Chapter 3: Estimate of Methamphetamine Availability in the United States

Methamphetamine Availability Methodology and Resulting Estimate

The purpose of this document is to provide an estimate of methamphetamine available in the United States. The utility of such an estimate will allow policy and decision makers to assess the threat methamphetamine poses to the public, develop strategies to disrupt the marketplace centered around methamphetamine, and determine where and how resources could most effectively be deployed to accomplish this mission. The estimate is based on a methodology derived from data and research products currently available to the federal community.

The methodology used to estimate methamphetamine availability is described herein. Its strengths and weaknesses are described in detail, with recommendations to improve upon the weaknesses in order to refine future iterations of the availability estimate. Hence, some of the data currently available for use in this methodology could withstand scrutiny in an evaluative effort, whereas other data sets could not. This report should be considered a ***work in progress***.

Methamphetamine Availability Estimate

Employing the Combined Dominant Source Methodology (CDSM), which is described in detail later in this document, the estimated amount of uncut methamphetamine[31] available in the United States is between 106.5 – 144.1 Metric Tons[32] (CY 2001).

Combined Dominant Source Methodology

A study of the existing body of data relevant to methamphetamine availability indicated that some basis exists for developing a methodology to estimate the amount of imported pseudoephedrine(PSE)/ephedrine – to both the United States and Canada[33] – that can be potentially diverted, at the pre-wholesale[34] level, for methamphetamine production. Additionally, there is some basis for developing a methodology for estimating the amount of Mexico-produced methamphetamine available in the United States. These two sources: 1) diversion of imported PSE/ephedrine at the pre-wholesale level; and, 2) Mexico-produced methamphetamine, are currently considered to be the two dominant sources of methamphetamine in the United States. The CDSM is a two-part methodology that estimates the amount of uncut methamphetamine available from these sources. This is summarized in the following figures. Other smaller sources of methamphetamine will be discussed at the end of this report.

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[31] Uncut methamphetamine is defined in this report as methamphetamine at 92% purtiy.

[32] Canada Customs has officially reported that, in CY2001, Canada imported 432.4 metric tons (MT) of pseudoephedrine/ephedrine. Based upon the import dollar value and quantity information provided by Canada, the actual amount imported in CY2001 may fall between approximately 124 and 178 MT. The estimate above is based on these latter values. Using the officially reported Canadian Customs value (432.4 MT), the availability estimate of uncut methamphetamine in the United States would increase to approximately 297 MT.

[33] PSE/ephedrine must be imported into North America because there is no domestic production in Canada, Mexico, or the United States.

[34] Pre-wholesale is defined here as the initial distribution of PSE/ephedrine following its legal importation and excludes data regarding all subsequent wholesale and retail sales/diversion.

