



SOP TITLE	Establishing, Validating, and Maintaining Analyte and Method Codes and Publishing Methods in TNI's Method Repository
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PROGRAM	Administration

SOP Approval Dates

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Standard Operating Procedures for Establishing, Maintaining and Validating Analyte and Method Codes

1.0 Purpose and Applicability

This Standard Operating Procedure (SOP) details the process used to establish codes for methods and analytes listed on the TNI website. It also sets out steps required for deleting, changing or retiring existing codes. Finally, this SOP describes the process by which methods are added to TNI's Method Repository.

Proficiency Test (PT) providers, accreditation bodies (NELAP-recognized and others) and laboratories utilize established method and analyte codes for reporting PT data and tracking laboratory accreditation status. The TNI National Laboratory Accreditation Management System (LAMS) relies on an accurate list of method and analyte codes for listing primary laboratory accreditation and aiding in establishing secondary recognition. Unless the method is a laboratory-developed method protected by a claim of proprietary information, or a method protected by copyright, TNI will try to ensure a copy of any method assigned a method code is either published in TNI's Methods Repository or contains a link as to where to obtain the method.

2.0 Definitions

Term	Definition
Analyte Classification	A short description of the type of analyte, e.g., metals, volatile organics.
Analyte Group	A group of two or more analytes that are reported as one.
LAMS	TNI's Laboratory Accreditation Management System, a database of accredited laboratories
Method Group	All group of methods published by one organization (e.g., EPA or ASTM) or grouped into other logical categories.
Method Repository	An on-line interactive database for TNI members to search and download test methods using search terms such as method number and analyte.
Method Compendium	An on-line storage and retrieval system for anyone to access test methods.

3.0 Establishing Analyte Codes

Any organization or individual, including laboratories, vendors, PT providers, or state agencies, may request that an analyte code be created. Whenever an analyte or analyte group (i.e., Total Xylenes) is requested, the name and Chemical Abstract Service (CAS) number is researched to verify that the analyte does not already exist in the table. CAS numbers for new analytes are found through a variety of sources such as EPA.gov, Comptox.epa.gov, Pubchem.ncbi.nih.gov, and a variety of commercial sites. If the analyte is not in the table then an analyte code is assigned and the analyte is added to the TNI Analyte table, an email sent to the requester, and the table is posted to the web. If the analyte already exists in the table an email is sent to the requester to confirm the assigned number.

The analyte code is a 4-digit number starting at 1000. New analytes are added to the table, sorted by analyte group, placed in alpha-numeric order and a unique code assigned. If it is not possible to assign an analyte code that maintains alpha-numeric sorting, the nearest code is established. The date of code creation is also recorded.

If the TNI database administrator questions the request, the database administrator will seek clarification from the requester. The database administrator may also seek advice from the applicable TNI Expert Committee or another group with expertise in the subject matter such as: members of the IT committee and/or the NELAP Accreditation Council.

Before being activated, all new analytes and analyte codes contained in Fields of Proficiency Testing tables will be reviewed by TNI's Proficiency Testing Program Executive Committee for any impacts to these testing tables.

Note: See Appendix A for a listing of analyte types.

4.0 Establishing Method Codes

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Any method, or revision of a method, approved by EPA in a Federal Register notice, or published on an EPA webpage, is automatically assigned a method code by the database administrator. The new method or method revision is researched and reviewed to verify that the method code does not already exist. A standards developer such as ASTM International or Standard Methods can request a method code be created for a method that has not yet been approved by EPA and any such method will be assigned a method code by the database administrator.

Any organization or individual, including laboratories, vendors, and state agencies, may request a method code be assigned to a method. Such requests require the requestor to provide a copy of the method. If the TNI database administrator questions the request, the database administrator will seek advice from the applicable TNI Expert Committee or another group with expertise in the subject matter such as: members of the IT committee and/or the NELAP Accreditation Council.

If the method is determined to be a new method or revision, then a code is established, the method is added to the TNI Method table, an email sent to the requester, and the table is posted to the web.

- 4.1 A method code is a unique eight-digit number. The first digit is used to identify the source of the published method.

The first digit in the method code refers to the published source of the method (e.g. Standard Methods for the Examination of Water and Wastewater). The complete list of assigned published sources and the corresponding initial digits are as follows:

- 1 = EPA
- 2 = Standard Methods for the Examination of Water and Wastewater
- 3 = ASTM
- 4 = USGS
- 5 = AOAC
- 6 = Other method sources, including vendor and laboratory developed methods
- 7 = Not assigned
- 8 = Not assigned
- 9 = Other government entities such as state or non-EPA federal methods.

- 4.2 The middle digits (positions 2 – 7) are assigned sequentially for each reference source in increments of twenty based on the last number used for the reference.
- 4.3 If more than one method per method group is to be added to the list, the method codes are assigned such that when placed in sequential order, the method names will appear alphabetically and then will be ordered alpha-numerically by revision.
- 4.4 The eighth (last) digit is a “check digit” which is used to check for errors in the code assignments to prevent redundancies. The check digit is computed from other digits in the method code using the checksum formula.

