NFLIS DRUG

NATIONAL FORENSIC LABORATORY INFORMATION SYSTEM

NFLIS-Drug Data Submission Guidelines

Version 1
April 1, 2025

U.S. DEPARTMENT OF JUSTICE DRUG ENFORCEMENT ADMINISTRATION

Introduction

The National Forensic Laboratory Information System (NFLIS) represents an important resource for the Drug Enforcement Administration (DEA) and its partners in drug enforcement across the United States. The NFLIS program systematically collects drug identification results and associated information from drug cases submitted to, and analyzed by, voluntary participating forensic laboratories. To ensure this information can be used by the DEA, as well as other NFLIS users, it is imperative that accurate and timely information is added to NFLIS. This document is intended to provide guidance to all drug testing laboratories on how to provide data to NFLIS to ensure its timeliness, reliability, and usability.

NFLIS data helps provide a comprehensive picture of our Nation's drug problem and is used in strategic and tactical drug control plans, policies, and operations, and may be used in aggregate for scheduling actions, intelligence, and laboratory research.

To meet these objectives, the NFLIS team encourages all submitting laboratories to review this document to ensure the data is formatted in a manner that enables the NFLIS program to capture all information about a substance, such as the location of the associated evidence seizure and co-occurring substances.

After reviewing this document, if you have questions or need clarification, please contact the NFLIS program at NFLISdata@deaecom.gov for assistance.

1 Purpose

This document defines the formatting of data from seized drug laboratories to the National Forensic Laboratory Information System (NFLIS). Submitting agencies should use this guide as a reference to ensure that their data is represented in the national database accurately and reliably. The document is only a guide, and laboratories are not required to conform to these requirements to participate in NFLIS-Drug. Conformance with these guidelines is intended to improve reliability and speed associated with integrating a laboratory's data into the NFLIS system.

2 Version

This is Version 1.0 of "NFLIS-Drug Data Submission Guidelines." Laboratories should keep a copy of this document to assist with the provision of data to NFLIS and resolve any data issues that may arise in the future. "NFLIS-Drug Data Submission Guidelines" may be updated in the future, and laboratories should ensure that they have and rely on the latest version of the document, which will be available from DEA on the NFLIS website or by request to NFLIS@dea.gov.

3 Reference Documents

3.1 NFLIS seeks to ensure that all submitted data conforms to the following reference documents and standards:

3.1.1 "Scientific Working Group for the Analysis of Seized Drugs (SWGDRUG) Recommendations," Volume 8.1, 2022 August 19

3.1.2 "ASTM E2329-17 – Standard Practice for Identification of Seized Drugs"

3.1.3 "Seized Drugs Process Map," National Institute of Standards and Technology, 2022 November 22

3.1.4 OSAC Registry: standards related to the Seized Drug Subcommittee

4 Laboratory Policies

4.1 Laboratory policies may affect the way data is represented in NFLIS. Therefore, it is important that drug testing laboratories share relevant policies with the NFLIS program if the format addressed throughout this document cannot be followed. The laboratory should seek guidance from the NFLIS program management team through the NFLIS data mailbox at NFLISdata@deaecom.gov to minimize the impact of variations from national standards.

4.2 There are specific policies and standards that should be followed as they relate to the drug reports submitted to NFLIS as follows:

4.2.1 ***Analytical Scheme:*** See the SWGDRUG Recommendations, part IIIB. When reporting the presence of a drug in evidence to NFLIS, the laboratory should base the report on an appropriate analytical scheme that includes Category A, B, or C techniques in the identification in conformance with the SWGDRUG Recommendations.

4.2.2 ***Substances:*** Within NFLIS, substances are drugs or other materials that can be analyzed and reported by a forensic laboratory that performs seized drug analysis. A partial list of substances that have been reported to NFLIS may be found at https://www.nflis.deadiversion.usdoj.gov/substance-view.xhtml. The NFLIS substance list expands as new substances are reported by participating laboratories. The NFLIS program prefers that laboratories use the NFLIS substance list as the naming convention for substances in their laboratories. The program can provide the full NFLIS list as an electronic file to support LIMS functionality.

