STANDARDIZED VARIABLES FOR STATE SURVEILLANCE OF
PESTICIDE-RELATED ILLNESS AND INJURY

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This document contains a standardized set of variables for pesticide-related illness and injury. These standardized variables were developed through a collaboration that included experts from federal agencies (NIOSH, US EPS, NCEH), non-federal agencies (CSTE, AOEC) and state health departments or other state designees. The variables marked with an asterisk (*) are core variables for this condition, required from all NIOSH-funded surveillance programs. However, states are encouraged to provide data for all of the variables.

The variable formats are designed to conform to CDC recommendations and to maintain consistency with available national data useful for rate calculation and comparisons (e.g., data collected by the Bureau of Labor Statistics, the National Center for Health Statistics, and the Bureau of the Census). Note that the recommended variable type (e.g. numeric, character) is included in this document.

Comments follow each variable, which explain the intended use of the variable. The comments also describe the discussion with state and federal agency partners during the development of the variables and coding schemes.

Some states choose not to collect information on cases associated with exposures to disinfectants. However, the variables are designed to allow this information to be captured, although these cases may not be routinely reported to the national surveillance system. To obtain more information, or the most current draft this document contact:

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ADMINISTRATIVE AND DEMOGRAPHIC DATA

*STATE
Definition:	Unique identifier for reporting state/territory
Width:	2
Type:	Character
Coding:	2-letter postal code for the state or territory
Comment:	Postal coding is used for ease of the reporting states. This variable was accepted without discussion.

COUNTY
Definition:	Unique identifier for county where the exposure event occurred
Width:	3
Type:	Character
Coding:	FIPS or other state designated coding system
Comment:	This variable will help provide information on where events are occurring and will allow identification of clustered events along state border areas. The FIPS (Federal information Process Standards codes issued by the National Bureau of Standards) is recommended since it conforms to CDC recommendations and enables comparison with census data. If states are currently using other systems than it is suggested that they provide the coding schemes to CDC. This will allow states and others to examine geographic distribution of cases. States are strongly encouraged to use FIPS coding. States are not currently collecting the zip code for the location where the exposure event occurs; and find that it is difficult to obtain. Therefore, the county was determined to be the best variable to use. The greatest concern with this variable relates to issues of confidentiality when there are few pesticide poisonings in a sparsely populated county. It might be possible for specific individuals to be identified in those instances. States raised concerns that even if they only report cells with greater than three cases, federal agencies may be required to release more specific information if it is requested. This problem can be resolved if information is only sent to NIOSH on an annual basis. States may

then choose to send data for this variable if cell size is >3.

*STATERES
Definition: Unique identifier for the state/territory where the individual resided at the time of exposure
Width: 2
Type: Character
Coding: 2-letter postal code for the state or territory. If this is unknown code as "XX".
Comment: Postal coding is used for ease of the reporting states. This variable was accepted without discussion.

COUNTYRES
Definition: County where the individual resided at the time of exposure.
Width: 3
Type: Character
Coding: FIPS or other state designated coding system
Comment: Code the current county of residence at the time of exposure. For migrant or seasonal workers code the county where they are living at the time of exposure, **not** a permanent residence. This variable will help provide information on any clustering of exposed population on the basis of residence. The FIPS (Federal information Process Standards codes issued by the National Bureau of Standards) is recommended since it conforms to CDC recommendations and enables comparison with census data. If states are currently using other systems than it is suggested that they provide the coding schemes to CDC. This will allow states and others to examine geographic distribution of cases. States are strongly encouraged to use FIPS coding. The greatest concern with this variable related to issues of confidentiality when there are few pesticide poisonings in a county with few residents. It might be possible for specific individuals to be identified in those instances. The concern is that if states report information to NIOSH even if they only report cells with greater than three cases, NIOSH may be required to release more specific information if it is requested. This problem can be resolved if information is only sent to NIOSH on an annual basis. States may then choose to send data for this variable if cell size is >3.

*COUNTER_ID
Definition: Identifier for the record in the state system that will be used in the aggregated dataset
Width: 8
Type: Numeric
Coding: This number should be right aligned and automatically assigned through form numbering or the counter in the state database system.
Comment: For states receiving multiple laboratory reports of depressed cholinesterase test results on a single individual a new report is defined as: a depressed cholinesterase test result[*] reported in the current year.

> [*] Cholinesterase depression is defined as one (or more) of the following:
> 1) 30% depression from baseline (pre-exposure or 60-90 days post exposure) RBC cholinesterase level
> 2) 40% depression from baseline plasma cholinesterase level
> 3) Cholinesterase level below laboratory normal range.
> (*N.Y. definition of cholinesterase depression*)

*EVENTID
Definition: Unique identifier for reported exposure event/location
Width: 8
Type: Character
Coding: As specified by surveillance system
Comment: Needed to identify multiple cases associated with a single exposure event/location.

*DATEEXPO
Definition: Date of exposure, or when the injury occurred
Width: 8

Type: Date
Coding: YYYYMMDD format
Comment: Enter level of information available, leaving missing information blank. Date will be truncated at earliest missing numeral. At least one of the variables DATEEXPO, DATONSET, or DATELAB must be completed with a valid date for inclusion in the national aggregated data.

*DATONSET

Definition: Date of symptom onset as documented in the medical record or by self-report.
Width: 8
Type: Date
Coding: YYYYMMDD format
Comment: Enter level of information available, leaving missing information blank. Date will be truncated at earliest missing numeral. If system does not allow incomplete dates, then leave blank. At least one of the variables DATEEXPO, DATONSET or DATELAB must be completed with a valid date for inclusion in the national aggregated data.

*DATELAB

Definition: Date of laboratory analysis for laboratory based reports
Width: 8
Type: Date
Coding: YYYYMMDD format
Comment: Enter level of information available, leaving missing information blank. Date will be truncated at earliest missing numeral. If system does not allow incomplete dates, then leave blank. This variable should describe the date of analysis, which triggered report (e.g. cholinesterase, alkyl phosphate or other analysis). At least one of the variables DATEEXPO, DATONSET, or DATELAB must be completed with a valid date for inclusion in the national aggregated data.

*DATEREPT

Definition: Date report received by state agency
Width: 8
Type: Date
Coding: YYYYMMDD format
Comment: If multiple reports are received for a given individual and event, record the date of the first report to the surveillance system. Enter level of information available, leaving missing information blank. Date will be truncated at earliest missing numeral. If system does not allow incomplete dates, then leave blank.

DATEOTH

Definition: Other date that the state agency desires to track.
Width: 8
Type: Date
Coding: YYYYMMDD format
Comment: This allows tracking of other dates pertinent to the case that are not as commonly recorded but if available provide important information \related to the case. Describe what the data in this field represents in the DATECOMM narrative.

DATECOMM

Definition: Comments to clarify information provided in the six date fields above.
Width: 125
Type: Character
Coding: Literal narrative that describes the chronology of events or notes any clarification of data entered in the various date fields.
Comment: This field will be used to interpret information related to the date of report, exposure, onset, laboratory analysis and other date information provided. If the variable DATEOTH is use than an explanation of the type of date must be provided here.

*REPSRCE1

Definition:	Ascertainment source for initial case report. (If multiple reports are received this variable should code the source of the first report received by the surveillance system.)
Width:	2
Type:	Character
Coding:	01 = physician report
	02 = poison control center
	03 = other health care provider report (including emergency room or hospital report)
	04 = laboratory report
	05 = death certificate or medical examiner's report
	06 = report or referral from governmental agency
	07 = obituary/news report
	08= ascertainment through Workers' Compensation
	09 = self-report
	10 = co-worker report
	11 = friend or relative report
	12 = identified during site visit
	13 = worker representative (e.g., union, lawyer / legal services/other advocate)
	14 = medical record review (clinic or hospital record review performed by surveillance staff)
	15 = employer
	21 = Agricultural nurse refers specifically to nurses participating in a NIOSH funded Occupational Nurse in Agriculture project.)
	97 = state health department
	98 = other (not captured in any code category listed)
	99 = unknown
Comment:	The use of this variable will aid in evaluation of the surveillance systems. The coding for this variable has been condensed from earlier versions. States may choose to collect more detailed information for this variable by adding an additional column on the right. This third column should be used to code subcategories of the main category coded in the first two columns. (E.g. If there are 3 poison centers in a state the codes "021", "022" and "023" may be used to code for the specific poison centers allowing the state surveillance program to track reporting from each center; similarly a state might code ER reports as "031", nurse practitioners as "032", etc.). This variable will be truncated at two columns when data is aggregated.

REPSRCE2

Definition:	Additional ascertainment source for case report. (If multiple reports are received this variable should code the source of the second report received by the surveillance system.)
Width:	2
Type:	Character
Coding:	Same as REPSRCE1

REPSRCE3

Definition:	Additional ascertainment source for case report. (If multiple reports are received this variable should code the source of the third report received by the surveillance system.)
Width:	2
Type:	Character
Coding:	Same as REPSRCE1

*SEX

Definition:	Sex of disease or injury case
Width:	1
Type:	Character
Coding:	M= Male
	F = Female
	O = Other

U= Unknown/not stated

Comment: This is the core variable format currently specified by CDC. Hermaphrodites and transsexuals should be coded as "Other".

DOB
Definition: Year, month, day of birth.
Width: 8
Type: Date
Coding: YYYYMMDD format
Comment: This is the core variable format currently specified by CDC. If birthdate is not available, an estimated birthdate should be created from the individual's age. There are no current guidelines for dealing with missing data other than leaving missing data as blank. Until standard guidelines are developed the following guidelines may be used. Cases for which both date of birth and age are missing will not be accepted into the surveillance system. The mid-point for the unknown component of the birthdate should be used for estimating date of birthdate. For example an individual known only to be born in 1933 should be coded as "19330701". If the individual is known to have been born in April of 1933 the birthdate should be coded as "19330415". If DOB is missing for children less than six months old, the date of birth field should be left blank since estimated date of birth has the potential for introducing a large degree of error.

AGE
Definition: Age in years
Width: 5
Type: Numeric with one decimal place
Coding: Numeric. For individuals less than 3 years old, if age is reported in months, use decimals as follows:

1 month -.1	7 months -.6
2 months -.2	8 months -.7
3 months -.3	9 months -.8
4 months -.3	10 months -.8
5 months -.4	11 months -.9
6 months -.5	

Comment: "AGE" will be important for evaluating cases and developing intervention strategies. This variable underwent a great deal of discussion. There was concern that if age is permitted the individuals collecting data will not bother to obtain birthdates. Due to the nature of this condition and the difficulties in tracking migrant agricultural workers who may not seek medical attention it was decided that age would be an accepted variable. *If age is a calculated field, the following hierarchy should be used to determine age:*
> *date of birth and date of exposure*
> *date of birth and date of illness onset*
> *date of birth and date of report*

The current form for this variable does not match the CDC recommended format for age. The CDC recommended format includes a field for age and a field for age type. The CDC approach was discussed at length by the states currently conducting surveillance and was rejected as too cumbersome.

HISPANIC
Definition: Indicator for self identified Hispanic ethnicity.
Width: 1
Type: Character
Coding: 1 = yes
2 = no
9 = Unknown
Comment: This is the variable format currently specified by CDC. Ethnicity reported in this system should be the

self-identified ethnicity of the individual determined during case follow-up. If self-identified ethnicity is not available this variable should be coded as unknown

*RACE

Definition:	Self-described race of reported individual
Width:	1
Type:	Character
Coding:	1 = American Indian, Alaskan Native
	2 = Asian or Pacific Islander
	3 = Black
	5 = White
	6 = Mixed Race
	8 = Other
	9 = Unknown
Comment:	This is the core variable format specified by CDC when this coding project was initiated. Code as unknown if self-identified information is not available. The code for "Mixed Race" was added based upon the request for such a variable. There may be new suggested guidelines for this variable in the future from CDC at which time this coding scheme may be reevaluated. Coding this as "9=Unknown" will not exclude the record from the national aggregated data.