Figure 3-1 - CDSM - Part One

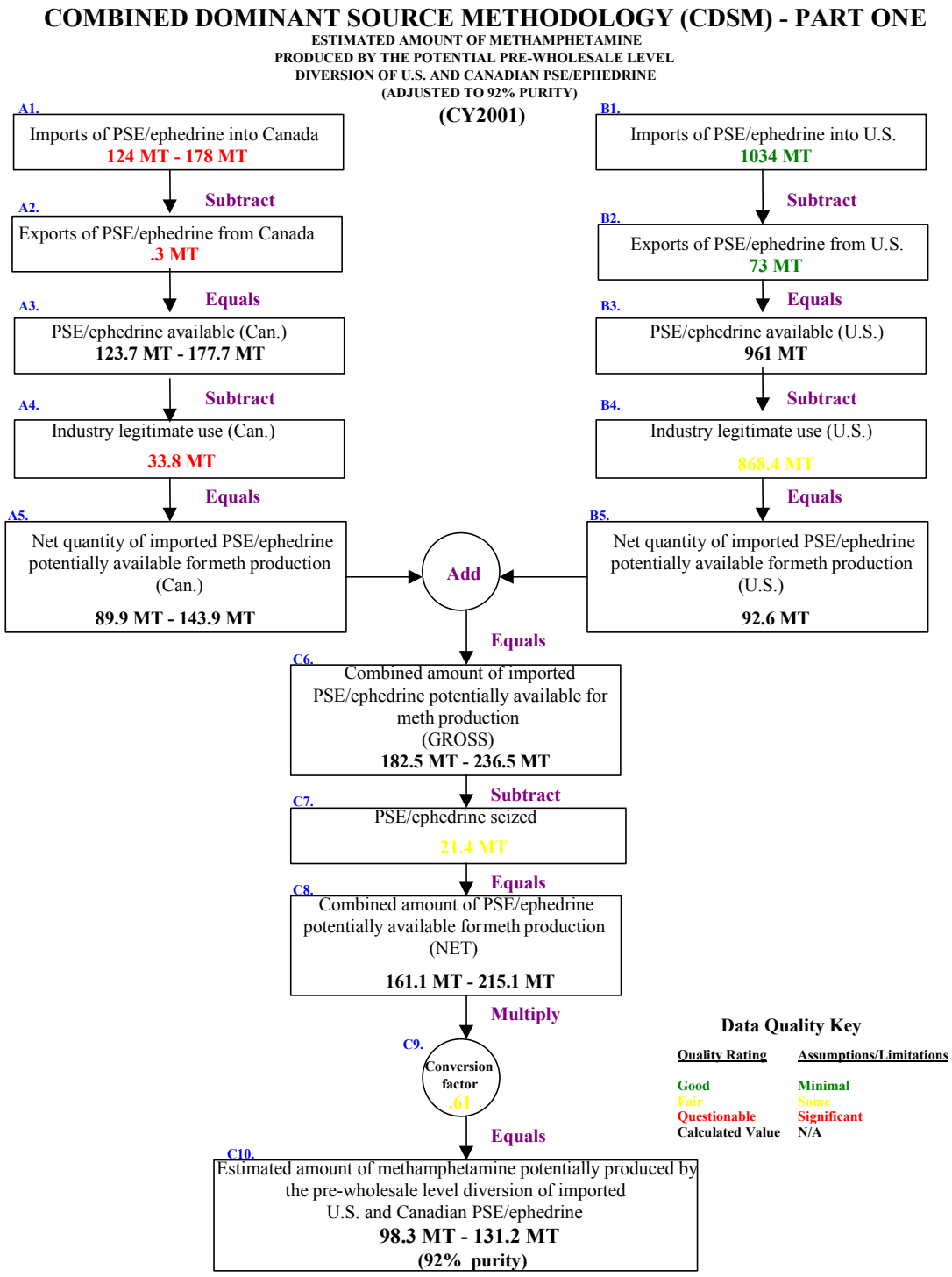


Figure 3-2 - CDSM - Part Two

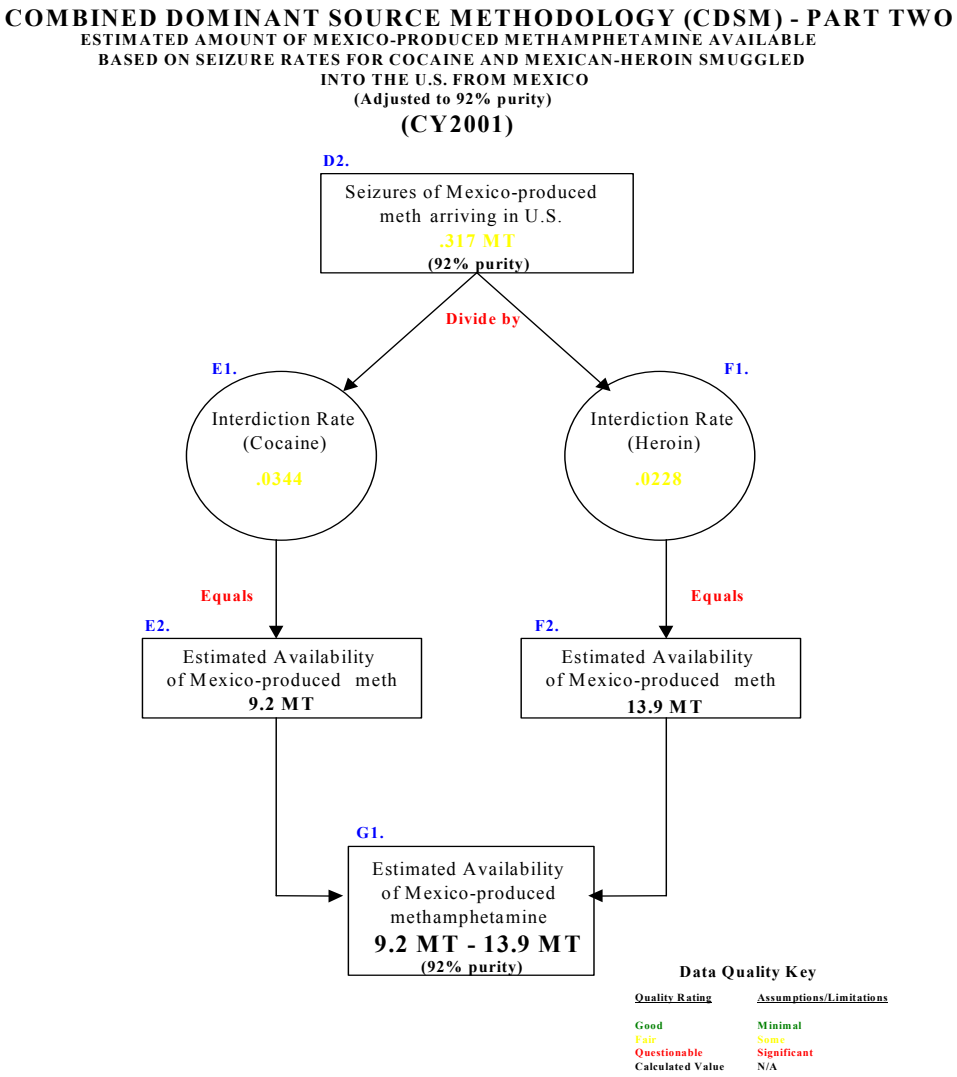
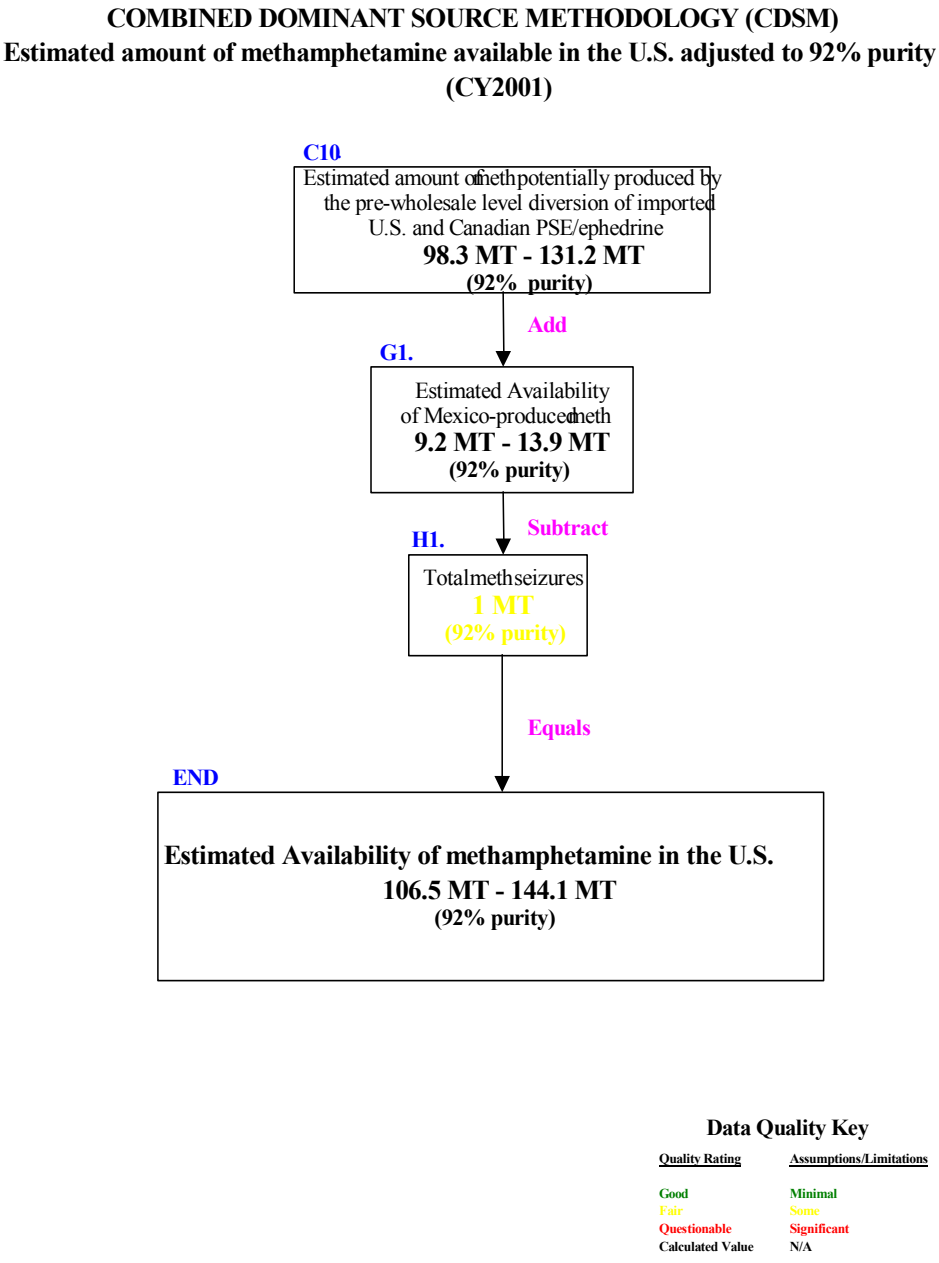


Figure 3-3 - Estimated Amount of Methamphetamine available in the U.S. adjusted to 92% purity (CY2001)



Background

The present methamphetamine market in the United States is dominated by Mexican drug trafficking organizations, who either smuggle large quantities of methamphetamine into the United States across the Southwest border, or produce bulk amounts of the drug at "super labs"[35] located in the western United States, primarily in California. The "super labs" are capable of mass production of methamphetamine due to the unlimited flow of pseudoephedrine[36], the primary and most sought after methamphetamine precursor. Estimating the availability of methamphetamine in the United States encounters several problems: 1) methamphetamine can virtually be manufactured any place in the world, leaving no chemical signature indicating a geographic region as to where the drug was manufactured; 2) there are literally thousands of Small Toxic Labs (STLs)[37] operating throughout the United States; and, 3) although insignificant, methamphetamine is imported from countries other than Mexico (e.g., "yaba"[38] smuggled from Southeast Asia).

CDSM – Part One

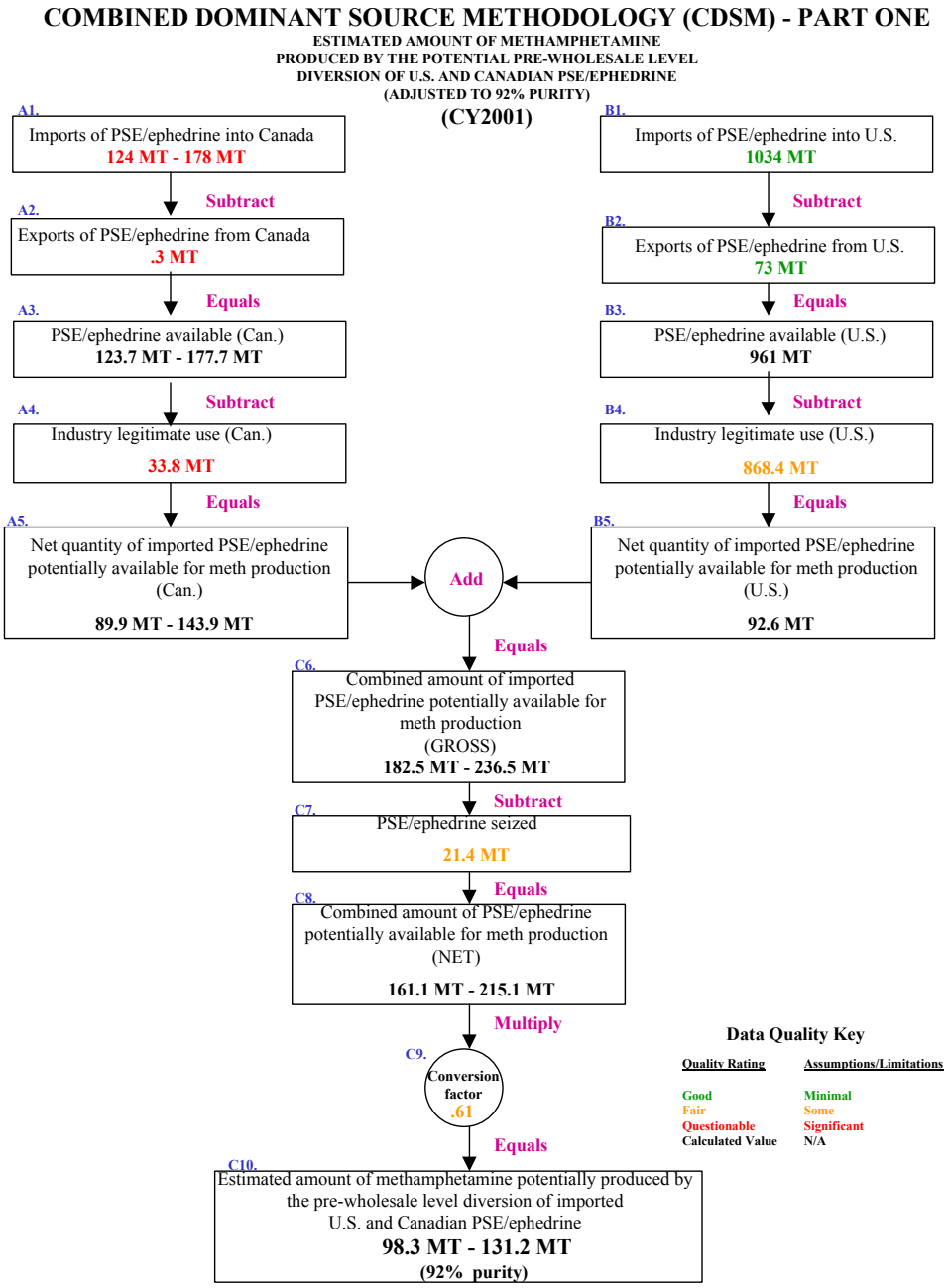
Objective:

To produce an estimate of the amount of imported PSE/ephedrine – to both the United States and Canada – that can be potentiall***y*** diverted, at the pre-wholesale level, for methamphetamine production.

Method:

[35] "Super labs" are clandestine laboratories with the capability of producing 10 pounds or more of methamphetamine during a single production cycle.
[36] Canada is the predominant source of PSE in domestic "super labs".
[37] Small Toxic Labs (STLs) are clandestine labs that typically produce a few ounces or less and production is primarily for personal or localized use.
[38] "Yaba" is a commonly used term for Southeast Asian methamphetamine tablets.

Figure 3-4 - CDSM - Part One



See Section 3-A (Terms) for data sources and caveats. All values shown below are for CY2001 and are reported in metric tons (MT).

Step 1: The net range of imported PSE and ephedrine available in Canada (A3) is calculated by subtracting Canadian PSE/ephedrine exports (A2) from the range of Canadian PSE/ephedrine imports (A1). [A3 = A1 –A2]

Low Value: 123.7 = 124 - .3 **High Value: 177.7 = 178 - .3**

Step 2: The net range of Canadian imported PSE/ephedrine potentially available for methamphetamine production (A5) is calculated by subtracting industry legitimate[39] use of PSE/ephedrine (A4) from the net range of imported PSE and ephedrine available in Canada (A3). [A5 = A3 – A4]
Low Value: 89.9 = 123.7 – 33.8 High Value: 143.9 = 177.7 – 33.8

Step 3: The net quantity of imported PSE and ephedrine available in the United States (B3) is calculated by subtracting U.S. PSE/ephedrine exports (B2) from U.S. PSE/ephedrine imports (B1). [B3 = B1 – B2]
961 = 1034 –73

Step 4: The net quantity of U.S. imported PSE/ephedrine potentially available for methamphetamine production (B5) is calculated by subtracting industry legitimate use of PSE/ephedrine (B4) from the net quantity of imported PSE and ephedrine available in the United States (B3). [B5 = B3 – B4]
92.6 = 961 – 868.4

Step 5: The combined gross range of imported U.S. and Canadian PSE/ephedrine potentially available for methamphetamine production (C6) is calculated by adding the net quantity of U.S. imported PSE/ephedrine potentially available for methamphetamine production (B5) to the net range of Canadian imported PSE/ephedrine potentially available for methamphetamine production (A5). [C6 = A5 + B5]
Low Value: 182.5 = 92.6 + 89.9 High Value: 236.5 = 92.6 + 143.9

Step 6: The combined net range of imported U.S. and Canadian PSE/ephedrine potentially available for methamphetamine production (C8) is calculated by subtracting the amount of PSE/ephedrine seized (C7) from the combined gross range of imported U.S. and Canadian PSE/ephedrine potentially available for methamphetamine production (C6). [C8 = C6 – C7]
Low Value: 161.1 = 182.5 – 21.4 High Value: 215.1 = 236.5 – 21.4

Step 7: The estimated amount of uncut methamphetamine that can be potentially produced by the pre-wholesale level diversion of imported U.S. and Canadian PSE/ephedrine (C10) is calculated by multiplying the combined net amount of imported U.S. and Canadian PSE/ephedrine potentially available for methamphetamine production (C8) by an acceptable range of PSE/ephedrine-to-methamphetamine conversion factors
(61%[40])(C9). [C10 = C8 x C9]
Low Value: 98.3 = 161.1 x .61 High Value: 131.2 = 215.1 x .61

***Method Assumptions*:**

1. Assumption - The estimated amount of methamphetamine that can be produced by the ***potential pre-wholesale level*** diversion of imported United States and Canadian PSE/ephedrine, minus seizures, is available in the United States. Qualification – Though the United States is, by far, the dominant methamphetamine market in the region, methamphetamine produced from this source is also consumed in Canada and Mexico. Effect – The application of this assumption has the effect of slightly inflating the estimate to reflect a worst-case scenario.

[39] Industry legitimate use is defined here as that quantity of PSE/ephedrine that is utilized by legitimate industry for the purpose of making products that contain PSE/ephedrine.

[40] DEA Southwest Laboratory

2. Assumption – The entire amount of imported PSE/ephedrine that can be potentially diverted for methamphetamine production **is** diverted for methamphetamine production. Qualification – The entire amount of imported PSE/ephedrine that can be potentially diverted for methamphetamine production **is not** diverted for methamphetamine production. It is not possible to determine the amount that is utilized for purposes other than methamphetamine production. Effect - The application of this assumption has the effect of inflating the final estimate to reflect a worst case scenario.

3. Assumption – The entire amount of imported PSE/ephedrine that can be potentially diverted for methamphetamine production during any given calendar year **is** used for production in that year. Therefore, it is assumed that none of the diverted PSE/ephedrine is stockpiled for use in future years. Effect - The application of this assumption has the effect of inflating the final estimate to reflect a worst case scenario.

4. Assumption – The entire amount of imported PSE/ephedrine that can be potentially diverted for methamphetamine production is being diverted to domestic "super labs". Qualification – Potentially, a small amount of this PSE/ephedrine may be diverted to less efficient STLs. Effect – As the methodology is using a PSE/ephedrine to methamphetamine conversion factor applicable to more efficient "super labs", the final estimate may be very slightly inflated by this assumption.

***Method Limitations*:**

1. The CDSM-Part One does not account for PSE/ephedrine that is diverted at wholesale, or retail level for methamphetamine production. PSE/ephedrine that is acquired from retail[41] stores, as well as PSE/ephedrine that is acquired from wholesale distributors, fits into this category. Currently, no viable basis exists for making such an estimate.

2. The CDSM-Part One does not account for PSE/ephedrine that is smuggled or illegally imported into either the United States or Canada from sources excluding these countries. Currently, no viable basis exists for making such an estimate.