4.2.3 ***Confirmed Controlled Substances:*** If a material has not been confirmed in compliance with the laboratory's Analytical Scheme, it should not be included in the ***Substances*** field. It may be reported in a Comments field. The laboratory should provide NFLIS with any documentation related to its policies for confirmation of the presence of controlled substances or other

components of an item of seized evidence.

4.2.4 ***Confirmed Non-controlled Substances:*** The laboratory is encouraged to include any substance in the ***Substances*** field if it has been confirmed. These materials may include adulterants, precursors, impurities, or other substances that may be of interest to users of NFLIS data from a forensic science or intelligence perspective.

4.2.5 ***Presumptive Testing:*** The laboratory should not include unconfirmed substances of any type in the ***Substances*** field, including any results of presumptive field testing. These results may be reported in a Comments field. If the laboratory records presumptive findings in the substances field of its laboratory information management system (LIMS) and cannot filter this information from their data submission, the laboratory's designation or coding of presumptive findings should be communicated to the NFLIS program. This information will be used to filter the presumptive findings from the data prior to loading it into the NFLIS database.

4.2.6 ***Quality Assurance:*** The laboratory should not include quality assurance testing or non-forensic testing (e.g., canine test samples) in its NFLIS data submission. If the laboratory cannot filter this information from their data submission, the laboratory's designation or coding of these analyses should be communicated to the NFLIS program. This information will be used to filter the extraneous records from the data so they are not loaded into the NFLIS database.

4.2.7 ***Item Number:*** Each NFLIS record corresponds to a discrete item of analysis.

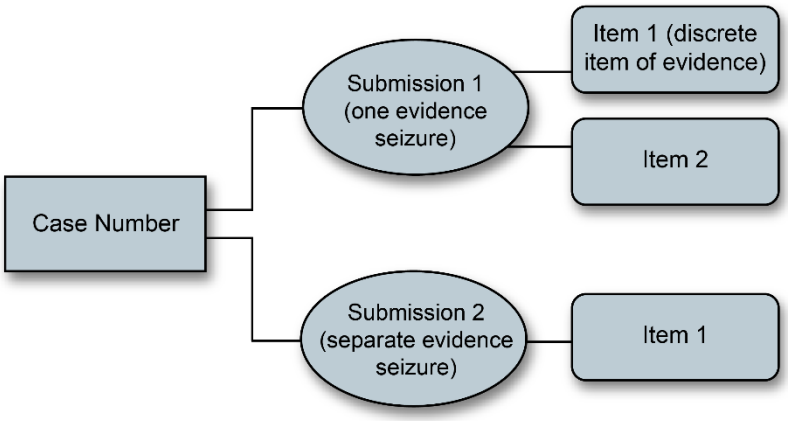


Figure 1. A laboratory case number may be associated with multiple evidence seizures, each of which is a submission and associated with a submission number. Each submission may contain one or more discrete items of evidence, each of which is associated.

Additional items should be created and reported when the evidence includes physically separate and distinct samples. For example, if a submission contains a blue tablet and a green tablet, and an analysis is performed on each tablet, one item number should be associated with the substances identified in the blue tablet, and the second item number should be associated with the substances identified in the green tablet. Discrete items should not be combined into a single report. A case may include many evidence seizures, each of which would be submitted separately to the laboratory and may be associated with a submission number. Each submission may include many items of evidence, each of which would be a discrete item and associated with an item number. See Figure 1.

4.2.8 ***Plant Materials:*** In accordance with SWGDRUG Recommendations, the laboratory may confirm the identification of marijuana and other plant materials based on morphological characteristics, provided sufficient botanical features are observed and documented. When the plant material is subject to chemical analysis, the laboratory should report the controlled substances present and confirmed. For example, if THC is confirmed with chemical analysis and is above the laboratory's threshold to rule out hemp, then the NFLIS report should list cannabis. The laboratory should not report cannabis in which the THC level falls below its policy threshold in the ***Substances*** field.