INDUSTRY/OCCUPATION DATA

*WORKREL

Definition:	Indicates causal relationship between illness/injury and case's work
Width:	1
Type:	Character
Coding:	1 = yes
	2 = possibly
	3 = no
	4 = unknown
	5 = N/A
Comment:	Indication of work-relatedness is essential for occupational health surveillance systems. If coded as "2", possibly work-related' an explanation must be provided in the narrative OCCNAR field. **Operational guidelines for the determination of work-relatedness are included in Appendix A.**
	There was some discussion of whether occupational coding other than Census coding would be more appropriate. This question was raised due to the limited codes available in the census system for agricultural occupations. Census coding is still proposed in this revision due to the availability of denominator data.

*OCCTITL

Definition:	Occupation/job title at time of injury or exposure. Reported only for individuals with work-related exposures.
Width:	65
Type:	Character
Coding:	Narrative
Comment:	This narrative, which is analogous to that contained in the 1990 U.S. Census, should address the following:

What was this person's occupation or job title? (for example: registered nurse, personnel manager, farm manager - vegetable row crops, farm worker-fruit orchard, nursery worker - flower bulb sorter, nursery worker-pruner-general laborer, gardener, potato sorter, dog groomer, pest control-applicator trainee, high school teacher).

*OCCCODE

Definition:	Numeric 1990 US Census code for occupation described in OCCTITL
Width:	3
Type:	Numeric
Coding:	1990 U.S. Census Occupation Code
Comment:	U.S. Census Occupation Codes are used throughout the statistical community and have been adopted by NIOSH and NCHS for use in generating occupational health statistics.

*IND

Definition:	Industry at time of injury or exposure
Width:	100
Type:	Character
Coding:	Narrative
Comment:	This narrative, which is analogous to that contained in the 1990 U.S. Census, should address the following:

For what kind of business or industry did this person work? If in the Armed Forces, what Branch? Describe the activity at location where employed (for example: hospital, bank, farm - crop production, flower bulb raising, nursery stock-ornamental plant production, municipal golf course, vegetable packing house, dog grooming shop, pest control service, high school)

*INDSIC

Definition:	SIC Code for industry described in IND
Width:	4
Type:	Numeric
Coding:	1987 Standard Industrial Classification (SIC) code
Comment:	The SIC is the Office of Management and Budget's coding system for type of industry and is the preferred industry classification scheme for NIOSH surveillance systems. Each surveillance system should take steps to insure (insofar as possible) that SIC codes for workplaces identified through case follow-back are assigned in a comparable manner in all participating states. Census Occupation coding rules require use of the Census Industry Code, which is easily converted from the SIC code (using the "Instruction Manual Part 19" pages 79-81[Hyattsville, MD: US DHHS;1997]). **At least one of the three coding systems for industry must be used for all occupational case reports.**

*INDCIC

Definition:	Census Industry Code (1990 Census is the standard currently in use)
Definition:	1990 Census Industry Classification System industry code
Width:	3
Type:	Character
Coding:	See the Alphabetical Index of Industries and Occupations for U.S. Census 1990.
Comment:	This is the industry code provided by the SOIC program or a trained coder. (The SOIC program can be obtained from NIOSH.) NIOSH prefers that all states provide this code. **At least one the three coding systems for industry must be used for all occupational case reports.**

NAICS

Definition:	North American Industry Classification System industry code
Width:	6
Type:	Character
Coding:	See NAICS manual, United States, 1997. Office of Management and Budget.
Comment:	This system is the most recent form of industry coding shared by the USA, Canada and Mexico. It is a production-oriented, process-based system for coding industry. NAICS-based national data is expected to be available in early 1999. Some states may choose to continue using a combination of SIC and NAICS coding for particular industries. Not all SIC codes can be easily derived from NAICS codes. **At least one the three coding systems for industry must be used for all occupational case reports.**

OCCNAR

Definition: Describes additional information about the occupation, industry or work-relatedness of the exposure not covered in variables in this section.
Width: 125
Type: Character
Coding: Literal narrative, describing anything that would impact on interpreting the coded information. If WORKREL is coded as "2, possibly work-related" an explanation must be provided here. Indicate circumstances that complicate decision regarding whether the exposure was work related.
Comment: This narrative can be as short as needed, and does not need to be written in sentence form.

EXPOSURE DESCRIPTIONS

The following variables characterize the exposure. States are also asked to complete a short narrative that adds pertinent information and describes any unusual circumstances associated with the exposure.

TYPE of EXPOSURE
The following five variables describe how the individual was exposed. More than one of these variables may be coded as "1=yes" if the individual was exposed to the pesticide via more than one mode of contact.

DRIFT
Definition:	Indicates whether the individual was exposed via drift.
Width:	1
Type:	Character
Coding:	1 = yes
	2= no
Comment:	The default should be set to "2" for this variable. This variable must be coded as "2" if **TYPEUNK** is coded as "1".

SPRAY
Definition:	Indicates whether the individual was exposed via direct spray.
Width:	1
Type:	Character
Coding:	1 = yes
	2= no
Comment:	The default should be set to "2" for this variable. This variable must be coded as "2" if **TYPEUNK** is coded as "1".

INDOORAIR
Definition:	Indicates whether the individual was exposed via indoor air contamination (this includes residential, commercial and greenhouse indoor air).
Width:	1
Type:	Character
Coding:	1 = yes
	2= no
Comment:	The default should be set to "2" for this variable. This variable must be coded as "2" if **TYPEUNK** is coded as "1".

SURFACE
Definition:	Indicates whether the individual was exposed via contact with treated surface (plant material, carpets, treated animal) or entry into an outdoor treated area.
Width:	1
Type:	Character
Coding:	1 = yes
	2 = no
Comment:	The default should be set to "2" for this variable. This variable must be coded as "2" if **TYPEUNK** is coded as "1".

CONTACT
Definition:	Indicates whether the individual was exposed via other direct contact (spill, leaking container or equipment, flood waters, emergency response, etc.)
Width:	1
Type:	Character
Coding:	1 = yes
	2 = no
Comment:	This variable must be coded as "2" if **TYPEUNK** is coded as "1".

TYPEOTH

Definition:	Indicates if the type of exposure does not fit into any of the categories of exposure described in the previous five variables.
Width:	1
Type:	Character
Coding:	1 = yes
	2 = no
Comment:	This variable must be coded as "2" if **TYPEUNK** is coded as "1". Describe the type of exposure in **EXPOCOMM**.

TYPEUNK

Definition:	Indicates if the type of exposure is unknown.
Width:	1
Type:	Character
Coding:	1 = yes
	2 = no
Comment:	The default should be set to "2" for this variable. This variable must be coded as "2" if any of the five preceding variables are coded as "1".

ROUTE of EXPOSURE
The following six variables describe the route(s) of exposure

DERMAL

Definition:	Indicates whether the individual was exposed to the pesticide by the dermal route of exposure.
Width:	1
Type:	Character
Coding:	1 = yes
	2= no
Comment:	The default should be set to "2" for this variable. If it is unclear or unknown whether there was dermal exposure code as "2". This variable must be coded as "2" if **ROUTEUNK** is coded as "1".

INHALE

Definition:	Indicates whether the individual was exposed to the pesticide by inhalation.
Width:	1
Type:	Character
Coding:	1 = yes
	2 = no
Comment:	The default should be set to "2" for this variable. If it is unclear or unknown whether there was an inhalation exposure code as "2". This variable must be coded as "2" if **ROUTEUNK** is coded as "1".

INGESTION

Definition:	Indicates whether the individual ingested pesticide.
Width:	1
Type:	Character
Coding:	1 = yes
	2 = no
Comment:	The default should be set to "2" for this variable. If it is unclear or unknown whether the individual ingested pesticide code as "2". This variable must be coded as "2" if **ROUTEUNK** is coded as "1".

INJECTION

Definition:	Indicates whether the individual was exposed to the pesticide by injection.
Width:	1
Type:	Character
Coding:	1 = yes
	2 = no
Comment:	The default should be set to "2" for this variable. If it is unclear or unknown whether there was

dermal exposure code as "2". This variable must be coded as "2" if **ROUTEUNK** is coded as "1". This code should be used to indicate purposeful or accidental injection of pesticide via syringe or application equipment designed to inject pesticide into plants, animals or wood.

OCULAR

Definition:	Indicates whether the individual was exposed to the pesticide by the splash, spill or spray to the eye.
Width:	1
Type:	Character
Coding:	1 = yes
	2 = no
Comment:	The default should be set to "2" for this variable. If it is unclear or unknown whether ocular exposure occurred code as "2". This variable must be coded as "2" if **ROUTEUNK** is coded as "1".

ROUTEUNK

Definition:	Indicates if the type of exposure is unknown.
Width:	1
Type:	Character
Coding:	1 = yes
	2= no
Comment:	The default should be set to "2" for this variable. This variable must be coded as "2" if any of the five preceding variables are coded as "1"

INTNEXPO

Definition:	Indicates whether the pesticide exposure was intentional or unintentional.
Width:	1
Type:	Character
Coding:	1 = Yes, suspected intentional
	2 = No, unintentional
	9 = Unknown
Comment:	The unknown category should be used primarily for ingestion cases where the intention of the individual is unclear. If the intention is not clearly documented it should be coded as unknown. This also applies to deaths where the circumstances are unclear with regards to the intent of the deceased individual. Illness caused by ingesting commercial food crops or products contaminated with pesticides should be coded as unintentional unless there is specific evidence of product tampering.

*ACTEXPIND

Definition:	Activity of exposed individual at time of exposure.
Width:	2
Type:	Character
Coding:	01 = applying pesticide
	02 = mixing/loading pesticide
	03 = transport or disposal of pesticide
	04 = repair or maintenance of pesticide application equipment
	05 = any combination of activities 01-04
	06 = involved in manufacture or formulation of pesticide
	07= emergency response
	08 = routine work activity not involved with pesticide application (includes exposure to field residue)
	09 = routine indoor living activities not involved with pesticide application
	10 = routine outdoor living activities not involved with pesticide application
	98 = not applicable
	99 = unknown
Comment:	This variable will assist states and other users of the data in determining whether pesticide-related illness is associated with handling pesticide products, treated material or due to incidental contact not directly associated with the actual application of the pesticide. This information will be useful in developing intervention strategies.

PPE

Definition:	Describes whether personal protective equipment was used by the exposed individual, and whether the surveillance system investigation indicates PPE was required by rule or law.
Width: 1	
Type:	Character
Coding:	1 = PPE worn and all or some PPE worn appeared to be required by label or rule
	2 = PPE worn by choice, apparently none was required by label or rule
	3 = PPE worn, undetermined if required by label or rule
	4 = PPE not worn, although some PPE appeared to be required by rule or law
	5 = PPE not worn, undetermined if required by label or rule
	6 = No, PPE not worn, and PPE did not appear to be required by rule or law
	8 = Not applicable
	9 = Unknown
Comment:	This and the related variables will allow tracking of information on factors that may contribute to exposure and may be useful for developing intervention strategies. The language of this variable is structured to acknowledge that the judgement of whether PPE would be required is based upon the surveillance program investigation and may not reflect the assessment by an enforcement agency.
	Code as "not applicable" for all purposeful exposures, and for accidental and incidental exposures where an individual would not have expected an exposure and therefore PPE is not a consideration. This includes all purposeful and accidental ingestion exposures, and bystander exposures during spills or applications.
	State programs that do not wish to record judgements regarding whether PPE was required should use the codes "3" and "5". Comments that will clarify whether the PPE appeared to be appropriate, worn correctly, maintained appropriately, etc. should be included in **EXPOCOMM**.