CDSM – Part Two

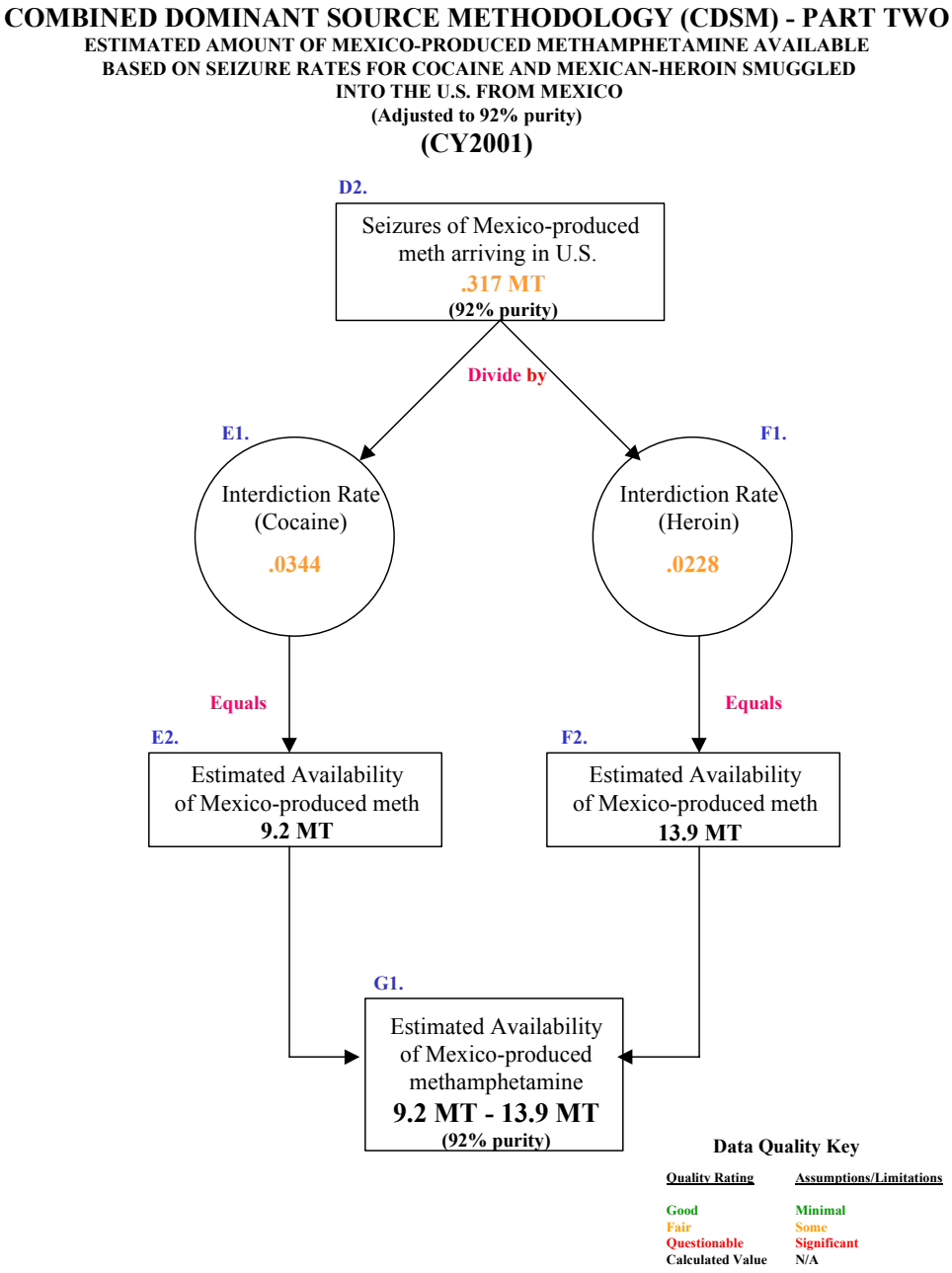
***Objective*:**

To produce an estimate of Mexico-produced methamphetamine available in the United States based on seizure rates for cocaine and Mexican-heroin smuggled into the United States from Mexico.

Method:

[41] Most PSE purchased at the retail level is used in STLs which are not considered a dominant source in the CDSM.

Figure 3-5 - CDSM - Part Two



This model assumes that the percentage of Mexico-produced methamphetamine seized arriving in the United States from the actual Mexico-produced methamphetamine flow is similar to the rate at which cocaine and Mexican heroin are seized arriving from Mexico (this includes cocaine that arrives from

Central America) into the United States.[42] Information from a study conducted by the DEA Special Testing and Research Laboratory (Trends in Methamphetamine Manufacture, June 2000) indicated that Mexico-produced methamphetamine seized at Southwest border (SWB) ports of entry in 1998 averaged 37% purity. In the absence of current information on purity levels of Mexico-produced methamphetamine seized arriving in the United States, 37% purity is considered export quality in this study. For instance, in CY 2001 the 783 kilograms of Mexico-produced methamphetamine at 37% purity were equivalent to 317 kilograms of 92% pure methamphetamine. This model assumes that the 317 kilograms of methamphetamine seized is an estimated percentage of the actual flow of methamphetamine arriving into the United States from Mexico. The following chart shows availability estimates for Mexico-produced methamphetamine for 1998 to 2001 based on seizure rates of cocaine and Mexican-heroin arriving to the United States from Mexico and Central America (amounts in kilograms).

	1998	**1999**	**2000**	**2001**
D1. Seizures of Mexico-produced methamphetamine at export quality arriving in the United States.[43]	289	555	507	783
D2. Seizures of Mexico-produced methamphetamine arriving in the United States adjusted to 92% purity.	116	223	204	317
E1. Interdiction rate of cocaine arriving in U.S. from Mexico/Central American Corridor (%)[44]	4.6	8.0	3.0	3.44
E2. Estimated availability of Mexico-produced methamphetamine based on interdiction rate for cocaine adjusted to 92% purity.[45]	2,521	2,766	6,710	9,215
F1. Interdiction rate of Mexican-heroin arriving in U.S.(%)[13]	1.3	.8	2.3	2.3
F2. Estimated availability of Mexico-produced methamphetamine, adjusted to 92% purity, based on interdiction rate of Mexican-heroin.[14]	8,923	28,961	8,947	13,903

During CY 2000 and CY 2001, the seizure rate for Mexican-heroin only differs by an average of less than 1% from that of cocaine arriving in the United States from Central America and Mexico. Assuming the same degree of operational focus and capability to detect cocaine, Mexican-heroin, and methamphetamine arriving from Mexico and Central America, the estimated availability of 92% pure Mexico-produced methamphetamine was between 9.2 and 13.9 metric tons in CY 2001 (G1).

***Method Assumptions*:**

1. Assumption - In the absence of a chemical signature program for methamphetamine that identifies a general geographic production location, the assumption must be made that methamphetamine arriving from Mexico is also produced in Mexico. This assumption has been strongly supported by information obtained from investigations targeting individuals and groups involved with smuggling methamphetamine from Mexico.

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[42] Assumptions and limitations involved with estimating cocaine and heroin production can be found in Appendix D.

[43] Information was taken from the EPIC Internal Database of seizures of Mexico-produced methamphetamine that occurred at U.S. ports of entry and at locations between ports of entry along the Southwest border. Seizure totals only include those seizures of methamphetamine known to have arrived from Mexico.

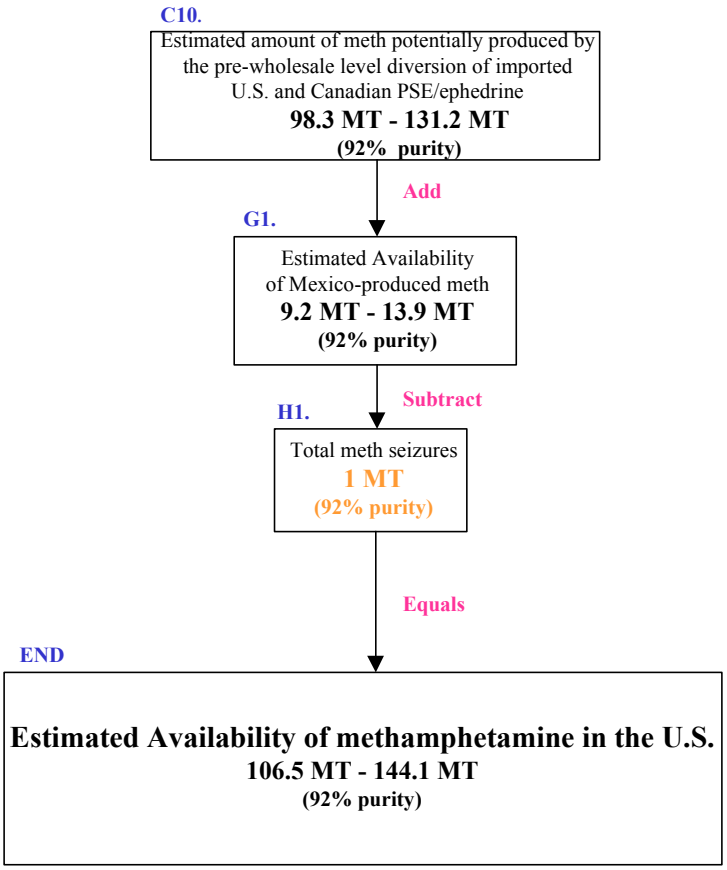
[44] The process used to derive interdiction rates is explained in Appendix D of this report.

[45] This value is calculated using the applicable interdiction rate rounded to four decimal places.

2. Assumption – The cocaine, Mexican-heroin, and methamphetamine smuggled into the United States from Mexico are frequently transported by Mexican poly-drug trafficking organizations that use similar routes and methods to smuggle each of these drugs into the United States. This similarity in smuggling routes and methods leads to the hypothesis that methamphetamine smuggled from Mexico is seized at a rate similar to the rate that cocaine and Mexican-heroin are seized arriving into the United States from Mexico.