4.2.9 ***Quantity:*** If available, the laboratory should report the overall quantity of material in grams (weight), milliliters (liquid), or units (tablets, capsules) for each item. A weight in grams is preferred. It is unnecessary to report the weight of each component of a mixed item.

4.2.10 ***Amended Reports:*** The laboratory may amend or supplement an analysis after the original data has been reported to NFLIS. In this case, the laboratory should assign a different ***Item Number*** to the report, if possible, to clarify that the analysis is an update to the previously reported item. For example, the new item number may append a designation (e.g., "*1" or "Amended") to the original item number. If the laboratory cannot assign a new item number in these cases, the laboratory should contact the NFLIS program at NFLISdata@deaecom.gov so the program can implement a data-handling strategy based on other attributes (e.g., submission and completion dates).

4.2.11 ***Multiple Substances:*** Each item report can include up to eight substances. Because most laboratories do not routinely quantify the relative contribution of each component of a mixture, NFLIS-Drug does not report a hierarchy among the substances reported in a drug record (e.g., "primary," "secondary"). Thus, if multiple substances are identified, they can be listed in

any order. It is preferred that the substances be listed in order of concentration, but this is not required. If available, Drug Purity can be reported and associated with each substance's extended attributes.

5 NFLIS Data Processing Format

This section provides information on how the system processes data provided by a drug testing laboratory and the structures of NFLIS tables that are populated during this processing. It is important for the system to be able to pull the information listed below from this data for possible future use in queries. See Section 6 for information about the core fields in NFLIS and Sections 7 to 9 for information about how to format data from a LIMS for submission to the NFLIS program.

5.1 NFLIS-Drug is organized into a Case Table and an Analysis Table. The Case Table includes information related to the ***Laboratory Case Number*** and ***Submission Number*** reported to NFLIS and describes the origin of the evidence analyzed by the forensic laboratory. The Analysis Table includes information related to the ***Item Number*** and the controlled substances identified by the forensic laboratory, if any.

5.2 The system assigns a name to the ***Laboratory*** that conducted the analysis based on the sender of the report or the information in the report if it is provided by a laboratory system. Each forensic laboratory is associated with a unique ***TransID*** that is assigned by the NFLIS program management during the initial onboarding process.

5.3 The system organization is based on the concept of cases, submissions, and items. Each case has a ***Laboratory Case Number***, each submission has a ***Submission Number***, and each item has an ***Item Number***. Thus, it is assumed that each case could have one or more evidence submissions from the ***Submitting Agency***, which is typically a law enforcement agency. It is also assumed that each submission could have one or more items.

5.4 Each record in the Case Table must have a unique identifier. The system will create one record based on these identifiers, even if there are multiple items in a submission. The identifiers are:

5.4.1 Laboratory

5.4.2 Laboratory Case Number

5.4.3 Submission Number

5.5 The Case Table also includes the Submission Date, Completion Date, Submitting Agency, Agency Case Number 1, Agency Case Number 2, How Acquired, Date Created, NFLISID, and the seizure location. Seizure location is recorded in NFLIS as a county identifier only.

5.6 Each record in the Analysis Table must have a unique identifier based on the following:

5.6.1 Laboratory

5.6.2 Laboratory Case Number

5.6.3 Submission Number

5.6.4 Item Number

5.7 The Analysis Table can accommodate up to eight substances for a single report. The Analysis Table also includes extended attributes, including Quantity Amount, Quantity Units, Purity (for each substance), Color, Form, Origin, Manufacturer, Packaging or Markings, and TransID.

5.8 The laboratory may choose to provide alternative identifiers for ***Laboratory Case Number***, ***Submission Number***, or ***Item Number*** to conform to privacy and security requirements in their jurisdiction. In these cases, it remains necessary for these fields to provide a unique and accurate identifier to the records in question. The case, submission, and item data are visible to the NFLIS data team within a secure environment hosted by the DEA and are visible in NFLIS queries only to the originating agency.

5.9 Each NFLIS report must have a unique set of information in the fields associated with the Laboratory, Laboratory Case Number, Submission Number, and Item Number.