PPE 1-9

Definition:	The following PPE variables describe the types of PPE used by the exposed individual at time of exposure if **PPE** is coded as "1", "2" or "3".
Width:	1
Type:	Character
Coding:	1 = Yes
	2 = No
	8 = Not applicable
	9 = Unknown

        PPE1 Respirator (Supplied air)
        PPE2 Respirator (Half Face, Full Face, PAPR)
        PPE3 Dust mask/disposable respirator
        PPE4 Rubber/chemically resistant boots
        PPE5 Gloves (Cloth or Leather)
        PPE6 Gloves (Rubber or Synthetic)
        PPE7 Chemical Goggles/ Faceshield
        PPE8 Chemically resistant clothing (rubber apron, Tyvek, raingear)
        PPE9 Engineering Controls

Comment:	If **PPE** is coded as "8=not applicable" or "9=unknown" then all of the variables **PPE1-9** should be coded in the same manner as **PPE**.

EQUIPMEN

Definition:	Describes the type of equipment or application method used for the application. This should be coded regardless of whether it was used by the exposed individual or another individual who performed the pesticide application.
Width:	2
Type:	Character
Coding:	01 = aerial application equipment (fixed wing or helicopter)

02 = chemigation (application through irrigation system)

03 = pressurized can or aerosol bomb - This includes pesticides that are combined with an inert compressed gas propellant in a disposable or refillable self-dispensing container. The container may release the pesticide as a spray, mist or fog. Aerosol foggers or bombs are single use disposable units designed to for total release of the contents in a single use. Other aerosol cans have triggers that permit intermittent use of the product. These products are available for use by homeowners as well as professional pesticide applicators. Professional applicators may use additional hoses and wands with the pressurized can.

04 = aerosol generator or fogger (thermal or cold) - Includes equipment designed to disperse pesticide as small airborne droplets into confined spaces such as greenhouses and warehouses or for outdoor control of mosquitoes and other public health or nuisance insects. These units are available as hand carried or backpack ultra-low volume (ULV) cold or thermal foggers and the more commonly used vehicle mounted cold or thermal foggers. Greenhouse applications may include stationary heated units for thermal fogging of the greenhouse.

05 = soil injector (Any mechanism used to inject fumigant or other pesticide material into soil, e.g. chisel cultivator, blade or shovel, sweep cultivator shovels, planter shoes, plow. This excludes any cultivator used to incorporate *surface applied* fumigant into soil). Soil injectors usually have a tube down the back of the shank that places the pesticide a foot or more into the soil.

06 = high pressure fumigator (this includes high pressure fumigant applications *other than* soil injection) - metered application from pressurized gas cylinder.

07 = handheld granular or dust applicator (squeeze bulb, bellows, tube, shaker, sliding tube, or fan powered by a hand crank). This excludes power dusters, which should be coded under sprayers.

08 = spray line, hand held - this includes hose end sprayers, hand held lines attached to powered spray tanks.

09 = sprayer, backpack (this includes both powered and manual backpack spray units)

10 = trigger pump, push-pull, or compressed air hand sprayer - these are handheld units used for spot spraying.

> *Trigger pumps* are usually plastic bottles with a built in hand trigger to disperse liquid pesticide. Homeowners and professional applicators use these for indoor plants, pests and small areas.
> *Push-pull sprayers* are operated by a hand operated plunger that uses air and vacuum pressure to expel pesticide from a small (typically less than 1 quart) attached tank unit.
> *Compressed air hand sprayers* - these are small volume (1- 5 gallon) tanks with manual pumps that created

11 = ground sprayer not otherwise specified -includes sprayers attached to or pulled by tractor or ATV. Includes common low-pressure boom sprayer applications, electrostatic sprayers, ULV sprayers and high pressure hydraulic spraying such as airblast sprayers.

12 = manual placement (e.g. gopher bomb, bait station, pellets, hand toss of briquette, placement of fumigant pellet packs), this also should be used to code for circumstances where pesticide is poured directly onto a target surface from a container.

13 = dip tank or tray (includes dipping of animals, produce, bulbs, plant material etc.)

14 = more than one type of application equipment used

15 = other, this includes all other equipment such as non-handheld mechanical granule applicators, etc.

98 = not applicable

99 = Unknown

Comment: Capturing the specifics of application equipment used is difficult unless a field investigation is conducted. The categories selected for coding included those types of equipment that would be easily recognized by descriptions and which were judged important for developing possible intervention strategies. For more detailed descriptions and pictures of equipment a good reference is *Chapter 10 Pesticide Application Equipment,* In: The Safe and Effective Use of Pesticides, University of California Statewide Integrated Pest Management Project, Division of Agriculture and Natural Resources, Publication 3324, Oakland, CA, 1988, p. 273-322.

APPLICTR

Definition: Indicates the licensing and supervision of the individual who performed the application.

Width:	1
Type:	Character
Coding:	1 = Licensed applicator
	2 = Unlicensed individual, under constant direct (onsite) supervision of licensed applicator during application
	3 = Unlicensed individual, under indirect or intermittent supervision of licensed applicator during application
	4 = Unlicensed, adult not under supervision of licensed applicator during application
	5= Unlicensed child (16 years old or younger) not under supervision of licensed applicator during application
	8 = Not applicable
	9 = Unknown
Comment:	This variable can provide important information for interventions. Code "3" refers to individuals who are operating under the loose supervision of a licensed applicator who may be at a different location. These individuals may be trainees, or workers who have been designated to apply pesticides by their employer. A homeowner applying pesticide should be coded "4". An unlicensed individual performing an application without supervision of a licensed applicator as an incidental part of their job should also be coded "4". (For example: an apartment maintenance worker asked to spray the grounds or surfaces in an apartment complex.) A child (16 or under) performing unlicensed applications should be coded as "5".

APPTARGT

Definition:	This variable describes the *target surface* for the pesticide application.
Width:	3
Type:	Character
Coding:	(See Appendix B for more detail if needed)
	010 = landscape/ornamental (includes lawns, flower gardens, ornamental plants)
	020 = forest trees, forest lands
	031 = veterinary/livestock
	032 = veterinary/domestic animal
	041 = building structure - this includes applications to the building structure including wall void injection, treatment of structural building members to eradicate pests, building perimeter treatments, crack and crevice treatment as well as treatment of air conditioning systems and heating ducts. If the application involves any combination of codes "041-043" use the numerically higher code as this reflects an increasing likelihood of exposure.
	042 = building surface - this includes applications to building surfaces such as spraying of carpets, flea foggers, interior area surface sprays in living/working areas other than crack and crevice. If the application involves any combination of codes "041-043" use the numerically higher code as this reflects an increasing likelihood of exposure.
	043 = building space treatment - this code includes, structural applications to residences or commercial buildings using fumigants. Note that greenhouse fumigation and treatment with thermal fogs should be coding according to the actual target crop. If the application involves any combination of codes "041-043" use the numerically higher code as this reflects an increasing likelihood of exposure.
	050 = undesired plant (the plant is the target pest and the only target of the application)
	060 = aquatic (pond, stream, lake, irrigation canal)
	070 = soil
	080 = wood product
	100 = Fruit Crops
	101 = Small fruits
	110 = Tree fruits
	111 = Citrus fruits
	112 = Tree Nuts
	113 = Pome fruits
	114 = Stone Fruits
	120 = Subtropical and miscellaneous fruits

> 200 = Beverage Crops
> 300 = Flavoring and Spice Crops
> 400 = Vegetable Crops
> > 410 = Curcurbit Vegetables
> > 420 = Fruiting Vegetables
> > 430 = Leafy vegetables
> > 440 = Root and Tuber Vegetables
> > 450 = Seed and Pod Vegetables
> > 460 = Miscellaneous vegetables
> 500 = Grains, Grasses and Fiber Crops
> > 501 = Fiber crops
> > 510 = Forage, Fodder Hay and Silage Grasses
> > 520 = Forage, Fodder Hay and Silage Legumes and Related Crops
> > 530 = Cereal Grain Crops
> > 540= Sugar Crops
> > 550 = Miscellaneous Field Crops
> 600 = Oil Crops
> 601 = Application to seeds
> 650 = Crops that cross categories 90-600
> 700 = Humans
> > 701 = Skin and/or hair
> > 702 = Clothing
> > 703 = Skin and/or hair and clothing
> 800 = Bait for rodent, bird or predator
> 850 = Other (see Appendix B for examples of other target sites)
> 998 = N/A - application not involved
> 999 = unknown

Comment: This variable will provide users with information on patterns of illness associated with particular crops, structures and other target sites for applications. This information will be useful for developing intervention strategies. The coding scheme for this variable is adapted from EPA and USDA coding. It was suggested that other coding schemes be evaluated, or that definitions be provided. There are many coding schemes for this type of information. This one was selected as it allows comparability between categories currently used to evaluate crop specific pesticide uses. Detailed definitions have been provided in Appendix B to this revision. Information coded in this field should be at the most specific level available.

*APPSITE

Definition: Location where the application or event (e.g., spill, transport accident, fire) associated with the exposure took place.

Width: 2

Type: Character

Coding: 01-09 = Agricultural (including outbuildings other than farm residence or labor housing)
> 01 = farm (all farms, orchard crop production facility excluding nursery, livestock and forest)
> 02 = nursery
> 03 = forest
> 04 = livestock and animal specialty production (includes all livestock production, including dairy, poultry and egg farms, horse farms, game farms, fur production farms, worm farms, pet breeding farms, apiaries and aquaculture facilities)
> 05 = greenhouse
> 09 = other non-production agricultural processing facility (this includes fruit and vegetable packing facilities, other post harvest processing facilities such as cotton ginning. Refer to code 32 for farm product storage facilities)

10 - 19 = Private Residence (including grounds and outbuildings)
> 10 = single family home
> 11 = mobile home/trailer

12 = multi-unit housing (apts., multi-plexes)
                    13 = labor housing
             20 - 29 = Institutions
                    20 = residential institution (dorms, homeless shelters, nursing homes)
                    21 = school
                    22 = day care facility (including facility in private residence)
                    23 = prison
                    24 = hospital
                    29 = other institution
             30 - 39 = Manufacturing
                    30 = pesticide manufacturing/formulation facility
                    31 = industrial facility
                    32 = Farm product warehousing and storage (grain storage elevators, cold storage facilities)
                        [Note silos on farm or livestock production facilities should be coded under codes 01
                        or 04]
                    33= food manufacturing - includes processing of animals, fruits grains and vegetables into
                        food products for sale, including, slaughtering, canning, pickling, freezing,
                        dehydrating, milling, and baking.
                    39 = other manufacturing facility
             40- 49 = Non-manufacturing commercial facilities
                    40 = office/business (non-retail, non-industrial)
                    41 = retail establishment
                    42 = service establishment
                    43 = pet care services and veterinary facilities including animal boarding facilities (horse
                        boarding, kennels, groomers, etc., animal pounds, animal training and showing
                        facilities) [some states may choose to include some of these in analysis of agricultural
                        exposures based upon SIC, CIC or NAICS coding]
             50 - 60 = Other
                    50 = road /rail
                    51 = road, rail or utility right-of-way
                    52 = park
                    53 = golf course
                    54 = private vehicle
                    55 = public transportation vehicle
                    59 = other
                    60 = emergency response vehicle
             70= more than one site
             98 = not applicable
             99 = unknown
Comment: This variable will allow systems to determine whether the exposed individual was at the site of the
             event or application, and which locations are associated with events that result in exposure on and off-
             site. Note that exposure to individuals in a private residence that also functions as a day care facility
             should be coded as "22". Individuals exposed in a home office space in their own private residence
             should be coded with the appropriate code in the range of "10-13". All other occupational exposures
             linked to a business located within or attached to a private residence should be coded according to the
             type of business described in codes "30-49".