Figure 3-6 - CDSM - Estimated Amount of Methamphetamine available to 92% purity

COMBINED DOMINANT SOURCE METHODOLOGY (CDSM)
Estimated amount of methamphetamine available in the U.S. adjusted to 92% purity
(CY2001)



Data Quality Key

Quality Rating	Assumptions/Limitations
Good	Minimal
Fair	Some
Questionable	Significant
Calculated Value	N/A

Per the CDSM- Part One, the estimated amount of 92% pure methamphetamine that can be produced by the potential pre-wholesale level diversion of imported U.S. and Canadian PSE/ephedrine (C10) in CY2001 is 98.3 – 131.2 MT

Per the CDSM – Part Two, the estimated amount of 92% pure Mexico-produced methamphetamine available in the United States in CY2001 based on the interdiction rates of cocaine and heroin (G1) is as follows:

9.2 MT (Based on cocaine interdiction rate)
13.9 MT (Based on heroin interdiction rate)

If the above totals are combined, the estimated amount of 92% pure methamphetamine available in the United States in CY2001 is 107.5 MT – 145.1 MT

The following represents CY2001 seizure totals of methamphetamine adjusted to 92% purity (H1)**(**in kilograms):

Mexico-produced methamphetamine: (Source: EPIC EID)	471.0	
"Super lab" produced methamphetamine: (Source: CLSS)		210.8
Unknown-source methamphetamine: (Source: EID, CLSS, FDSS)		321.0
TOTAL:		1,002.8

The estimated amount of 92% pure methamphetamine available in the U.S. in CY2001, accounting for the above seizure totals, is

CY2001: 106.5 – 144.1 MT

Combined Method Assumptions:

1. Assumption – In order to combine Parts One and Two, the CDSM assumes all PSE/ephedrine available for the production of methamphetamine is used in ***domestic*** "super labs". Qualification – This assumption excludes use of the available, diverted PSE/ephedrine in "super labs" ***outside of the United States.*** There is no basis for making such an estimate. Effect - The application of this assumption may have the effect of inflating the estimate.

2. Assumption - It is assumed that the unknown source methamphetamine seizure totals provided above do not include methamphetamine produced in STLs.

Combined Method Limitation:

1. Information regarding the origin of methamphetamine which is available to be

consumed in the United States is limited to seizure events involving methamphetamine at clandestine labs in the United States and entering the United States at ports of entry (POE's) and between POE's. The EPIC also collects seizure information on methamphetamine produced in Mexico that is seized within approximately 150 miles from the border when the origin of the methamphetamine was known to have been Mexico. Information on the origin of methamphetamine seized away from clandestine labs and outside of 150 miles of the border is not systematically being collected. Seizures other than these inside the United States do not reflect whether the source is Mexico, domestic, or some other area.

Non-Dominant Sources

***Small Toxic Labs*:**

There is no known method by which an accurate production estimate of STL's can be derived. This conclusion is based on the fact that data on the quantity of retail pseudoephedrine that is stolen or "smurfed"[46] from legitimate retailers for use in the manufacture of methamphetamine is not available. Moreover, production capabilities of seized STLs are extremely inaccurate because of the crude nature of the labs. Unlike "super labs," STLs use makeshift equipment and household products to manufacture the drug. These operations tend to be short-term endeavors and are commonly moved or discarded at the end of a production cycle. In short, there is no way to make an accurate production estimate of STLs based upon equipment and chemicals.

The CDSM assumes that the majority of PSE/ephedrine diverted at the pre-wholesale level is destined for methamphetamine production at "super labs". However, it is possible that a small amount of this PSE/ephedrine may be diverted to STLs. Therefore, the CDSM may account for some methamphetamine produced in STLs.

Southeast Asian Methamphetamine

Southeast Asian methamphetamine tablets, also known as "yaba," appeared in parts of California as early as 1997. Seizures of "yaba" increased rapidly from 1,232 tablets in 1997 to 301,697 in 2000. Almost all seizures were sent via parcel, with the majority destined for the native Hmong community in the Sacramento area. Although the rapid increase in seizures signaled that "yaba" may become an increased threat to the United States, seizures in 2001 decreased to 32,280 pills. It is possible that traffickers have resorted to methods other than sending "yaba" via parcel or that users have simply resorted to using locally-produced methamphetamine to avoid law enforcement detection. Additionally, the majority of "yaba" remains in Asia because the market is far from saturated, and in some regions, demand is just beginning to develop.

There is not sufficient evidence that Southeast Asian tablets significantly contributed to the overall availability of methamphetamine; therefore, no estimates of the availability of "yaba" are included in this model.

"Ice" Methamphetamine:

[46] Pseudoephedrine that is purchased at the maximum quantity threshold by several different individuals or from several different retailers

Although some "ice"[47] methamphetamine arrives in Guam and Hawaii from China and the Philippines, the majority comes from Mexican drug trafficking organizations operating in California, the Southwest border, and Mexico. Additionally, the majority of "ice" produced in China remains in Asia because the market is far from saturated, and in some regions, demand is just beginning to develop. Therefore, "ice" methamphetamine from China and the Philippines was not included as a dominant source in this model. Domestic and Mexican-produced "ice" is accounted for in the CDSM since the availability estimate is rendered for powder methamphetamine.

Chemical Diversion

PSE/ephedrine were chosen as the best available measure for the CDSM for the following reasons:

1) PSE/ephedrine are the predominant precursor chemicals used in North American methamphetamine production.

2) PSE/ephedrine must be imported into North America because there is no domestic production in Canada, Mexico, or the United States.

3) Canada is currently the predominant source of PSE/ephedrine used in United States "super labs".

4) Although imperfect, PSE/ephedrine import/export data is available from certain countries.

Seizure information pertaining to chemicals used in the manufacture of methamphetamine, such as iodine, red phosphorus, and freon, were available from United States Customs; however, they were not used for the following reasons:

1) It is impossible to ascertain if the chemicals were being smuggled to produce methamphetamine.

2) It is not possible to ascertain the location of the labs to which the chemicals were destined; therefore, it is also impossible to know if separate chemicals were destined for the same lab to be used in the production of the same quantity of methamphetamine (i.e., if the seizures were mutually exclusive from one another).

3) Conversion rates for such chemicals are not as reliable as those used for pseudoephedrine/ephedrine conversion to methamphetamine.

4) Chemical seizure data is not uniformly collected. (See Table 2-C)

5) There is significant domestic production of such chemicals.

Epilogue - The Future of Methamphetamine

Mexican national "super labs" operating in Mexico and in the Southwest and western U.S. produce the majority of the methamphetamine distributed in the United States. These "super labs" are capable of producing large quantities of methamphetamine due, in part, to the plentiful supply of pseudoephedrine, the primary and most sought after methamphetamine precursor. In recent years, the majority of the pseudoephedrine utilized in "super labs" was diverted from rogue DEA registered

[47] The manufacture of "ice" involves an additional process to remove impurities and change powder methamphetamine to solid form.

manufacturers and distributors within the United States. Operation Mountain Express I and II identified, prosecuted, and closed the businesses of many of these rogue pseudoephedrine distributors, thereby interrupting the flow of pseudoephedrine to the "super labs". This abatement was short-lived, however, as pseudoephedrine trafficking organizations found a new supply for pseudoephedrine – Canada.

Trafficking groups discovered pseudoephedrine is both legal and plentiful in Canada. This discovery led to the smuggling of unprecedented quantities of pseudoephedrine from Canada to the United States saturating the wholesale/retail clandestine laboratory market. Chemical traffickers of Middle Eastern descent currently control the majority of the pseudoephedrine that is diverted to "super labs". This trend has continued, despite the success of the recently concluded Mountain Express III which targeted organizations that supplied ton quantities of Canadian pseudoephedrine to large clandestine methamphetamine operations on the West Coast.

A decrease or total cessation of the smuggling of Canadian pseudoephedrine into the United States would have a significant impact on domestic clandestine methamphetamine production since "super lab" operators rely heavily on the supply of Canadian pseudoephedrine. Although lab operators would eventually find other sources for pseudoephedrine or substitute chemicals for pseudoephedrine, this transition would be slow. Therefore, in a short period of time the market demand for pseudoephedrine would far exceed the supply. Mexican national laboratory operators in the United States may then increase methamphetamine production in Mexico where chemicals could be more easily obtained. The traffickers would then be faced with the problem of smuggling increased volumes of the drug into the United States through the Southwest border.

Although disrupting the flow of Canadian pseudoephedrine would have a significant impact on large labs, it most likely would not decrease the total number of clandestine laboratory seizures in the United States. Rather, clandestine laboratories would probably increase to meet the market demand. Small Toxic Labs (STLs) currently comprise a great majority of the domestic clandestine methamphetamine laboratory seizures, primarily due to the unrestricted availability of retail sale "blister pack" pseudoephedrine[48].

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[48] Blister pack pseudoephedrine tablets are exempt from retail sale recordkeeping thresholds due to a "safe harbor" provision initially established in the "Methamphetamine Control Act of 1996" (MCA). The MCA established a 24 gram recordkeeping threshold for retail sales of **non-exempt** pseudoephedrine products. The MCA safe harbor provision exempted retail sale blister packs from the 24 gram threshold. Pseudoephedrine blister pack products are regularly found at small toxic lab (STL) sites and are becoming increasingly popular among STL operators.