5.10 The laboratory is required to populate the core fields described in this document and associated memorandum of understanding between DEA and the laboratory. The laboratory is not required to populate extended attributes outside the core fields. Laboratories are encouraged to provide this additional information as long as the formatting aligns with the guidance in this document.

5.11 Each report should consist of only one row associated with a discrete item of evidence by a unique combination of Laboratory, Laboratory Case Number, Submission Number, and Item Number.

5.12 The laboratory should confine all descriptions and comments to separate fields from the "core fields" (described below). The core fields should only include the requested information in the required format.

6 Core Fields

This section provides guidance on what the drug testing laboratory should include in each required field of an item report (the core fields) to capture the necessary information for future queries.

6.1 A NFLIS-Drug report is a record of the analysis of a discrete item of evidence. As previously described, multiple items may be associated with a submission, and multiple submissions can be associated with a case.

6.2 Each NFLIS-Drug report should include the following core information:

6.2.1 ***Laboratory:*** The name of the forensic laboratory that performed the analysis.

6.2.2 ***Laboratory Case Number:*** A unique identifier is assigned to a case by the laboratory. The Laboratory Case Number may be modified to meet privacy or security requirements as long as the new identifier is unique to the associated case.

6.2.3 ***Submission Number:*** A unique identifier assigned to the evidence submission and associated with a single evidence seizure.

6.2.4 ***Item Number:*** A unique identifying number is assigned by the laboratory to each discrete component of physical evidence that is examined and individually specified in a laboratory report. If the laboratory does not assign both submission and item numbers, the laboratory should, at minimum, assign a unique item number to the record.

6.2.5 ***Submitting Agency:*** The law enforcement or other agency that submitted the evidence to the forensic laboratory should be specified with a unique name. The name should conform to the name used by the National Crime Information Center (NCIC) to reference the agency's Originating Agency Identifier (ORI), or it can be the ORI itself. Alternatively, the file can include the Federal Information Processing Standards (FIPS) code for the location of the originating agency, or the name based on the Census program's Governments Integrated Directory.

6.2.6 ***Seizure Location:*** NFLIS is based on the location of the evidence seizure. At minimum, the laboratory must provide the county in which the evidence seizure occurred. If available, the city, state, and zip code of the evidence seizure should also be supplied. The laboratory should communicate to NFLIS the manner in which the seizure location is represented in its data submission. NFLIS is designed to be used to track new substances or drug trends based on when they were first encountered by law enforcement, so seizure location information is the most useful locality data for NFLIS users. Each record must be associated with this information to enable accurate and

reliable understanding of emerging drug trends.

6.2.7 ***Submission Date:*** The date law enforcement encountered or seized the physical evidence. If unknown, the submission date should be the date the item was submitted to the laboratory for analysis. If this date is unknown, the submission date should be the date the laboratory received the evidence.

6.2.8 ***Completion Date:*** The Completion Date should conform to the policies established by the forensic laboratory for completing the analysis. It should correspond to the completion of quality reviews to ensure that the report is reliable for inclusion in the NFLIS system.

6.2.9 ***Substances:*** Up to eight confirmed substances can be reported to NFLIS in a single item. This field should not include any substances that have not been confirmed. Each substance should be listed with a delimiter between names or in different columns. The delimiter should not be a comma or other character that may appear in drug names. A semicolon is preferred. The NFLIS program prefers that laboratories use the NFLIS substance list at https://www.nflis.deadiversion.usdoj.gov/substance-view.xhtml as the naming convention for substances in their laboratories. The program can provide the full NFLIS list as an electronic file to support LIMS functionality. The core fields should only include the requested information in the required format.

6.3 ***Extended Attributes*****:** Other items of information routinely recorded in electronic format may also be reported if available. The agency may also provide a field of comments, but that information will not be ingested into NFLIS. The accurate and reliable ingestion of additional data requires the laboratory to provide information in a standardized format and adhere to this format. The laboratory should communicate the formatting and nature of additional fields to NFLIS to facilitate ingestion before its initial data submission and keep NFLIS apprised of any changes to the data submission. Other attributes that can be recorded in NFLIS are described below.