*CASESITE
Definition: Description of the type of location where the exposed individual was when they were exposed.
Width: 2
Type: Character
Coding: 01-09 = Agricultural (including outbuildings other than farm residence or labor housing)
                    01 = farm (all farms, orchard crop production facility excluding nursery, livestock and
                        forest)
                    02 = nursery
                    03 = forest

04 = livestock and animal specialty production (includes all livestock production, including dairy, poultry and egg farms, horse farms, game farms, fur production farms, worm farms, pet breeding farms, apiaries and aquaculture facilities)

05 = greenhouse

09 = post harvest crop preparation facility (this includes fruit and vegetable packing facilities, other post harvest processing facilities such as cotton ginning. Refer to code 32 for farm product storage facilities)

10 - 19 = Private Residence (including grounds and outbuildings)

10 = single family home

11 = mobile home/trailer

12 = multi-unit housing (apts., multi-plexes)

13 = labor housing

20 - 29 = Institutions

20 = residential institution (dorms, homeless shelters, nursing homes)

21 = school

22 = day care facility (including facility in private residence)

23 = prison

24 = hospital

29 = other institution

30 - 39 = Manufacturing

30 = pesticide manufacturing/formulation facility

31 = industrial facility

32 = Farm product warehousing and storage (grain storage elevators, cold storage facilities) [Note silos on farm or livestock production facilities should be coded under codes 01 or 04]

33= food processing/manufacturing facility (see SIC 20) - includes facilities for processing of animals, fruits grains and vegetables into food products for sale, including, slaughtering, canning, pickling, freezing, dehydrating, milling, and baking.

39 = other manufacturing facility

40- 49 = Non-manufacturing commercial facilities

40 = office/business (non-retail, non-industrial)

41 = retail establishment

42 = service establishment

43 = pet care services and veterinary facilities including animal boarding facilities (horse boarding, kennels, groomers, etc., animal pounds, animal training and showing facilities) [some states may choose to include some of these in analysis of agricultural exposures based upon SIC, CIC or NAICS coding]

50 - 60 = Other

50 = road /rail

51 = road, rail or utility right-of-way

52 = park

53 = golf course

54 = private vehicle

55= public transportation vehicle

59 = other

60 = emergency response vehicle

70= More than one site

98 = not applicable

99 = unknown

Comment: This should be coded as "98 not applicable", if the individual was located at the site of application when exposed. If the individual was at different physical location, but which is the same type as the location of application, this should be coded similarly. (Example: If a farmworker exposed at a farm location that adjoined the farm location where the actual application was performed then both **APPSITE** and **CASESITE** should be coded "01".) Note that exposure to individuals in a private residence that also functions as a day care facility should be coded as "22". Individuals exposed in a home office space in their own private residence should be coded with the appropriate code in the

range of "10-13". All other occupational exposures linked to a business located within or attached to a private residence should be coded according to the type of business described in codes "30-49". This variable will allow systems to determine whether the exposed individual was at a site other than the site of the event or application, and which event locations are associated with on and off-site exposures.

EXPOCOMM

Definition:	Describes additional important aspects of exposure not covered in variables in this section.
Width:	125
Type:	Character
Coding:	Narrative, describe anything that would impact on interpreting coded information. Information regarding anything unusual about the exposure event should be indicated here. Note equipment failures, judgments regarding adequacy of personal protective equipment, training, and specifics about the exposure site that are relevant, etc. Clarify the information coded in **TYPEEXPO** if necessary (e.g. if this variable is coded as ingestion indicate whether a pesticide product, contaminated food or drinking water was ingested).
Comment:	This narrative can be as short as needed, and does not need to be written in sentence form.

AGENT INFORMATION

Chemical agent information should be structured as a relational database. Refer to the SPIDER Technical Manual that includes the data dictionary and Table Relationships for further information and suggested structure. The most specific level of data is the EPA Registration number. If this is not known, and cannot be determined based upon the product name, enter the active ingredient(s) (Generic in SPIDER). If the active ingredient(s) is not known, either **CHEMCLAS** or **FUNCLAS** must be entered with a value other than "unknown" or "not applicable".

The system should permit entry of active ingredient PC Codes, chemical class or functional class when a specific product name or EPA registration number is not available. There should be sufficient room in the system to record information on an infinite number of products per individual. If this is not feasible then the system may be designed to permit entry of a minimum of 4 products per exposure incident. (If this approach is used, the most toxic products should be coded for each chemical class involved.)

REG_NR

Definition:	The EPA Registration Number for the product composed of the 11-digit product registration number (1-6 digit manufacturer and 1-5 digit product identification numbers) and the 6-digit distributor number.
Width:	17
Type:	Character
Coding:	Narrative
Comment:	Use leading zeroes to pad the front of each part of the manufacturer number, the product and the distributor identification number for consistent entry. Search either the EPA product look-up in SPIDER or the California Department of Pesticide Regulation (CDPR) web site to determine the EPA registration number unless the registration number is available from the chemical product identification provided through case investigation. If you have the name of a manufacturer and the product the CDPR website will help you distinguish between products with the same name. The distributor number may be kept as a separate variable, in which case it should be named DIST_NR. If you do not have sufficient information to determine the specific product **do not** enter a product name and registration number.

If you enter a registration number and find that the listed product name in SPIDER or the CDPR Website does not match the product name and active ingredients identified as part of the report investigation then do not enter the EPA Registration code. Enter the PC Code for the active ingredient the individual was exposed to in the variable **ACTIVING** and make a note of the product name and Registration number in the **AGCOM** field. **Provide the EPA Registration number and the two product names to the SPIDER listserv for resolution of the conflicting data.**

PRODUCT

Definition:	Manufacturer's designated name for the product
Width:	70
Type:	Character
Coding:	Narrative
Comment:	Literal description of product name. This should be taken directly from the list of products embedded in SPIDER, or the list that is available on the CDPR web site. If the specific name of the pesticide product is not known then do not enter a product name, only enter an active ingredient PC Code in the field **ACTIVING**.

If there is more than one product with the same name, and you do not know the manufacturer or the product registration number, you need to determine whether all products with that name contain the same active ingredient(s) in the same concentration(s) (the percentage of an ingredient in the product may vary by plus or minus 5%). If all products contain the same ingredient(s), in the same concentration (within 5% variation), then enter the product name, which occurs first when listing products in SPIDER or a CDPR report on the product name. If the product name is associated with multiple products and the active ingredients are not the same, and you do not have any other information regarding the chemical name or chemical class then enter the Product Name in the

AGCOM narrative, not in this field. (SPIDER users will enter the product name in the 'Other Sources ' table on the EVENT screen. The product variable should not be used to collect information about spray adjuvants or fertilizers. If states desire to collect this information they should develop a separate variable. SPIDER users may record spray adjuvants and fertilizers under the 'Other Sources' table on the EVENT screen.

ACTIVING

Definition:	EPA designated code for the active ingredient.
Width:	6
Type:	Character
Coding:	Numerical coding that matches the EPA PC Coding
Comment:	The data collection system should allow for multiple active ingredients per product. The active ingredients are the same as the "Generic Codes" in SPIDER. The use of an additional variable for alpha names for the active ingredients is optional. For purposes of standard reporting of the alpha names of the active ingredient codes from either SPIDER or the CDPR web site choose according to the following hierarchy. This is particularly important when entering an active ingredient code only, without specific product name or EPA Registration number. Hierarchy for choice of chemical active ingredient name (PC_Name) data entry:

1. Common name (Name_Type = C)
2. EPA Standard Name (Name_Type=A)
3. CAS Number   (Name_Type = R)
4. Technical name (Name_Type = T)
5. Synonym (Name_Type = S)

The PC_Name types "T" and "S" should only be used for products that are technical grade. It is unlikely that technical grade product will be in use except in manufacturing, reformulation or research.

ACTINGP

Definition:	The percentage by weight of the active ingredient(s) contained in the pesticide product.
Width:	8
Type:	Numeric
Coding:	Numeric weight percentage, with four decimal places.
Comment:	The system should allow for multiple active ingredients per product and the percentage should be linked to specific product. Refer to SPIDER for suggested table relationships. This should be an automatically coded field based upon the EPA Registration # using data from either SPIDER or the CDPR web site. Data may be entered manually if the available information is the active ingredient, and percent active ingredient in the product. Used to evaluate exposure.

CHEMCLAS

Definition:	Chemical classification of active ingredient
Width:	2
Type:	Character
Code:	01 = organochlorine compound
	02 = organophosphorous compound
	03 = N-methyl carbamates
	04 = pyrethrin
	05 = pyrethroid
	06 = dipyridyl compound
	07 = chlorophenoxy compound
	08 = triazines
	09 = thiocarbamates
	10 = organo-metallic compound
	11 = inorganic compounds
	12 = coumarins
	13 = indandiones
	14 = convulsants

15 = microbial
16 = dithiocarbamates
95 = unidentified cholinesterase inhibitor
96 = other
97 = multiple (PC Code indicates a code for a combination of active ingredients that cross chemical classes)
99 = unknown

Comment: This variable is intended to be automatically coded based on the specific active ingredient. The surveillance program would not be expected to determine chemical classification unless EPA registration number, complete product name, or active ingredient name is unavailable. This chemical class coding scheme is adapted from the World Health Organization 1990-1991 Guidelines. Only a limited number of chemical types are coded. It is recognized that this list is not complete and that some chemicals may fall into more than one classification. The code 96 will be used very rarely, and only for active ingredient PC Codes that are assigned that code in the EPA data system.

*PRODCLAS

Definition: Chemical classification of the product
Width: 2
Type: Character
Code: 01 = organochlorine compound
02 = organophosphorous compound
03 = N-methyl carbamates (AChE inhibitor)
04 = pyrethrin
05 = pyrethroid
06 = dipyridyl compound
07 = chlorophenoxy compound
08 = triazines
09 = thiocarbamates
10 = organo-metallic compound
11 = inorganic compounds
12 = coumarins
13= indandiones
14 = convulsants
15 = microbial
16 = dithiocarbamates
17 = AChE inhibitors (combination of 02 and 03 only)
18 = AChE inhibitors with pyrethrin or pyrethroid only
19 = AChE inhibitors with pyrethrin or pyrethroid + other
20 = AChE inhibitors with organochlorine compounds
21 = AChE inhibitors with compounds not otherwise listed
22 = pyrethrin plus pyrethroid only
23 = pyrethrin plus pyrethroid plus other compound not otherwise specified
24 = inorganic puls organometallic compounds only
25 = organochlorine plus inorganic compounds
95 = unidentified cholinesterase inhibitor
96 = Includes one or more active ingredients, none of which fall into product classes "01" through "16".
97 = Multiple (product contains multiple active ingredients which do not fit in any of the codes specified in codes 17-25)
99 = unknown

Comment: This variable is intended to be automatically coded based upon the active ingredients present in the product formulation. If the active ingredients represent a combination of more than one chemical class not described in codes 17-25 then the product should be coded as 'multiple'. The only exception is if the product contains only two active ingredients, and one of them is a synergist or solvent (for a list see Appendix C, Table C-1) and the product is an insecticide. In this case the product class should be based on the product class of the non-synergist active ingredient.

The surveillance program would not be expected to determine chemical classification unless the EPA registration number, complete product name, or active ingredient name is unavailable. Contact NIOSH if there are questions regarding chemical class coding. This chemical class coding scheme is adapted from the World Health Organization 1990-1991 Guidelines. Only a limited number of chemical types are coded. It is recognized that this list is not complete and that some chemicals may fall into more than one classification. The code "95" should only be used for the rare circumstance when exposure is reported, and clinical testing indicates cholinesterase inhibition, but there is no further information available to classify the chemical product to which the individual was exposed. Either **CHEMCLAS** or **FUNCLAS** must be entered with a value other than "unknown" or "not applicable".