The method codes are validated through assignment of the check digit (the eighth position in the numerical code). The check digit is assigned using the following formula and taking the rightmost digit from the calculated value:

$$(\text{digit } 1 \times 7) + (\text{digit } 2 \times 6) + (\text{digit } 3 \times 5) + (\text{digit } 4 \times 4) + (\text{digit } 5 \times 3) + (\text{digit } 6 \times 2) + (\text{digit } 7 \times 1)$$

EXAMPLE:

Method Code 10406005

$$(1 \times 7) + (0 \times 6) + (4 \times 5) + (0 \times 4) + (6 \times 3) + (0 \times 2) + (0 \times 1) =$$

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$$7 + 0 + 20 + 0 + 18 + 0 + 0 = 45$$

The eighth, furthest right, digit of the method code = last digit of checksum = 5

5.0 Method Approvals

Because various EPA programs refer to methods differently, every combination of a method will have a unique number. For example, Standards Methods 3113B is approved in the 19th edition of Standard Methods in the drinking water program. This exact method, with an approval date of 1993, is approved in the EPA wastewater program as 3113B-1993. Because the two EPA programs refer to the same method in different ways, different method codes are needed to ensure the method is reported according to each regulation.

Methods that are promulgated through a Federal Register notice, will be marked as approved by EPA. Just because a method is marked as approved does not mean that it is approved for all uses. It is up to the user to confirm that they are using the appropriate method for their use. Methods will only be marked as approved when they are available for national approval. Vendors and manufacturers cannot request method approval directly from TNI – the approval must come from the EPA.

6.0 Modifying or Retiring Codes

If a request to modify or retire a method or analyte code is received it will be brought to the IT committee. The database administrator works with the appropriate parties to define the changes needed to the method or analyte codes. When a change has been decided upon, a notification of intent is issued. Modifying or retiring codes requires that the notification of intent be sent to the NELAP Accreditation Council, LASEC, NEFAP Executive Committee, PTP Executive Committee and all PT Providers.

The notification of intent will include an issued date, a recommended implementation date, and a targeted comment date (e.g. within thirty (30) days of the issue date). The notice will also be posted on the TNI website. Comments may be submitted to the IT committee for consideration within thirty (30) days of the notice issue date.

Changes that will likely have minimal impact to the regulated community will be implemented within a six-month timeframe. Highly complex changes that will likely have a more severe impact to the regulated community may be implemented outside of the six-month timeframe.

7.0 Table Maintenance

7.1 The TNI database administrator is responsible for updating the tables of codes and revising as necessary. The tables of codes are available in LAMS. Data is modified following the requirements of Section 6

7.2 The table of method codes contains the following fields:

TNI Code	The method code number assigned by TNI.
Method	The method is the number given to the method by the issuing authority. It identifies the issuing authority (ASTM, EPA, Standard Methods, etc.), method number or page number and may include a revision. e.g. EPA 524.2.
Revision	Revision number as listed on the method title page. This data can only be changed with appropriate notification.
Revision Date	Revision date as listed on the method title page. Can be year, month/year, or month/day/year.
Name	A short title of the method. Major changes require notification but typos and minor fixes require no notification.
Technology	A technology description from the TNI technologies database
Title	Title of the method as listed on the method title page.
Method Source	An indication of where the method was published. This is not a required field.

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- Approved** This is three fields indicating if the method is approved in Part 136, Part 141/143 or published in a specific update of SW-846.
- Date Created** Date the method code was created in this table.
- Date Updated** Date that record was last modified.
- Active** A True or False statement as to whether or not the method code is active.

7.3 The table of analyte codes contains the following fields:

- TNI Code** The analyte code number assigned by TNI.
- Analyte** The preferred name for the analyte.
- CAS Number** Chemical Abstract Number when available.
- Type** A short description of the analyte type, e.g. WET, SVOC-BNA as shown in Appendix A.
- Date Created** Date the analyte code was created in this table.
- Date Updated** Date that record was last modified.
- Active** A True or False statement as to whether or not the analyte code is active.

8.0 Annual Report

The TNI database administrator prepares an annual report summarizing changes to the method and analyte code databases that is provided to the IT committee and presented as part of TNI's annual meeting. The IT committee is responsible for reviewing the Annual Report.

9.0 SOP Approved Changes

Revision No.	Effective Date	Description of Change
0	12/6/10	New Document.
1	11/20/19	Substantial changes throughout the document
2	4/19/21	Edits based on Policy review.

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Appendix A: Analyte Types

Table Description	Analyte Class
Metals	Metals
Organo-Metallic	Organometallics
Prep	Sample preparation
Non-Metal Organics	Non-Metal Inorganics
Microbiology	Microbiology
Radiochemistry	Radiochemistry
WET	Whole Effluent Toxicity
Air Testing	Air Testing
VOC	Volatile Organics
Cannabis Testing	Cannabis Testing
SVOC-BNA	Semivolatile Organics
SVOC-PPCPs	Pharmaceutical and Personal Care Products
SVOC-Pesticides	Pesticides
SVOC-Herbicides	Herbicides
SVOC-NOS	Organics Not Otherwise Specified
SVOC-Hydrocarbons	Hydrocarbons
SFOC-PFCs	Polyfluoroalkyl Substances
SFOC-PCB	Polychlorinated Biphenyls
SFOC-BDE	Halogenated Biphenyls, Diphenyl Ethers and Dioxins
Miscellaneous	Miscellaneous