Under the MCA, the sale of non-exempt pseudoephedrine products above the threshold quantity was considered a regulated transaction. Under 21 USC 830(a)(2), the regulated person must maintain a record of each regulated transaction for a period of two (2) years after the transaction. This record must include the date, identity of each party to the transaction, a statement of the quantity and the form of the listed chemical.

The "Methamphetamine Anti-Proliferation Act of 2000"(MAPA) reduced the retail sale recordkeeping threshold quantity of non-exempt pseudoephedrine products to 9 grams and limited package sizes to not more than three (3) grams. The safe harbor exemption remained on retail sale blister packs.

The safe harbor provision is, in essence, allowing retail outlets to sell blister pack pseudoephedrine products without triggering a threshold recordkeeping requirement. For example, if the safe harbor provision is removed and a 9 gram threshold is established, the STL operator can still purchase approximately fifteen (15) blister packs of 24 count pseudoephedrine 30 mg tablets without triggering the recordkeeping requirement (as compared to an unlimited amount under the safe harbor provision). Ordinarily, the STL operator would utilize several individuals to purchase smaller quantities of blister packs on his behalf to avoid suspicion of criminal activity (a technique commonly referred to as "smurfing").

Since there are no effective regulatory restrictions to prevent the purchase of large quantities of blister pack pseudoephedrine, STLs will continue to proliferate throughout the United States to meet consumer demand. The raw materials utilized by STL operators are readily available as household products in retail stores. Restricting the supply of retail sale pseudoephedrine is one way to help prevent STL operators from manufacturing methamphetamine.

Regulatory restrictions of all retail sale pseudoephedrine products could cause a dramatic decrease in the number of STLs and the amount of STL-produced methamphetamine. However, this situation could also provide an opportunity for new trafficking groups to enter the methamphetamine market. Several countries in the Far East have traditionally produced large quantities of methamphetamine for user populations in their respective countries and for export to neighboring countries. Asian trafficking groups with manufacturing operations located in the Far East could establish a foothold in the United States market and potentially supply large quantities of methamphetamine.

Recommendations

1. ***Mandatory, comprehensive, nationwide drug seizure reporting system.***

Situation: Currently there is no mandatory, comprehensive, nationwide drug seizure reporting system. Therefore, some state and local seizures are not accounted for in seizure totals. As such, seizure statistics do not necessarily provide an accurate overview of methamphetamine trafficking or seizure trends.

Recommendation: Initiate a multi-agency "database requirements working group" determine the objectives, feasibility, requirements and cost of such a system. This working group should be composed of database experts, statisticians, and quantitative researchers.

2. ***Reporting thresholds.***

Situation: Currently, only seizures by INS, DEA, FBI, USCS, or USCG, of 250 grams or more of methamphetamine, which occur in the United States or on the high-seas, are logged into the Federal Drug Identification Number (FDIN) System.

Recommendations:

A. Lower the reporting threshold. This should be an objective of the multi-agency "database requirements working group".

B. Expand FDIN reporting to include all federal, state, and local law enforcement entities making methamphetamine or methamphetamine-related chemical/precursor seizures in the United States. Change the name of the system to "***National*** Drug Identification Number (NDIN) System."

3. ***Canadian pseudoephedrine/ephedrine import/export values and industry legitimate use.***

Situation: Currently, there is no consolidated reporting system in Canada for capturing pseudoephedrine/ephedrine imports, exports, and industry legitimate use. The Canadians are tentatively scheduled to institute Precursor Control Regulations in January 2003. The institution of these regulations will require licensing and permit requirements for the import/export of pseudoephedrine/ephedrine.

Recommendation: Officially provide the Government of Canada a list of reporting requirements that would improve the reliability of methamphetamine production estimates (i.e., the quantity of PSE/ephedrine that is imported to Canada, exported from Canada, and legitimately consumed/processed at the industrial level).

4. ***Legitimate use estimates for PSE/ephedrine***

Situation: Currently, "industry legitimate use" is defined as the quantity of PSE/ephedrine that is utilized by legitimate industry for the purpose of making products that contain PSE/ephedrine. Actual legitimate use is likely to be less than industry legitimate use since an unknown amount is diverted at the wholesale and retail level in order to produce methamphetamine.

Recommendation: Initiate a nationwide data collection effort to estimate "legitimate consumer use" of PSE/ephedrine. This should be accomplished through the use of statisticians and quantitative researchers. This information may provide the basis for estimating production from STLs.

Appendix 3-A – Terms for CDSM Part One

All terms are for CY2001 and are reported in metric tons.

A1 – Canadian PSE/ephedrine imports: 124 – 178*
Source: Range generated by calculating the average cost per kilogram of Canadian PSE/ephedrine during different time intervals. Kilogram and dollar values were provided by Canada Customs. (See Section 3-B – Calculations)
*Caveat: Canada Customs officially reported that, in CY2001, Canada imported 432.4 metric tons of PSE/ephedrine. Based upon the import dollar value and quantity information provided by Canada, DEA believes that the actual amount imported in CY2001 may fall between approximately 124 and 178 MT.

A2 – Canadian PSE/ephedrine exports: .3*
Source: Canadian Customs
*Caveat: The official import value derived from import dollar-to-weight ratio. (See Section 3-B – Calculations)

A3 – Net quantity of imported PSE/ephedrine available in Canada: 123.7 – 177.7
Source: Calculated term [A1 – A2]

A4 – Canadian industry legitimate use of PSE/ephedrine: 33.8
Caveat: No information available from Canada. Value is derived using the average amount of PSE/ephedrine imported into Canada during the 1996-1997 time period. In 1998, PSE/ephedrine imports increased dramatically from a relative plateau of approximately 30 MT to over 100 MT. This increase occurred at roughly the same time that Canada was identified as a major source of PSE for methamphetamine production. It is assumed that the average import values during 1996-1997 are a viable approximation of Canadian industry legitimate use. (See Section 3-B – Calculations)

A5 – Net quantity of Canadian imported PSE/ephedrine potentially available for methamphetamine production: 89.9 – 143.9
Source: Calculated term [A3 – A4]

B1 – U.S. PSE/ephedrine imports: 1034
Source: Foreign Trade Division, U.S Dept. of Commerce
Description: Information based on import declarations.

B2 – U.S. PSE/ephedrine exports: 73
Source: Foreign Trade Division, U.S. Dept. of Commerce
Description: Information based on export declarations.

B3 – Net quantity of imported PSE/ephedrine available in the U.S.: 961
Source: Calculated term [B1 – B2]

B4 - U.S. industry legitimate use of PSE/ephedrine: 868.4*
Sources: CHPA (Consumer Health Care Products Association), Novus, Bayer and Whitehall-Robins.
Description: Non-governmental sources. CHPA claims to account for 90% of industry consumption of PSE. Novus, Bayer and Whitehall-Robins account for the overwhelming majority of ephedrine imported for legitimate usage.

*Caveat: CHPA Value is adjusted to reflect 100% of wholesale market. CY2000 Primatene ephedrine use estimates were also used for CY2001. (See Section 3-B - Calculations)

B5 – Net quantity of U.S. imported PSE/ephedrine potentially available for methamphetamine production: 92.6

Source: Calculated term [B3 – B4]

C6 – Combined gross amount of imported U.S. and Canadian PSE/ephedrine potentially available for methamphetamine production: 182.5 – 236.5

Source: Calculated term [A5 + B5]

C7 – Amount of PSE/ephedrine seized: 21.4

Source: El Paso Intelligence Center (EPIC) - EPIC Internal Database (EID)

Limitations: **(**See Section 3-C – Data Source Limitations).

C8 – Combined net amount of imported U.S. and Canadian PSE/ephedrine potentially available for methamphetamine production: 161.1 – 215.1

Source: Calculated term [C6 – C7]

C9 – PSE/ephedrine-to-methamphetamine conversion factor: .61

Source: DEA Southwest Laboratory* (See Section 3-B – Calculations)

C10 – Estimated amount of 92% pure methamphetamine that can be produced by the potential wholesale level diversion of imported U.S. and Canadian PSE/ephedrine: 98.3 – 131.2

Source: Calculated term [C8 x C9]

Appendix 3-B – Calculations

(Calculations demonstrate 2001 values)

Term A1 – Canadian PSE/ephedrine imports

Low Value: This value is calculated by dividing the CY2001 import value of PSE/ephedrine by the average cost per kilogram as reported by Canada Customs during the period from 1996-1997. This time period is being used as it reflects values prior to the significant increase in PSE/ephedrine imports that occurred in 1998.

CY2001 Canadian PSE/ephedrine import value in Canadian dollars: 13,145,671
1996-1997 average PSE/ephedrine cost/kilogram in Canadian dollars: 106

CY2001 Canadian PSE/ephedrine imports = 13,145,671 / 106 = 124 MT

High Value: This value is calculated by dividing the CY2001 import value of PSE/ephedrine by the average cost per kilogram as reported by Canada Customs during the period from 1996-1999. This time period is being used as it reflects values prior to the dramatic increase in PSE/ephedrine imports that occurred in 2001.