*FUNCLAS

Definition:	Functional classification of pesticide product.
Width:	2
Type:	Character
Code:	01 = Insecticide (excluding solely IGR and fumigants)
	02 = Insect Growth Regulator (IGR)
	03 = Herbicide\algicide
	04 = Fungicide
	05 = Fumigant
	06 = Rodenticide
	07 = Disinfectant/Broad Spectrum for Water Sanitation
	08 = Insect Repellent
	09 = Antifouling agent (marine paints)
	10 = Insecticide and Herbicide (01& 03)
	11 = Insecticide and Fungicide (01 & 04)
	12 = Insecticide and Herbicide and Fungicide (01 & 03 & 04)
	13 = Insecticide and Other (01 & 96)
	14 = Herbicide and Fungicide (03 & 04)
	96 = Other (includes biological controls, plant growth regulators, antibiotics, etc.)
	97 = Multiple (product is classified as multiple classes which do not fit in any of the codes specified in codes 10-14)
	99 = unknown
Comments:	These functional classes are provided as an additional way to categorize products and exposures. These classes are not necessarily mutually exclusive. If a product is registered for more than one class of functional use choose the one that the product was being used for. If the product was being misused, code the appropriate intended use of the product, not how the individual was misusing it. The current EPA coding of products includes many more codes than the recommended coding in this dictionary. Either **PRODCLAS** or **FUNCLAS** must be entered with a value other than "unknown" or "not applicable".

FORM

Definition:	Indicates the physical formulation of the product.
Width:	2
Type:	Character
Coding:	01 = Dust/powder (not pressurized)
	02 = Granular/Flake
	03 = Pellet/Tablet/Cake/Briquette
	04 = Wettable Powder/dust
	05 = Impregnated material (ant/plant stakes, animal collars, water filters, solid agar)
	06 = Other dry formulation (crystalline, water dispersible granules, pressurized dust)
	07 = Microencapsulated
	08 = Emulsifiable concentrate
	09 = Soluble concentrate
	10 = Flowable concentrate

11 = Pressurized liquid/spray/fogger
12 = Ready-to-Use Liquid/Solution
13 = Other liquid formulation
14 = Pressurized Gas/Fumigant
16 = Other
99 = Unknown

Comment: This variable will be useful for evaluating exposure and for tracking trends related to particular types of pesticide formulations. This coding scheme is a condensed system based upon several EPA coding systems. A crosswalk between this list and the EPA formulation coding system used in SPIDER is included in Appendix D.

AGCOM

Definition: Describes additional important information about the pesticides involved in the exposure that is not captured by the variables in this section.

Width: 125

Type: Character

Coding: Narrative, describe anything that would impact on interpreting coded information. Note anything unusual about the products, including concerns about proper product identification.

Comment: This narrative can be as short as needed, and does not need to be written in sentence form.

HEALTH EFFECT DESCRIPTORS
BIOLOGIC MONITORING

The following variables capture a minimal level of information about biological monitoring and diagnosis tests for pesticide residue and metabolites. Some states may choose to record more detailed information in the state database, but more specific information is not needed for the aggregated national database.

*CHLNTEST

Definition:	Indicates which cholinesterase test(s) if any, were performed.
Width:	1
Type:	Character
Coding:	1 = RBC
	2 = Plasma
	3 = Both RBC & Plasma
	4 = not done
	5 = Either RBC or Plasma
	8 = not applicable
	9 = unknown
Comment:	Code as "8" for all non-cholinesterase inhibitors. Must be completed if data is used to support case classification.

*CHLNRESL

Definition:	Indicates the results of cholinesterase testing, and what standard was used for the "normal" comparison.
Width:	1
Type:	Character
Coding:	1 = abnormal compared to lab*
	2 = abnormal compared to baseline **
	3 = within normal limits compared to lab
	4 = normal compared to baseline
	7 = bad specimen
	8 = not applicable
	9 = unknown
Comment:	Must be completed if data is used to support case classification. If both RBC and plasma were performed and only one was abnormal, code only the test result that was abnormal. If both tests were abnormal but a baseline was available for one test, code the results for the test with a baseline. Codes "3" and "4" were added to accommodate those states wishing to track "normal" cholinesterase results using this variable. These are optional codes, not required as part of the core data. States that do not wish to use these alternate codes may use "8 not applicable" when results are within normal limits or when cholinesterase testing was not performed. States that wish to collect detailed results of laboratory tests are referred to the SPIDER Technical Manual for a model of recommended coding of this data.
	* Abnormal compared to lab is defined as a cholinesterase level below laboratory normal range when no baseline test result is available for comparison.
	** Abnormal compared to baseline is defined as:
	1) 30% depression from baseline (pre-exposure or 60-90 days post exposure) RBC cholinesterase level, and/or;
	2) 40% depression from baseline plasma cholinesterase level.
	(*N.Y. definition of cholinesterase depression*)

OTHRBIOL

Definition:	Describes whether other biologic monitoring for pesticides and metabolites was performed that is not captured in previous variables.
Width:	1
Type:	Character

Coding:	1 = Yes
	2 = No
	9 = Unknown
Comment:	This field will allow tracking of how frequently other forms of biologic monitoring are performed

MEDICAL DIAGNOSIS

MEDDIAG

Definition:	Provides a description of the medical diagnosis by the attending health care provider.
Width:	35
Type:	Character
Coding:	Narrative
Comment:	Brief literal of diagnosis of individual's illness from attending health care provider. Left blank if none or unknown. Removed the need to report treatment information as this was universally rejected as too cumbersome and not useful.

PREEXCON

Definition:	Indicates whether the exposed individual had any pre-existing conditions that could impact on their response to exposure.
Width:	1
Type:	Character
Coding:	1 = clinician reported
	2 = exposed individual reported
	3 = reported by both
	4 = pre-existing condition was not present (interview or medical record indicates that this information was solicited but condition was found not to be present or condition is clearly not applicable.)
	9 = unknown
Comment:	If coded as "1", "2" or "3" then **COND1** through **COND5** should be reported using the same coding system as **PREEXCON.**

    COND1 Pregnant
    COND2 Asthma
    COND3 Allergies
    COND4 Multiple chemical sensitivities (acquired chemical intolerance)

COND5 Other

Definition:	Describes other condition that could impact on the individual susceptibility to exposure that is not described in existing codes; or provides an explanation of coding for **COND3** Allergies.
Width:	20
Type:	Character
Coding:	Narrative
Comment:	Brief literal of other conditions including physical or mental disability and medical conditions. Indicate whether the individual, clinician or both reported condition (use the same code numbers as **PREXCON**. Note the specific allergy here if COND3 is coded as "1", "2" or "3" *and* the coder is unsure if the allergy would impact the individual's susceptibility to exposure.

*FATAL

Definition:	Describes whether the exposed individual died, and if so whether the death was suspected to be related to pesticide exposure.
Width:	1
Type:	Character
Coding:	1 = fatal, suspected related to pesticide exposure
	2 = fatal, not suspected to be related to pesticide exposure
	3 = fatal, no determination made regarding relationship between death and pesticide exposure

8 = not applicable (i.e. This was not a fatality.)

9 = unknown

Comment: It is recognized that not all states will report this variable due to concerns about legal ramifications of making this determination.

*SIGNS AND SYMPTOMS

The specific symptoms were adapted from the American Association of Poison Control Centers Toxic Exposure Surveillance System. An index of severity is currently under development

*DERMATOL

Definition: Indicates whether health effect involved irritation or sensitization of skin.

Width: 1

Type: Character

Coding: 1 = yes (sign or symptom reported as present by individual or clinician)

2 = no (not reported, or unknown)

Comment: If coded as "1" then **DERM1** through **DERM7** should be reported using the coding system described for **DERM1** below. If **DERMATOL** is coded as "2=No" then skip the variables **DERM1** through **DERM99**.

*DERM1

Definition: Bullae

Width: 1

Type: Character

Coding: 1 = clinician reported

2 = exposed individual reported

3 = reported by both

4 = sign or symptom was not present (statement in chart notes or interviews indicates that information on sign/symptom was sought but found not present)

9 = unknown

*DERM2 Burns (second and third degree)

*DERM3 Edema/Swelling

*DERM4 Erythema

*DERM5 Rash

*DERM6 Irritation/Pain

*DERM7 Pruritis

*DERM8 Distribution

Definition: Describes the pattern of distribution for lesions described in the other DERM variables.

Width: 1

Coding: 1= Corresponds well with physical pattern of exposure

2= Discrete patches of lesions that do not correspond with what is known about the pattern of exposure

3= Generalized distribution of lesions on the body

4 = Not present (statement in chart notes or interviews indicates that information on lesions was sought but found not present)

9= Unknown

Comment: If more than one type of skin lesion is present this variable should be used to code for the predominant one. If no lesions are present code as "4 = Not present".

*DERM99 Other

Definition: Describes other dermatologic signs or symptoms not described in existing codes

Type: Character

Width: 20

Coding: Narrative

Comment: Brief literal of other dermatologic signs or symptom(s)

*EYE
Definition: Indicates whether health effect involved direct contact with and injury to eye

Width: 1

Type: Character

Coding: 1 = yes (sign or symptom reported as present by individual or clinician)

                        2 = no (not reported, or unknown)

Comment: If coded as "1" then **EYE1** through **EYE6** should be reported using the coding system described for **EYE1** below. If **EYE** is coded as "2=No" then skip the variables **EYE1** through **EYE8**.

EYE1
Definition**:**   Miosis

Width: 1

Type: Character

Coding: 1 = clinician reported

                        2 = exposed individual reported

                        3 = reported by both

                        4 = sign or symptom was not present (statement in chart notes or interviews indicates that information on sign/symptom was sought but found not present)

                        9 = unknown

        EYE2 Burns

        EYE3 Corneal abrasion

        EYE4 Lacrimation

        EYE5 Pain/irritation/inflammation (diagnosis of conjunctivitis)

        EYE6 Mydriasis

EYE8 Other
Definition: Describes other ocular symptoms not described in existing codes

Width: 20

Type: Character

Coding: Narrative

Comment: Brief literal of other ocular symptom(s)

*RESPIRAT
Definition: Indicates whether health effect involved upper or lower respiratory symptoms

Width: 1

Type: Character

Coding: 1 = yes (sign or symptom reported as present by individual or clinician)

                        2 = no (not reported, or unknown)

Comment: If coded as "1" then **RESP1** through **RESP9** should be reported using the coding system described for **RESP1** below. If **RESPIRAT** is coded as "2=No" then skip the variables **RESP1** through **RESP99**.

RESP1
Definition: Cough

Width: 1

Type: Character

Coding: 1 = clinician reported

                        2 = exposed individual reported

                        3 = reported by both

                        4 = sign or symptom was not present (statement in chart notes or interviews indicates that information on sign/symptom was sought but found not present)

                        9 = unknown

> **RESP2** Cyanosis
> **RESP3** Upper respiratory pain/irritation
> **RESP4** Dyspnea/Shortness of breath
> **RESP5** Hyperventilation/tachypnea
> **RESP6** Pulmonary Edema
> **RESP7** Respiratory depression
> **RESP8** Pleuritic chest pain/pain on deep breathing
> **RESP9** Wheezing

RESP99 Other

Definition:	Describes other respiratory symptoms not described in existing codes
Width:	20
Type:	Character
Coding:	Narrative
Comment:	Brief literal of other respiratory signs and/or symptom(s)

*GI

Definition:	Indicates whether health effect involved gastrointestinal symptoms
Width:	1
Type:	Character
Coding:	1 = yes (sign or symptom reported as present by individual or clinician)
	2 = no (not reported, or unknown)
Comment:	If coded as "1" then **GI1** through **GI** should be reported using the coding system described for **GI1** below. If **GI** is coded as "2=No" then skip the variables **GI1** through **GI8**.