6.3.1 ***Quantity:*** The quantity should include ***Amount*** and ***Units*** for the item of evidence. For each item within a submission or case received for analysis, the quantity of material may be provided in grams (weight), milliliters (liquid), or units (e.g., tablets). The amount and units should be reported in separate fields (e.g., 3 grams should be reported as an ***Amount*** of "3" and ***Units*** of "grams"). As described in Laboratory Policies, it is not necessary to report the quantity of the individual components of a mixed sample. Only the overall weight of an item should be provided to NFLIS. If the laboratory conducts quantitation of components of a mixture, the relative concentrations can be reported in a ***Purity*** field for each substance in the mixture. The purity should be expressed as a percentage.

6.3.2 ***Submitting Agency Location:*** The report can provide the submitting agency's city, state, county, and zip code to clarify the submitting agency location. It is recommended that the laboratory submit a full list of submitting agencies in its area of responsibility to NFLIS, including the names and addresses (city, state, county, zip code). The submitting agency location is not used to associate the evidence with a location, except in cases in which the actual seizure location is not available.

6.3.3 ***Form of Material:*** Description of the physical form (e.g., crystal, powder, liquid, tablets, capsules, caplets) of each item within a submission or case received for analysis.

6.3.4 ***Circumstances of Evidence Acquisition***: Information about how drug evidence was acquired by law enforcement (e.g., seized, purchased, discovered).

6.3.5 ***Origin of Drug***: Classification of the controlled substance as legally manufactured (pharmaceutical) or illegally manufactured.

6.3.6 ***Name of Manufacturer***: Name of the pharmaceutical manufacturer in which a legally manufactured and controlled substance was identified.

6.3.7 ***Packaging or Markings***: Description of any unique markings or packaging for each item/exhibit within a submission or case received for analysis. Markings may include text, colors, logos, pictures, or other distinctive designs on the packaging.

6.3.8 ***Color***: Color of the item/exhibit received.

7 Data Submission

7.1 Data may be submitted using the laboratory's Laboratory Information Management System (LIMS). The LIMS should produce a data file that conforms to the requirements in this document in a standardized file format. An Excel spreadsheet is preferred. The final data and file format should be communicated to NFLIS and tested for accurate and reliable ingestion before the initial data submission. Any changes to the data and/or file format should also be communicated to NFLIS and tested before continued data submissions. Files may be encrypted if needed, and the decryption protocol should be established with NFLIS as needed. In its submission, the laboratory should note its name, point of contact, and assigned TransID, a code used by NFLIS to associate all data with a specific forensic laboratory.

7.2 To obtain assistance with the submission process, email nflisdata@deaecom.gov.

7.3 Data must be submitted on a monthly basis to NFLIS. Each file should contain all analyses completed in the prior month.

7.4 The laboratory may provide the files via the following methods:

7.4.1 **Email to nflisdata@deaecom.gov.**

7.4.2 **Secure File Transfer Protocol (SFTP) connection to NFLIS servers.** This requires setting up an account for the submitting agency. The account will be associated with a host name, username, password, and port.

7.4.2.1 SFTP transfer is the preferred method for data submission because it minimizes the ongoing work needed for a laboratory to participate in NFLIS.

7.4.3 **Via state or regional system.** The laboratory may submit their data through a central laboratory that is responsible for communicating the data to NFLIS via email or SFTP. In this case, the individual and central laboratories retain responsibility for conformance with the requirements of this document.

7.4.4 **NFLIS Data Pull.** Participants can ask that NFLIS pull data from their servers via SFTP or secure web link. NFLIS will need to test that IP addresses and links can be reached from inside the DEA system, and will need to communicate any changes, including password expirations.

7.5 NFLIS can support the data submission processes related to LIMS report programming or the web services tool based on the laboratory's needs. The reporting mechanism should be established during onboarding.

7.6 The laboratory should not alter its reporting data, format, communication mode, or communication frequency unless the change has been coordinated with NFLIS ahead of time. This requirement permits accurate and reliable ingestion of data. If the laboratory needs to inform NFLIS concerning changes to their data format, submission schedule, LIMS vendor, or other issues, the laboratory should email this information to NFLISdata@deaecom.gov and/or the data manager assigned to their laboratory to resolve any issues.

