, ensuring that individuals with varying levels of technical expertise can easily navigate and interact with the system.
- **Data Input:** The interface should allow users to input various types of data and relevant metrics. It should provide mechanisms for data validation to maintain data integrity. (See governance)
- **Data Retrieval and Querying:** Users should be able to retrieve specific data sets using search, filtering, and querying functionalities. The UI should support different data retrieval options, allowing users to extract the information they need quickly and accurately.
- **Data Visualization:** The UI should include tools for visualizing data through charts, graphs, maps, and other interactive visual elements. This aids in the comprehension of complex information and facilitates data-driven decision-making.
- **Real-time Updates:** In certain cases, real-time data updates might be critical in public health situations. The UI should support automatic data synchronization or manual data refresh options to ensure the most recent data is available.
- **Security and Privacy:** As environmental public health data often contains sensitive and confidential information, the UI should prioritize robust security measures to protect against unauthorized access and data breaches. User access controls should also be implemented to manage permissions appropriately.
- **Report Generation:** The UI should allow users to generate comprehensive reports and summaries based on selected data parameters, making it easier to communicate findings and insights to stakeholders and the public.
- **Compatibility:** The UI should be designed to work across different devices and platforms, including desktops, tablets, and smartphones, to accommodate users with varying technology preferences.



- Documentation and Help: Providing clear documentation and contextual help within the UI can assist users in understanding the system's functionalities, ensuring they can effectively utilize its capabilities.
- Feedback Mechanism: Implementing a feedback mechanism enables users to report issues, suggest improvements, or request new features, facilitating ongoing enhancements to the user interface and system as a whole.

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<sup>i</sup> T. N. Kim, N. DeJarnett, D. T. Dyjack, J. Edwards, H. Stueven, C.W. Hedberg, "Disclosing Inspection Results: Can It Influence Consumer Behavior and Improve Public Health Outcomes?," Journal of Environmental Health, vol. 1, no. 2, (2021). Available at: <https://www.neha.org/Images/resources/JEH1-2.21-Feature-Disclosing-Inspection-Results.pdf>