GI1

Definition:	Abdominal pain/cramping
Width:	1
Type:	Character
Coding:	1 = clinician reported
	2 = exposed individual reported
	3 = reported by both
	4 = sign or symptom was not present (statement in chart notes or interviews indicates that information on sign/symptom was sought but found not present)
	9 = unknown.

> **GI2** Anorexia
> **GI3** Constipation
> **GI4** Diarrhea
> **GI5** Nausea
> **GI6** Vomiting
> **GI7** Melena/Hematemesis/bloody stools or vomit

GI8 Other

Definition:	Describes other gastrointestinal symptoms not described in existing codes
Width:	20
Type:	Character
Coding:	Narrative
Comment:	Brief literal of other gastrointestinal signs and/or symptom(s)

*RENALGU

Definition:	Indicates whether health effect renal/genitourinary symptoms
Width:	1
Type:	Character
Coding:	1 = yes (sign or symptom reported as present by individual or clinician)

2 = no (not reported, or unknown)

Comment: If coded as "1" then **GU1** through **GU4** should be reported using the coding system described for GU1 below. If **RENALGU** is coded as "2=No" then skip the variables **GU1** through **GU8**.

GU1

Definition: Polyuria

Width: 1

Type: Character

Coding: 1 = clinician reported

                  2 = exposed individual reported

                  3 = reported by both

                  4 = sign or symptom was not present (statement in chart notes or interviews indicates that information on sign/symptom was sought but found not present)

                  9 = unknown

      GU2 Oliguria/anuria

      GU3 Hematuria

      GU4 Proteinuria

GU8 Other

Definition: Describes other renal/genitourinary symptoms not described in existing codes

Width: 20

Type: Character

Coding: Narrative

Comment: Brief literal of other renal/genitourinary signs and/or symptom(s)

*NERVSENS

Definition: Indicates whether health effect includes nervous/sensory symptoms

Width: 1

Type: Character

Coding: 1 = yes (sign or symptom reported as present by individual or clinician)

                  2 = no (not reported, or unknown)

Comment: If coded as "1" then **NS1** through **NS17** should be reported using the coding system described for NS1 below. If **NERVSENS** is coded as "2=No" then skip the variables **NS1** through **NS99**.

NS1

Definition: Ataxia

Width: 1

Type: Character

Coding: 1 = clinician reported

                  2 = exposed individual reported

                  3 = reported by both

                  4 = sign or symptom was not present (statement in chart notes or interviews indicates that information on sign/symptom was sought but found not present)

                  9 = unknown

      NS2 Hyperactivity/anxiety/irritability

      NS3 Coma

      NS4 Confusion

      NS5 Seizure(s)

      NS6 Fasciculations

      NS7 Headache

      NS8 Muscle weakness

      NS9 Muscle rigidity

      NS10 Paralysis

      NS11 Peripheral neuropathy

NS12 Slurred speech
NS13 Diaphoresis/Profuse sweating
NS14 Blurred vision
NS15 Dizziness
NS16 Muscle pain
NS17 Fainting

NS99 Other

Definition:	Describes other nervous/sensory symptoms not described in existing codes
Width:	20
Type:	Character
Coding:	Narrative
Comment:	Brief literal of other Nervous/Sensory signs and/or symptom(s).

*CARDVASC

Definition:	Indicates whether health effect includes cardiovascular symptoms
Type:	Character
Coding:	1 = yes (sign or symptom reported as present by individual or clinician)
	2 = no (not reported, or unknown)
Comment:	If coded as "1" then **CV1** through CV7 should be reported using the coding system described for **CV1** below. If **CARDVASC** is coded as "2=No" then skip the variables **CV1** through **CV8**.

CV1

Definition:	Bradycardia
Width:	1
Type:	Character
Coding	1 = clinician reported
	2 = exposed individual reported
	3 = reported by both
	4 = sign or symptom was not present (statement in chart notes or interviews indicates that information on sign/symptom was sought but found not present)
	9 = unknown

CV2 Cardiac arrest
CV3 Conduction disturbance
CV4 Tachycardia
CV5 Hypotension
CV6 Hypertension
CV7 Chest pain

CV8 Other

Definition:	Describes other cardiovascular symptoms not described in existing codes
Width:	20
Type:	Character
Coding:	Narrative
Comment:	Brief literal of other cardiovascular symptom(s)

*MISCSYMP

Definition:	Indicates whether health effect includes signs, symptoms or test results not captured by the other health effects categories.
Type:	Character
Coding:	1 = yes (sign or symptom reported as present by individual or clinician)
	2 = no (not reported, or unknown)
Comment:	If coded as "1" then **MISC1** through **MISC6** should be reported using the coding system described for MISC1 below. If **MISCSYMP** is coded as "2=No" then skip the variables **MISC1** through **MISC8**.

MISC1
Definition: Hyperthermia/fever
Width: 1
Type: Character
Coding: 1 = clinician reported
                   2 = exposed individual reported
                   3 = reported by both
                   4 = sign or symptom was not present (statement in chart notes or interviews indicates that information on sign/symptom was sought but found not present)
                   9 = unknown

MISC2 Acidosis
MISC3 Alkalosis
MISC4 Anion gap increase
MISC5 Fatigue
MISC6 Malaise

MISC8 Other
Definition: Describes other symptoms that do not fit into coding categories provided
Width: 20
Type: Character
Coding: Narrative
Comment: Brief literal of other signs and/or symptom(s)

TYPE CARE AND LOST TIME

TYPECARE
Definition: Describes the initial medical care sought following the exposure event.
Width: 1
Type: Character
Coding: 1 = physician office visit
                2 = emergency room visit
                3 = hospital admission
                4 = advice from poison control center
                5 = no medical care sought
                6 = other
                7 = employee health center
                9 = unknown
Comment: Walk-in, non-emergency room and clinic visits should be coded a "1 physician office visit".   There
                was a suggestion to add additional codes to determine the specific type of clinic. This information is
                not useful at the aggregate level and not collected by all states. On-scene treatment by emergency
                response personnel should be coded as "6=other" if it was the only treatment received.   If on-site
                treatment by emergency response personnel is followed by other care, code the additional care. An
                individual should be considered hospitalized if they are formally admitted to the inpatient service of a
                hospital.

HOSPSTAY
Definition: Length of hospital stay in days.
Width: 3
Type: Numeric
Coding: Number of days in hospital
                997= any stay longer than 996 days
                998 = Not applicable, not hospitalized
                999 = Unknown, length of stay is unknown or case closed while individual was still hospitalized
Comment: Useful as an indicator of severity and cost. An individual should be considered hospitalized if they are
                formally admitted to the inpatient service of a hospital.   The length of hospital stay should be
                calculated as the number of patient days accumulated at time of discharge by a patient. A stay of less
                than 1 day (patient admission and discharge on the same day) is counted as 1 day in the summation of
                total days of care. For patients admitted and discharged on different days, the number of days of care is
                computed by counting all days from (and including) the date of admission to (but not including) the
                date of discharge. (The definitions of hospitalization and days of hospitalization are taken with minor
                adaptations from Graves EJ. National Hospital Discharge Survey: Annual summary, 1993. National
                Center for Health Statistics. Vital Health Stat 13(121), 1995.)

*LOSTTIME
Definition: Indicates whether the individual lost one or more days from regular activities.
Width: 1
Type: Character
Coding: 1 = yes, lost work time
                2 = no lost time
                3 = unemployed, lost time from school/regular activities
                9 = unknown
Comment: This variable may be used as an indicator of severity and cost. The term unemployed refers to
                individuals with non-occupational exposures; either unemployed or non-working individuals. If time
                lost is less than one day this should be coded as "2 = no lost time".

HEALTHCOM
Definition: Describes additional important aspects of illness, medical history, severity captured with variables in

this section.

Width:	125
Type:	Character
Coding:	Narrative, describe anything that would impact on interpreting coded information.
Comment:	This narrative can be as short as needed, and does not need to be written in sentence form.

INVESTIGATION FINDINGS

ENFORCEMENT AGENCY FINDINGS
For the variables in this section it is recognized that the determination regarding whether a violation has occurred must be made by the regulatory agency with jurisdiction in the appropriate area. There are some lag time problems, that make it difficult to track this information so only some states collect this information.

VIOFIFRA

Definition:	Indicates whether a violation of FIFRA or state pesticide regulations (including the Worker Protection Standard) was found by **the regulatory agency responsible for enforcement of FIFRA and/or state pesticide regulations.**
Width:	1
Type:	Character
Coding:	1 = Violation cited
	2 = No violation cited
	3 = Pending
	4 = Individual refused referral
	8 = Not applicable, surveillance program staff made decision not to refer to an enforcement agency
	9 = Unknown
Comment:	Will allow tracking of cases where illness or injury occurs but no violation is found. This variable should be used effective January 1, 2000. It replaces the variables **VIOLATON1** and **VFIFRAWP**. It is recognized that there are often significant lag times between the exposure incident and when this information becomes available from the enforcement agency. Information should be entered whenever it becomes available. The limited resources available to surveillance programs may mean that the collection of this data relies upon passive mechanisms.

VOSHA

Definition:	Indicates whether a violation of occupational health or safety standards was cited **by the agency responsible for enforcement of OSHA regulations.**
Width:	1
Type:	Character
Coding:	1 = Violation cited
	2 = No violation cited
	3 = Pending
	4 = Affected Individual refused referral to an appropriate enforcement agency
	8 = Not applicable, surveillance program staff made decision not to refer to an enforcement agency
	9 = Unknown
Comment:	Will allow tracking of cases where illness or injury occurs but no violation is found. It is recognized that there are often significant lag times between the exposure incident and when this information becomes available from the enforcement agency. Information should be entered whenever it becomes available. The limited resources available to surveillance programs may mean that the collection of this data relies upon passive mechanisms.

VOTHER

Definition:	Indicates whether other violations associated with pesticide use storage, or transport were found by a regulatory agency
Width:	125
Type:	Character
Coding:	Literal, narrative describing agency and type of violation found
Comment:	Will allow tracking of cases where illness or injury occurs but no violation is found.

VIOLCOM

Definition:	Describes additional important aspects of regulatory violations found not captured with variables in this section.
Width:	125
Type:	Character

Coding: Narrative, describe anything that would impact on interpreting coded information.
Comment: This narrative can be as short as needed, and does not need to be written in sentence form. Include
            information on violations cited, whether violation is closely related to exposure situation.

VIOLATION1
Definition: Indicates whether a violation of FIFRA (other than the Worker Protection Standard) was found by **the
            regulatory agency responsible for enforcement of FIFRA.**
Width: 1
Type: Character
Coding: 1 = Violation cited
            2 = No violation cited
            3 = Pending
            4 = Individual refused referral
            8 = Not applicable, surveillance program staff made decision not to refer to an enforcement agency
            9 = Unknown
Comment: **NOTE**: **This variable is replaced by VIOFIFRA effective January 1, 2000, and therefore
            should be omitted for data collected after that date**. Will allow tracking of cases where illness or
            injury occurs but no violation is found.

VFIFRAWP
Definition: Indicates whether a violation was found by **the regulatory agency responsible for enforcement of
            FIFRA Worker Protection Standard**
Width: 1
Type: Character
Coding: 1 = Violation cited
            2 = No violation cited
            3 = Pending
            4 = Individual refused referral
            8 = Not applicable, surveillance program staff made decision not to refer to an enforcement agency
            9 = Unknown
Comment: **NOTE**: **This variable is replaced by VIOFIFRA effective January 1, 2000, and therefore
            should be omitted for data collected after that date**. Will allow tracking of cases where illness or
            injury occurs but no violation is found. This should record any WPS violation found regardless of the
            relationship between the violation and the pesticide-related illness or injury.