8 Data Transmission Elements

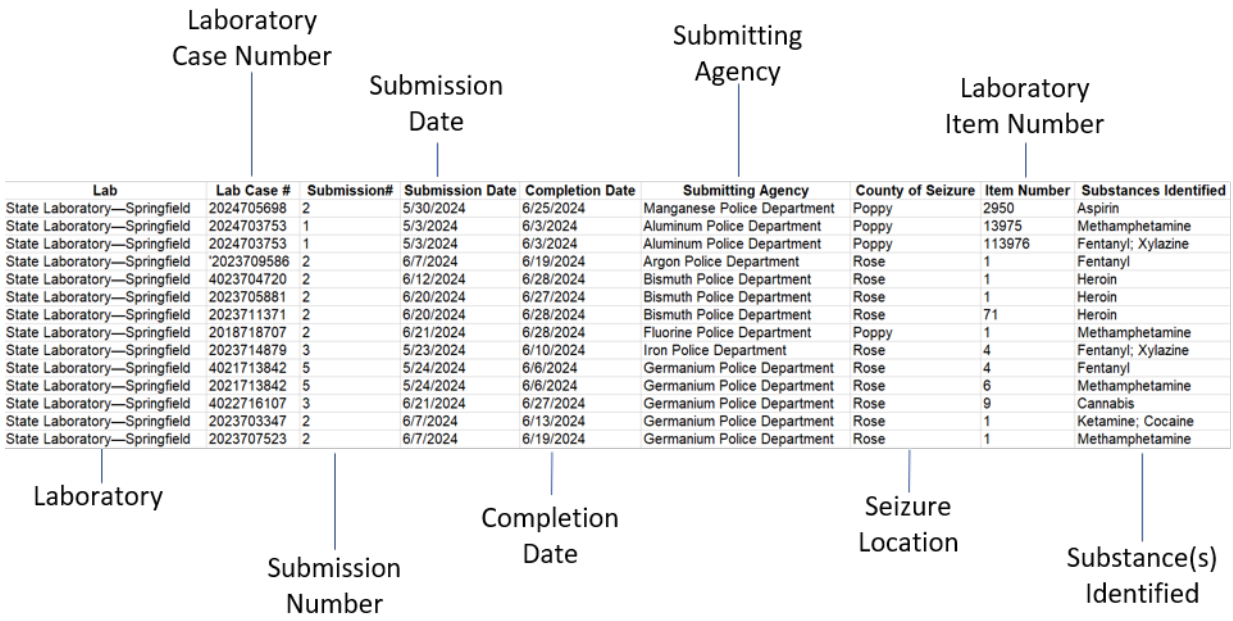
8.1 Laboratories and LIMS vendors are encouraged to work directly with NFLIS concerning any questions about the formatting of data for submission to NFLIS. This table provides a technical specification for the data formatting. The data should comply with the technical and policy requirements described in this document. The contributing laboratory should notify NFLIS if there are changes made to the LIMS systems, policies, or data that may alter submitted data. Changes may prevent the timely and accurate integration of the laboratory’s data into the Case and Analysis tables.

Data Element	Description
Core Fields (required fields): Unless otherwise indicated, all fields should be 255-character text values.	
Laboratory	The name of the forensic laboratory that performed the analysis.
Laboratory Case Number	Unique identifier assigned to a submission by the laboratory.
Submission Number	Unique tracking code for the evidence submission. The case number and submission number may be the same in some agencies.
Item Number	Unique identifying number assigned to each discrete item of physical evidence within a submission or case that is examined and individually specified in a laboratory report.
Submitting Agency	Name of the agency that submitted the evidence for analysis.
Seizure Location	County in which the item/exhibit was taken into custody. If available, the full location can be provided (city, state, county, zip code).
Submission Date	The submission date should be the date the item was submitted to the laboratory for analysis. If this date is unknown, the submission date should be the date the laboratory received the evidence. (Date format: YYYY-MM-DD)
Completion Date	The date analysis was completed by the laboratory. (Date format: YYYY-MM-DD)
Substances	Up to eight substances that were confirmed by laboratory analysis in the item of evidence. This field's text value may be greater than 255 characters if needed to accommodate the substance names.
Extended attributes (optional fields that may be included and incorporated into NFLIS)	
Drug Purity	Ratio of the amount of pure drug to the total amount of each item or exhibit. Expressed as a percentage.
Submitting Agency Location	City, state, county, and zip code of the submitting agency, labelled accordingly (e.g., Agency County, Agency City).
Form of Material	Description of the physical form (e.g., crystal, powder, liquid, tablets, capsules, caplets, residue) of each item within a submission or case received for analysis.
Amount	The amount of the sample's quantity, such as the number or count (e.g., 5.27, 30, etc.)