CY2001 Canadian PSE/ephedrine import value in Canadian dollars: 13,145,671
1996-2001 average PSE/ephedrine cost/kilogram in Canadian dollars: 73.9

CY2001 Canadian PSE/ephedrine imports = 13,145,671 / 73.9 = 178 MT

Term A2 – Canadian PSE/ephedrine exports

The CY2001 Canadian PSE/ephedrine export value is only rendered in dollars, whereas the CY2001 Canadian PSE/ephedrine import value is rendered in both dollars and weight. The CDSM converts the export dollar value to metric tons using the import dollar to weight ratio.

CY2001 Canadian PSE/ephedrine export value in dollars: 7,916
CY2001 Canadian PSE/ephedrine import value in dollars: 13,145,671
CY2001 Canadian PSE/ephedrine import volume in kilograms: 432,430.5

Import weight to dollar ratio: 432,430.5/13,145,671 = .033 dollars/kilograms.

CY2001 Canadian PSE/ephedrine export volume in kilograms: 7,916 X .033 = 260.4 kgs = .3 MT

Term A4 – Canadian industry legitimate use of PSE/ephedrine.

No information concerning this value is available from Canada. Value is derived using the average amount of PSE/ephedrine imported into Canada during the 1996-1997 time period. In 1998, PSE/ephedrine imports increased dramatically from a relative plateau of approximately 30 MT to over 100 MT. This increase occurred at roughly the same time that Canada was identified as a major source of PSE for methamphetamine production. It is assumed that the average import values during 1996-1997 are a viable approximation of Canadian industry legitimate use.

CY1996 Canadian PSE/ephedrine imports: 32,914 kg
CY1997 Canadian PSE/ephedrine imports: 34,718 kg

Average of CY1996 and CY1997 Canadian PSE/ephedrine imports: 33,816 kg

Term B4 – U.S. industry legitimate use of PSE/ephedrine

The CDSM value is calculated by adding CHPA (adjusted to reflect 100% of U.S. PSE industry legitimate use), Novus, Bayer (Bronkaid), and Whitehall-Robins (Primatene) industry legitimate use values for PSE and ephedrine. It is believed that these combined sources account for the total U.S. industry legitimate use for PSE and ephedrine.

A**.** *Adjustment of CHPA to reflect 100% of U.S. PSE industry legitimate use*

CHPA reported U.S. PSE industry legitimate use: 511 MT (90% of market)

Determination of 100% PSE industry legitimate use market:
.9 (M) = 511; M = 511/.9; M = 568 MT

B**.** *Novus reported legitimate use of ephedrine* = 299 MT

C**.** *Conversion of processed tablets to ephedrine MT*

Bronkaid (Bayer): 27.4 million tablets X 25 milligrams(mg)/tabs = **.**645 MT

Primatene (Whitehall-Robins): 58 million tablets X 12.5 mg/tabs = **.**725 MT

Total: Bronkaid + Primatene = 1.37 MT

D. Total U.S. industry legitimate use of PSE/ephedrine:

100% of PSE industry legitimate use: 568 MT
Novus reported legitimate use of ephedrine: 299 MT
Primatene and Bronkaid total: 1.37 MT
Total: 868.4 MT

Term C7 - Amount of PSE/ephedrine seized

A. *Conversion of seized ephedrine dosage units (DU) to MT:*

1,242,542 DU x 25mg/DU = .03 MT

B**.** *Conversion of seized PSE dosage units (DU) to MT:*

157,211,668 DU x 60mg/DU = 9.4 MT

C**.** *EPIC reported PSE/ephedrine seizures in MT: 11.7 MT*

D. Total amount of PSE/ephedrine seized: 21.4

Term C9 – PSE/ephedrine-to-methamphetamine conversion factor

Per the DEA Southwest Laboratory: 8,640 tablets containing 60 mg of PSE can produce .7 lb of uncut methamphetamine at 92% purity.

8,640 x 60 mg = .5184 kg of PSE

.7 lb = .3175 kg

.5184 kg of PSE = .3175 kg methamphetamine at 92% purity

conversion factor = .3175 / .5184 = .612

Appendix 3-C – Data Source Limitations

- **EPIC Internal Database Seizure Information**

  The EPIC Internal Database (EID) contains methamphetamine and pseudoephedrine seizures, which meet Federal Drug Identification Number (FDIN) criteria (250 grams for methamphetamine and 1,000 grams or 5,000 dosage units for pseudoephedrine), made in the United States by federal agencies and by state and local law enforcement personnel who seize the drug as part of DEA-sponsored Operations PIPELINE, JETWAY, or CONVOY. (There is no minimum threshold for reporting ephedrine seizures). No minimum thresholds were used in the retrieval of seizure data from the EID. If the event was reported to EPIC and placed in EID, it should be included in these statistics. EPIC usually imposes the FDIN criteria when it produces seizure statistics because reporting seizures below FDIN thresholds cannot be checked against FDIN logs. Additionally, these seizures are less significant events.

  Seizure event descriptions recorded in the EID are coded to identify those events that involve methamphetamine arriving from outside the United States, and also seizures within the Southwest border area (up to approximately 150 miles from Mexico) where the drugs are believed to have crossed by land transport into the United States from Mexico. (EPIC analysts contact field agents on each seizure of methamphetamine that occurs away from SWB ports of entry, but within 150 miles from the Mexico border to determine the drug's origin). Seizure events recorded in the EID, which occurred outside the "Arrival Zone" (i.e., as defined in the previous sentence), do not differentiate between foreign-produced methamphetamine and domestic-produced methamphetamine.

  Seizure event data recorded in EID does not include drug purity information.

  EPIC's seizures of methamphetamine include an unknown quantity (thought to be small) of amphetamine, because data captured in EID are based on initial reporting from some law enforcement personnel who use drug testing equipment that cannot differentiate between methamphetamine and amphetamine. Therefore, while seizure events descriptions are included in the EID for both methamphetamine and amphetamine, EPIC usually combines methamphetamine and amphetamine seizure statistics for its products, rather than giving separate totals for each.

  Seizure events are voluntarily reported to EPIC by federal, state, and local law enforcement agencies. Due to the lack of any mandatory, comprehensive, nationwide drug seizure reporting system, seizure statistics may not necessarily provide an accurate overview of methamphetamine trafficking or seizure trends.

  Beginning January 1, 2001, all methamphetamine and precursor chemical seizures that met FDIN thresholds have been entered into EID. Prior to January 1, 2001, only seizures of methamphetamine and precursor chemicals that met certain EPIC program criteria (i.e., Operation JETWAY, PIPELINE, Southwest Border, etc.) were entered into EID.

  EPIC infrequently receives information regarding the tablet strength (i.e. 30mg, 60mg, 100mg) of pseudoephedrine or ephedrine seized.

  Chemicals such as freon, iodine, and red phosphorous do not require FDINs. Furthermore, essential chemicals that do require FDINs have high thresholds; therefore, certain chemical seizures are often not reported as they are below the threshold.

- **Clandestine Laboratory Seizure System (CLSS)**

  The Attorney General mandated that the CLSS, which is housed at EPIC, be established in January 1998 to capture data that pertains to clandestine laboratories that are seized in the United States by local, state, and federal law enforcement agencies. A clandestine lab is defined as an illicit operation consisting of a sufficient combination of apparatus and chemicals that either has been or could be used in the manufacture or synthesis of controlled substances. (This means that the seizure of chemicals, residue, or glassware alone does not necessarily constitute a lab).

  Prior to the establishment of the CLSS, DEA information on clandestine lab seizures, dating back to1990 was maintained in a database at DEA Headquarters. This information was transferred to EPIC and entered into the CLSS when the system was established in January 1998. Similarly, lab seizure data maintained at the Western States Information Network since 1989 have been included in the CLSS.

  Clandestine laboratory seizure events are voluntarily reported to EPIC by state and local law enforcement and most federal agencies. DEA is the only federal agency that is required to report clan lab seizures to EPIC. Due to the lack of any mandatory, comprehensive, nationwide clandestine lab reporting system, clan lab seizure statistics may not necessarily provide an accurate overview of methamphetamine production in the United States.