STATE SURVEILLANCE SYSTEM INVESTIGATION FINDINGS

States raised concerns about implications for workers of developing a variable that indicates the label was not followed.
Employers could potentially access this information with repercussions for the worker depending upon the
confidentiality rules of the agency managing the surveillance data. It was still felt that this was valuable information to
capture.

LABEL
Definition: Indicates whether there is evidence indicating that the product label was not followed.
Width: 1
Type: Character
Coding: 1 = Yes
            2 = No
            8 = Not applicable (suspected intentional exposure)
            9 = Unknown
Comment: This will allow recording of information regarding the label, without specifying the source of the
            information.

THE FOLLOWING VARIABLES (**WPS1 – WPS4**) SHOULD ONLY BE COMPLETED IF THE EXPOSED
INDIVIDUAL IS A WORKER OR PESTICIDE HANDLER ON AN AGRICULTURAL ESTABLISHMENT (FARM,
NURSERY OR FOREST) AS DEFINED BY THE EPA WORKER PROTECTION STANDARD (Census occupation

codes 479, 484, 495).

WPS1A [*Question: Did this incident involve entering a treated field, area or greenhouse?*]

Definition:	Indicates whether the exposure incident being investigated involved entry into an area, field, or greenhouse that had been treated with pesticides.
Width:	1
Type:	Character
Coding:	1 = Yes
	2 = No
	9 = Unknown or not asked
Comment:	This will allow recording of information regarding aspects of the worker protection standard and training issues. Leave blank if individual is not a farmworker (Census codes 479, 484 or 485).

WPS1B [*Question: Did the employer or the crew leaders tell you about how soon you could go into the area (field or greenhouse) after it was treated with pesticides?*]

Definition:	Indicates whether the current employer or crew leaders had told the individual about how soon they could go into the area after it was treated with pesticides.
Width:	1
Type:	Character
Coding:	1 = Yes
	2 = No
	8 = Not applicable
	9 = Unknown or not asked
Comment:	This will allow recording of information regarding aspects of the worker protection standard and training issues. Leave blank if individual is not a farmworker (census occupation codes 479, 484, 495). Code as not applicable if **WPS1A** is coded as "2= No".

WPS2 [*Question: This season with your current employer, has your employer/crew leader(s) told you about illnesses or injuries that could be due to pesticides?*]

Definition:	Indicates whether the current employer or crew leaders had told the individual during this season about illnesses or injuries that could be due to pesticides.
Width:	1
Type:	Character
Coding:	1 = Yes
	2 = No
	9 = Unknown or not asked
Comment:	This will allow recording of information regarding aspects of the worker protection standard and training issues. Leave blank for all non-farmworkers.

WPS3 [*Question: This season with your current employer, has your employer/crew leader(s) ever told you about where to go or who to contact for emergency medical care for an illness or injury that happens at work?*]

Definition:	Indicates whether the current employer or crew leaders had told the individual this season about where to go or who to contact for emergency medical care for an illness or injury at work.
Width:	1
Type:	Character
Coding:	1 = Yes
	2 = No
	9 = Unknown or not asked
Comment:	This will allow recording of information regarding aspects of the worker protection standard and training issues. Leave blank for all non-farmworkers.

WPS4 {*Question: In the past 12 months has someone taught you about the safe use of pesticides and the use of personal protective equipment?*]

Definition:	Indicates whether the individual indicated that they had been taught about the safe use of pesticides and the use of PPE in the last 12 months.

Width:	1
Type:	Character
Coding:	1 = Yes
	2 = No
	9 = Unknown or not asked
Comment:	This will allow recording of information regarding aspects of the worker protection standard and training issues. If they received training on only one of the two components (pesticide safety or use of PPE) code as no. Leave blank for all non-farmworkers.

CASE CLASSIFICATION

*C_EXPOSE

Definition:	Describes the level of how laboratory, clinical or environmental evidence that corroborates exposure
Width	2
Type:	Character
Coding:	1a = analytical results from foliage residue, clothing residue, air, soil, water or biologic samples document exposure
	1b = observation of residue and/or contamination (including damage to plant material from herbicides) by a trained professional
	[Note: a trained professional may be a plant pathologist, agricultural inspector, agricultural extension agent, industrial hygienist or any other licensed or academically trained specialist with expertise in plant pathology and/or environmental effects of pesticides. A licensed pesticide applicator not directly involved with the application may also be considered a trained professional.)
	1c = biologic evidence of exposure (e.g. response to administration of an antidote such as 2-PAM, Vitamin K_1, or repeated doses of atropine)
	1d = documentation by a licensed health care provider of a characteristic eye injury or dermatologic effects at the site of direct exposure to a pesticide product known to produce such effects
	1e = clinical description by a licensed health care provider of two or more post-exposure health effects (at least one of which is a sign) characteristic of the class of pesticides as provided in Appendix 2 of the *Case Definition for Acute Pesticide-Related Illness and Injury Cases.*
	2a = Evidence of exposure based solely upon written or verbal report by report by case
	2b = Evidence of exposure based solely upon written or verbal report by report by witness
	2c = Evidence of exposure based solely upon written or verbal report by written records of application
	2d = Observation of residue and/or contamination (including damage to plant material from herbicides) by other than a trained professional
	2e = Other evidence suggesting that an exposure occurred
	3 = Strong evidence that no pesticide exposure occurred
	4 = Insufficient data
Comment:	Codes "3" and "4" should be back padded with blanks to fill the two character width.

*C_EFFECT

Definition:	Level of documentation of post-exposure health effect
Width:	1
Type:	Character
Coding:	1 = Two or more new post-exposure abnormal signs and/or test/laboratory findings reported by a licensed health care provider
	2 = Two or more new post-exposure abnormal symptoms were reported. When new post-exposure signs and test/laboratory findings are insufficient to satisfy a score of 1, they can be used in lieu of symptoms toward satisfying a score of 2 for Health Effects (**C_EFFECT**).
	3 = No new post-exposure abnormal signs, symptoms, or test/laboratory findings were reported
	4 = Insufficient data (includes having only one post-exposure abnormal sign or symptom or, test/laboratory finding).

*C_CAUSAL

Definition:	Level of evidence indicating a causal relationship between exposure and illness.

Width:	2
Type:	Character
Coding:	1a = Where the signs and symptoms documented under the Health Effects criteria (**C_EFFECT**) are characteristic for the class of pesticide as provided in Appendix 2 of the *Case Definition for Acute Pesticide-Related Illness and Injury Cases*, and the temporal relationship between exposure and health effects is plausible (the pesticide class refers to the one classified under criteria **C_EXPOSE**)
	1b = Where the signs and symptoms documented under the Health Effects criteria (**C_EFFECT**) are consistent with an exposure-health effect relationship based upon the known toxicology (i.e. exposure dose, symptoms and temporal relationship) of the putative agent (i.e. the agent classified under criteria **C_EXPOSE**) from commonly available toxicology texts, government publications, information supplied by the manufacturer, or two or more case series or positive epidemiologic studies published in the peer-reviewed literature
	2 = Evidence of exposure-health effect relationship is not present. This may be because the exposure dose was insufficient to produce the observed health effects. Alternatively, a temporal relationship does not exist (i.e. health effects preceded the exposure, or occurred too long after exposure). Finally, it may be because the constellation of health effects are not consistent based upon the known toxicology of the putative agent from information in commonly available toxicology texts, government publications, information supplied by the manufacturer, or the peer-reviewed literature
	3 = Definite evidence of non-pesticide causal agent
	4 = Insufficient toxicologic information is available to determine causal relationship between exposure and health effects. (This includes circumstances where minimal human health effects data is available, or where there are less than two published case series or positive epidemiologic studies linking health effects to exposure to the particular pesticide product or class of pesticides.)
Comment:	Codes "2" - "4" should be back padded with blanks to fill the two-character width.

*STATUS

Definition:	Final case classification, using NIOSH classification matrix
Width:	1
Type:	Character
Coding:	1 = Definite
	2 = Probable
	3 = Possible
	4 = Suspicious
	5 = Unlikely
	6 = Insufficient information
	7 = Asymptomatic
	8 = Unrelated
Comment:	This coding can be set up as an automatic code using the matrix, and should not be overridden. If the state feels the matrix classification is not correct, then the state final classification should be recorded in USERSTAT, and a narrative explaining the reason for the classification difference must be included in USERREAS. States may choose to add additional codes for their own use to indicate whether asymptomatic individuals had documented exposures, but that level of information is not collected for aggregation of data.

USERSTAT

Definition:	Final case classification, using state classification matrix, or overriding the NIOSH classification matrix with a written explanation.
Width:	1
Type:	Character
Coding:	1 = Definite
	2 = Probable
	3 = Possible
	4 = Suspicious

<div style="padding-left:2em;">
5 = Unlikely

6 = Insufficient information

7 = Asymptomatic

8 = Unrelated
</div>

Comment: A narrative explaining the reason for the classification difference between **STATUS** and **USERSTAT** must be included in **USERREAS**.

USERREAS

Definition: Explanation of why the final case classification indicated by **STATUS** and **USERSTAT** are different.

Width: 125

Type: Character

Coding: Narrative

Comment: This narrative can be as short as needed, and does not need to be written in sentence form.

SEVERITY

Definition: Final coding of the severity of the case using the standardized criteria of the seveirty index in Appendix E of this document. A brief description of each of the six severity categories follows ..

Width: 3

Type: Character

Coding: S-1 = Death This category describes a human fatality resulting from exposure to one or more pesticides.

S-2 High severity illness or injury The illness or injury is severe enough to be considered life threatening and typically requires treatment. This level of effect commonly involves hospitalization to prevent death. Signs and symptoms include, but are not limited to, coma, cardiac arrest, renal failure and/or respiratory depression. The individual sustains substantial loss of time ($>$ 5 days) from regular work (this can include assignment to limited/light work duties) or normal activities (if not employed). This level of severity might include the need for continued health care following the exposure event, prolonged time off of work, and limitations or modification of work or normal activities. The individual may sustain permanent functional impairment.

S-3 Moderate severity illness or injury This category includes cases of less severe illness or injury often involving systemic manifestations. Generally, treatment was provided. The individual is able to return to normal functioning without any residual disability. Usually, less time is lost from work or normal activities (? 3-5 days), compared to those with severe illness or injury. No residual impairment is present (although effects may be persistent). S-4 Low severity illness or injury This is the category of lowest severity. It is often manifested by skin, eye or upper respiratory irritation. It may also include fever, headache, fatigue or dizziness. Typically the illness or injury resolves without treatment. There is minimal lost time ($<$3 days) from work or normal activities.

S-8 Evaluated, not applicable This category indicates that the case data was classified as 'Unlikely', 'Insufficient information', 'Asymptomatic' or 'Unrelated' and the severity index is not applied.

S-9 Unknown, not yet evaluated This indicates that an assessment for the severity index has not been done. It is the default value for a new record.

Comment: Refer to the Severity Index for a full description of the purpose of this variable and the method of coding. Note that we recognize that the severity index cannot address all conceivable clinical situations. Therefore, it is not realistic to insist on strict adherence to these. The user must be flexible when using this severity index, given that the user will not infrequently need to employ judgement and experience when assigning severity. If severity is assigned that does not adhere to the index a short narrative explanation should be included in the variable HEALTHCOM. This narrative can be as short as needed, and does not need to be written in sentence form

APPENDICES

Appendix A: Operational Guidelines for Determination of Injury at Work

1. Complete the injury at work item if any other than natural cause of death is mentioned in Part I or Part II of the medical certification, including homicides, suicides, and accidents, including motor vehicle deaths.