Data Element	Description
Units	The units of the sample's quantity. Quantity may relate to a weight, volume, or item count in units of grams, milliliters, or units (e.g., tablets or capsules). A weight in grams is preferred.
Seizure Date	The date law enforcement encountered or seized the physical evidence. (Date format: YYYY-MM-DD)
Circumstances of Evidence Acquisition	Information about how drug evidence was acquired by law enforcement (e.g., seized, purchased, discovered).
Origin of Drug	For each item/exhibit within a submission or case in which a controlled substance was identified, classification of the controlled substance as legally manufactured (pharmaceutical) or illegally manufactured.
Name of Manufacturer	Name of the pharmaceutical manufacturer for each item/exhibit in which a legally manufactured and controlled substance was identified.
Packaging or Markings	Description of any unique markings or packaging for each item/exhibit within a submission or case received for analysis.
Color of Evidence	Color of the item/exhibit received.
Optional fields that may be included and are not incorporated into NFLIS	
Comments and Notes	Additional information about the drug report recorded by the laboratory.

9 Example records

9.1 Note the header row that corresponds with each field. This example has been de-identified.



Lab	Lab Case #	Submission#	Submission Date	Completion Date	Submitting Agency	County of Seizure	Item Number	Substances Identified
State Laboratory—Springfield	2024705698	2	5/30/2024	6/25/2024	Manganese Police Department	Poppy	2950	Aspirin
State Laboratory—Springfield	2024703753	1	5/3/2024	6/3/2024	Aluminum Police Department	Poppy	13975	Methamphetamine
State Laboratory—Springfield	2024703753	1	5/3/2024	6/3/2024	Aluminum Police Department	Poppy	113976	Fentanyl; Xylazine
State Laboratory—Springfield	'2023709586	2	6/7/2024	6/19/2024	Argon Police Department	Rose	1	Fentanyl
State Laboratory—Springfield	4023704720	2	6/12/2024	6/28/2024	Bismuth Police Department	Rose	1	Heroin
State Laboratory—Springfield	2023705881	2	6/20/2024	6/27/2024	Bismuth Police Department	Rose	1	Heroin
State Laboratory—Springfield	2023711371	2	6/20/2024	6/28/2024	Bismuth Police Department	Rose	71	Heroin
State Laboratory—Springfield	2018718707	2	6/21/2024	6/28/2024	Fluorine Police Department	Poppy	1	Methamphetamine
State Laboratory—Springfield	2023714879	3	5/23/2024	6/10/2024	Iron Police Department	Rose	4	Fentanyl; Xylazine
State Laboratory—Springfield	4021713842	5	5/24/2024	6/6/2024	Germanium Police Department	Rose	4	Fentanyl
State Laboratory—Springfield	2021713842	5	5/24/2024	6/6/2024	Germanium Police Department	Rose	6	Methamphetamine
State Laboratory—Springfield	4022716107	3	6/21/2024	6/27/2024	Germanium Police Department	Rose	9	Cannabis
State Laboratory—Springfield	2023703347	2	6/7/2024	6/13/2024	Germanium Police Department	Rose	1	Ketamine; Cocaine
State Laboratory—Springfield	2023707523	2	6/7/2024	6/19/2024	Germanium Police Department	Rose	1	Methamphetamine