Appendix 3-D – Estimating Interdiction Rates

Estimating U.S. Import Interdiction Rates for Mexican-Heroin

The Heroin Availability Study, submitted by the Heroin Availability Working Group, indicates that the amount of heroin available for U.S. consumption in calendar year 2001 (CY01) was between approximately 13 and 18 metric tons of pure heroin. This conclusion was based on two heroin consumption studies: the "Estimation of Heroin Availability: 1996-2000" by Abt. Associates under contract with the Office of National Drug Control Policy; and the "Global Heroin Threat Assessment by CNC, July 2000 (which contains the consumption estimate for CY99). Though the most recent estimates for these studies are for CY99 and CY00, the Heroin Availability Working Group believes that CY01 consumption would not significantly change from the CY00 estimate. Therefore, for this study, the CY00 consumption estimate is used also for CY01. The Abt. Associates study provides estimates for the amount of Mexican heroin available to enter the United States for CY96 to CY00.[49] The following chart shows the process for formulating U.S. import seizure rates for Mexico-heroin based on the Abt. Associates study, which provides the CY01 low-end U.S. heroin consumption estimate of approximately 13 metric tons. (Amounts are in kilograms and 100 percent purity.)

	1998	**1999**	**2000 and 2001**
A. U.S. heroin consumption low-end estimate	14,500	14,300	13,300
B. % of U.S. heroin consumption from opium grown in Mexico	28.75	28.33	25.5
C. The low-end estimate of consumption of Mexican heroin.	4,169	4,051	3,392
D. U.S. domestic seizures of Mexican heroin	53.53	50.5	43.11
E. U.S. import seizures of Mexican heroin	70.04	40.07	108.02
F. Mexican heroin available to enter the U.S. (C+D+E)	4,293	4,142	3,543
G. Mexican heroin seizure rate at import into the U.S. (E÷F)	1.63%	.97%	3.05%

The CNC study only provides a high-end U.S. heroin consumption estimate of 18 metric tons for CY99. For the purpose of this study the CY99 estimate is also used as the estimate for CY98, CY00 and CY01. The CNC study does not attempt to calculate the heroin source area in its consumption, therefore the percentage of Mexican heroin at consumption, used in the Abt. Associates study, is applied to the CNC consumption estimate. For instance in CY99, the Abt. Associates study indicated that 28.33% of heroin consumed in the United States was made from opium produced in Mexico, thus, 5.1 metric tons of the 18 metric tons consumed in the United States was Mexican heroin. Seizure totals (domestic and U.S. import) for Mexican heroin, documented in the Abt. Associate study, were added to the Mexican heroin consumption estimate to calculate the amount of Mexican heroin available to enter the United States. The following chart shows the process for formulating U.S. import seizure rates for Mexican heroin based on the CNC study, which provides the CY01 high-end U.S. heroin consumption estimate of 18 metric tons. (Amounts are in kilograms and 100 percent purity.)

[49] "The Estimation of Heroin Availability: 1996-2000, (page 17)" prepared by Abt. Associates for the Office of National Drug Control Policy.

	1998	1999	2000 and 2001
A. U.S. heroin consumption high-end estimate	18,000	18,000	18,000
B. % of U.S. heroin consumption from opium grown in Mexico	28.75	28.33	25.5
C. U.S. consumption of Mexican heroin high-end estimate (A x B)	5, 175	5,099	4,590
D. U.S. domestic seizures of Mexican heroin	53.53	50.5	43.11
E. U.S. import seizures of Mexican heroin	70.04	40.07	108.02
F. Mexican heroin available to enter the U.S. (C+D+E)	5,228.5	5,189.5	4,741.1
G. Mexican heroin seizure rate at import into the U.S. (E÷F)	1.34%	.77%	2.28%

Mexican heroin seized arriving in the United States for CY98 to CY01 ranged from .77% to 3.05% of the estimated Mexican heroin available to enter the United States**.**

Estimating U.S. Import Seizure Rates for Cocaine Arriving from Mexico and Central America

The Interagency Assessment on Cocaine Movement (IACM) 22nd edition, which is the basis for the "Cocaine Availability Study" included in this report, describes methodology used to estimate the amount of export quality cocaine (78% purity in CY01) departing South America to the U.S. - and non-U.S. markets[50]. The IACM does not attempt to quantify the amount of cocaine entering specific states or geographical regions of the United States; however, it does provide the basis to formulate reasonable estimates for this type of analysis. The IACM provides the basis for formulating magnitude estimates of cocaine flowing to the United States through three distinct corridors: the Mexico/Central American (MX/CENTAM) Corridor, the Caribbean Corridor, and the Direct-to-U.S. Corridor. In CY01, 563 metric tons of cocaine was estimated to have departed South America to the United States; 72% (405 metric tons) was estimated to have transited the MX/CENTAM Corridor, almost all of which was destined to cross the U.S. Southwest border. Accounting for losses from transit zone seizures and consumption in the MX/CENTAM Corridor, availability estimates for cocaine arriving to the United States from this corridor can be calculated. The amount of cocaine being transshipped from the MX/CENTAM Corridor to the Caribbean Corridor, or from the Caribbean Corridor to the MX/CENTAM Corridor, is thought to have been small and is thus not factored into this study. The following chart shows the process used to ascertain seizure rates of cocaine arriving to the United States through the MX/CENTAM Corridor (quantities in metric tons).

[50] A new methodology was introduced in the IACM, 22nd Ed., which estimates the magnitude and distribution of cocaine flow to the United States. This new methodology has not yet been evaluated or proven.

	1998	1999	2000	2001
A. Export quality cocaine departing South America to United States.[11]	530	473	485	563
B. Percent of U.S.-bound cocaine transiting the MX/CENTAM Corridor.[11]	.59[51]	.54[52]	.66[53]	.72[54]
C. Amount of export quality U.S.-bound cocaine moving via MX/CENTAM Corridor.(A x B)	313	255	320	405
D. Consumption of export quality cocaine in Mexico and Central America.	25	25	25	25
E. Export quality U.S.-bound cocaine seized in Mexico and Central America.	64	60	78	89
F. Export quality cocaine available to enter U.S. through MX/CENTAM Corridor. (C - (D + E))	224	170	217	291
G. U.S. seizures of export quality cocaine arriving through MX/CENTAM Corridor.[55]	10.3	13.7	6.6	10
H. Percent of estimated cocaine flow seized. (G ÷F)	4.6	8.06	3.04	3.44

Cocaine seized arriving in the United States during the years CY98 to CY01 ranged from 3.04 to 8.06% of the estimated cocaine available to enter the United States from Mexico and Central America.

Seizure Rates Used to Estimate Mexico-produce Methamphetamine in the United States

The seizure rate for cocaine moving to the United States from the MX/CENTAM Corridor is consistently higher than the U.S. import seizure rate of Mexican heroin. Therefore, the high-end seizure rate used to estimate Mexico-produced methamphetamine is derived from the cocaine seizure rate. Since the heroin availability estimate is expressed as a range (13 to 18 metric tons) the low-end seizure rate, which is derived using the high-end estimate, is used to estimate the lower limit of Mexico-produced methamphetamine available in the United States. The following chart shows the range of seizure rates used to estimate Mexico-produced methamphetamine available in the United States.

	1998	1999	2000	2001
A. High-end seizure rate (cocaine).	4.60%	8.06%	3.04%	3.44%
B. Low-end seizure rate (heroin).	1.34%	.77%	2.28%	2.28%

Two explanations for the disparity in seizure rates may be the difference in operational focus placed on cocaine by law enforcement, or the capability of law enforcement to detect one drug better than the other. Drugs smuggled in large shipments may be more susceptible to higher seizure rates.[56] The

[51] The Interagency Assessment of Cocaine Movement, 17th Edition, March 1999
[52] The Interagency Assessment of Cocaine Movement, 19th Edition, February 2000
[53] The Interagency Assessment of Cocaine Movement, 21st Edition, February 2001
[54] The Interagency Assessment of Cocaine Movement, 22nd Edition, March 2002
[55] Seizure totals for cocaine seized at ports of entry or between ports of entry upon arrival into the United States were taken from the Interagency Assessment of Cocaine Movement, 22nd Edition, March 2002, Appendix C - Table 11 "U.S. Arrival Zone Seizures." Seizure totals of cocaine arriving in the United States, not at the Southwest border, from Mexico and countries in Central America were taken from the in the EPIC Internal Database.
[56] "Statistics and Analysis on Supply of and Trafficking in Narcotic Drugs and Psychotropic Substances – 1996: A Technical Report, prepared by the United Nations Office for Drug Control and Crime Prevention. This report looked at global seizure rates for heroin and cocaine for 1986 to 1996 and found that seizure rates for heroin were stable at

following chart shows the average shipment volume of cocaine, methamphetamine, and heroin seized at import into the United States from Mexico at the Southwest border.[57] (Amounts are shown in kilograms.)

	1998	1999	2000	2001
Cocaine	46	42	21	24
Methamphetamine	6	8	7	8
Heroin	1.5	2.3	4.8	6.3

between 8 and 15 percent, and consistently below the seizure rates for cocaine by 6% to 22% for the 10 year time period.

[57] Information used to obtain average volume of heroin seized at import into the U.S. includes a small amount of Colombian heroin. Only drugs that meet Federal Identification Number thresholds were used in obtaining the average load sizes.