2. The injury at work item <u>must</u> be completed for decedents ages 14 or over and may be completed for those less than 14 years of age if warranted. Consider possibility of work injury regardless of whether injury occurred in the course of work in "usual" or other occupation and/or industry. If decedent's "usual" occupation is housewife, student or retired consider injury during other employment. If occupation is transportation-related, suspect injury at work and evaluate per criteria.

3. Consider available information with regard to location and activity at time of injury. If location is farm, suspect work-related and evaluate per criteria.

CRITERIA	INJURY AT WORK? Yes	No
On Employer Premises		
? Engaged in work activity, apprentice, vocational training	†	
? On break; in hallways, rest room, cafeteria, storage area	†	
? In employer parking lots while working, arriving, or leaving	†	
? Engaged in recreational activities on employer controlled facilities (games, etc.) for personal enjoyment		†
? As a visitor for non-work purposes, not on official business		†
Off Employer Premises		
? Working for pay or compensation, including at home	†	
? Working as a volunteer EMS, firefighter, or law enforcement officer	†	
? Working in family business, including family farm. Activity should be clearly related to a profit-oriented business.	†	
? Traveling on business, including to and from customer/business contacts	†	
? Engaged in work activity where vehicle is considered the work environment (e.g., taxi driver, truck driver, etc.)	†	
? Homemaker working at homemaking activities		†
? Working for self non-profit, i.e. mowing lawn, repairing own roof, hobby or recreation activities		†
? Student engaged in school activities		†
? Operating vehicle (personal or commercial) for non-work purposes		†
? Commuting to or from work site		†

These guidelines, published in 1992, were developed jointly by: The Association for Vital Records and Health Statistics (AVRHS), the National Institute of Occupational Safety and Health (NIOSH), the National Center for Health Statistics, (NCHS), and the National Center for Environmental Health and Injury Control (NCEHIC).

APPENDIX B - Detailed Dictionary for Variable: Application Target APPTARGT

This dictionary provides more detailed definitions for the coding specified for this variable.

APPTARGT

Definition: This variable describes the target surface for the pesticide application
Width: 3
Type: Numeric2
Coding: 010 = landscape/ornamental

020 = forest trees, forest lands

031 = veterinary/livestock

[Livestock includes all agricultural animals such as dairy animals, poultry, meat animals, fur and wool bearing animals.

032 = veterinary/domestic animal

041 = building structure - this includes applications to the building structure including wall void injection, treatment of structural building members to eradicate pests, crack and crevice treatment as well as treatment of air conditioning systems and heating ducts. If the application involves any combination of codes 041-043 use the numerically higher code as this reflects an increasing likelihood of exposure.

042 = building surface - this includes applications to building surfaces such as spraying of carpets, flea foggers, interior area surface sprays in living/working areas other than crack and crevice. If the application involves any combination of codes 041-043 use the numerically higher code as this reflects an increasing likelihood of exposure.

043 = building space treatment - this code includes, structural applications to residences or commercial buildings using fumigants. Note that greenhouse fumigation and treatment with thermal fogs should be coding according to the actual target crop. If the application involves any combination of codes 041-043 use the numerically higher code as this reflects an increasing likelihood of exposure.

050 = undesired plant (the plant is the target pest and the only target of the application)

060 = aquatic (pond, stream, lake, irrigation canal, waste pond)

070 = soil

080 = wood product

100 = Fruit Crops

    101 = small fruits

        [blackberry, boysenberry, dewberry, loganberry, raspberry, youngberry, blueberry cranberry, currant, elderberry, gooseberry, grapes, huckleberry, strawberry, bushberries, serviceberry, mulberry)

    110 = tree fruits

        111 = citrus fruits

            [citron, grapefruit kumquat, lemon, lime, orange, tangelo, tangerine, other citrus hybrids, pummelo]

        112= Tree Nuts

            [almond, brazil nuts, cashew, chestnut, filbert (hazelnut), hickory nut, macadamia nut (bushnut), pecan, walnut, butternut, pistachio]

        113 = Pome fruits

[apple, crabapple pear, quince, mayhaw (hawthorn)]

114 = Stone Fruits

[apricot, cherry, nectarine, peach, plum, prune]

120 = Subtropical and miscellaneous fruits

[avocado, banana, coconut, date, fig, guava, mango, loquat, olive, papaya, pawpaw, persimmon, pineapple, passion fruit, pomegranate, plantain, litchee nut, kiwifruit, caprifig, acerola, gingko nut, mamey, surinam cherry, soursop, sugar apple (custard apple), breadfruit, prickleypear, carambola, cherimoya, longan, mamaladebox, granadilla, sapota, star apple, Japanese plum, sapodilla]

200 = Beverage crops (cocoa, coffee, tea, mint, cola, chicory)

300 = Flavoring and spice crops

(angelica, anise, balm, basil, caraway, cassia, catnip, celery, cinnamon, cloves, coriander, cumin, dill, elecampane, fennel, fenugreek, ginger, hops, horehound, horseradish, juniper, lavender, licorice, marjoram/oregano, mint/peppermint / spearmint, mustard, nutmeg, pennyroyal, pepper(black/white/ chili/(paprika type), rosemary, rue, safflower, sage, savory, sesame, bay/sweet bay, tamarind, tansy, tarragon, thyme, turmeric, vanilla, wintergreen, wormwood, allspice, poppy, chamomile, costmary, hyssop, marigold, nasturtium, woodruff, valerian)

400 = Vegetable Crops

410 = Curcurbit Vegetables

[melons, gourd, cucumber, squash (all), okra, gherkin, chayote]

420 = Fruiting Vegetables

[eggplant, pepper, pimento, tomato, gooseberry, pepino, tomatillo]

430 = Leafy vegetables

[beets, celery, chicory, broccoli, brussel sprouts, cabbage, cauliflower, collards, kale, kohlrabi, corn salad, dandelion, endive (escarole), fennel, cress, artichoke, lettuce (all varieties), mustard, parsley, rhubarb, spinach, turnip, watercress, prickleypear cactus pads, grapeleaves, bamboo shoots, broccoli raab, mustard cabbage (pakchoi), chervil, roquette (arugula), dock, peppergrass]

440 = Root and Tuber Vegetables

[beets, carrot (including tops), celeriac, chive, taro, garlic, horseradish, Jerusalem artichoke, leek, onion (including green, spring and scallions), parsnip, potato, radish (all types), rutabaga, salsify, shallot, sweet potato, turnip, yam, lotus root, manioc (cassava), arrowroot, yautia, water chestnut, chufa (ground almond)]

450 = Seed and Pod Vegetables

[beans (fresh and dried all types), peas (fresh and dried all types), bean sprouts (all types), carob]

460 = Miscellaneous vegetables

[algae, seaweed, asparagus, mushrooms]

500 = Grains, Grasses and Fiber Crops

501 = Fiber crops

[cotton, flax, hemp, kenaf, ramie, abaca, broomcorn]

510 = Forage, Fodder Hay and Silage Grasses

when intended use is forage, fodder hay and silage: millet, sorghum, corn, oats wheat, barley, rye, sudangrass, pasture, bermudagrass, bluegrass, timothy, rice,

millet, canarygrass, grasses for bird seed

520 = Forage, Fodder Hay and Silage Legumes and Related Crops

[when intended use is forage, fodder hay and silage: alfalfa, beans, clover, cotton, lespedeza, peanuts, peas(including vines),sugar beets (including tops), vetch, trefoil, sainfoin, soybeans, carrot tops, carob, rape, kudzu, lupine, buckwheat]

530 = Cereal Grain Crops

[barley, corn, oats, rice, rye, sorghum, wheat, millet (proso, broomcorn), triticale, wild rice, teosinte]

540= Sugar Crops

[honeycomb, sugar beet, sugarcane, sugar maple, sorghum]

550 = Miscellaneous Field Crops

[tobacco, popcorn, pyrethrum, sesame, pine nuts, grasses for seed and non-forage use]

600 = Oil Crops

[castor bean, field corn, cotton, flax, mint/ peppermint/ spearmint, peanuts, safflower, sesame, soybeans, sunflower, tung, wormseed, avocado, coconut, olive, rape, jojoba, palm]

601 = Application to seeds (seed treatment)

650 = Crops that cross categories 90-600

700 = Humans

701 = Skin and/or hair

702 = Clothing

703 = Skin and/or hair and clothing

800 = Bait for rodent, bird or predator

850 = Other

- mixed crop and non-crop areas

- mammal feeding and nesting areas (if mammals are the target pest

- wide area treatments (e.g. Aerial application for control of mosquitoes, medfly, gypsy moth)

- industrial or food processing equipment

- boats and docks antifouling treatments

- disinfection of medical equipment, toilets, and materials in beauty and barber shops, morgues, mortuaries and funeral homes

- other special target sites not otherwise specified

998 = N/A - application not involved
999 = unknown

APPENDIX C

Table C- 1

Solvents and synergists to be ignored when determining Product Chemical Class if the product is an Insecticide and other active ingredients (PC Codes) are present in the formulation.

PC_CODE	PC_NAME
006501	CAS Reg. No. 68477-31-6 (Distillates (petroleum, catalytic reformer fractionator residue, low-boiling)
006601	Petroleum derived aromatic hydrocarbons
006602	Heavy aromatic naphtha
047501	Isopropyl alcohol
053801	Methyl alcohol
057001	MGK 264
063501	Coal oil
063502	Paraffin oil
063503	Aliphatic petroleum hydrocarbons
063504	Stoddard solvent
063505	Petroleum fuel
063506	Mineral spirits (odorless)
063510	White mineral oil (from 063502)
063511	Fuel oil, no. 1
063512	Fuel oil #4
063513	Fuel oil #6
063514	Diesel fuel #2-D
067501	Piperonyl butoxide
080601	Toluene
086802	Xylene
086803	Xylene range aromatic solvent
128935	Light aromatic solvent naphtha (petroleum) (CAS Reg. No. 64742-95-6)
213400	Alkyl* amine *(100% C18-C22), tert-

APPENDIX D

Table D-1 Formulation Coding Crosswalk

STANDARD VARIABLE AND CODING Formulation (FORM)*	EPA Pesticide Formulation Type Codes **
01 = Dust/powder (not pressurized)	03 Dust
02 = Granular/Flake	04 Granular
03 = Pellet/Tablet/Cake/Briquette	05 Pelleted/Tableted
04 = Wettable Powder/dust	06 Wettable Powder 07 Wettable Powder/Dust
05 = Impregnated material (ant/plant stakes, animal collars, water filters)	10 Impregnated Materials 25 Solid agar
06 = Other dry formulation	08 Crystalline 11 Water Dispersible Granules 20 Pressurized Dust
07 = Microencapsulated	09 Microencapsulated
08 = Emulsifiable concentrate	12 Emulsifiable Concentrate 13 Invert-Emulsifiable Concentrate
09 = Soluble concentrate	15 Soluble Concentrate
10 = Flowable concentrate	14 Flowable Concentrate
11 = Pressurized liquid/spray/fogger	19 Pressurized Liquid
12 = Ready-to-Use Liquid/Solution	16 Ready-to-Use Solution
13 = Other liquid formulation	17 Oils (no added pesticide) 21 Water soluble packaging
14 = Pressurized Gas/Fumigant	18 Pressurized Gas
16 = Other	01 Technical Chemical 02 Formulation Intermediate
99 = Unknown	90 Formulation Unidentified (EPA) 99 Formulation Unknown (SPIDER)

* These NIOSH codes and names are found in the SPIDER Lookup Table NIOSH *Pesticide Form Types*
**These EPA codes and names are found in the SPIDER Lookup Table *EPA Pesticide Form Types (FORM.DBF)*. Note that the code "15 = Paint and liquid coatings" previously in SPIDER and the Standard Variables has been removed since EPA, although interested in this category, does not capture this information in any of their existing data systems.