

Identification of BART-Eligible Sources in the WRAP Region

An Update for the WRAP Stationary
Sources Joint Forum

December 13, 2005

Tempe, AZ

Regional Haze Rule Requirements for Best Available Retrofit Technology

- 40 CFR 51.308(e)(1)
 - Identify BART-eligible sources
 - Determine which of these should be subject to BART
 - Determine the appropriate control technology / limit
- 40 CFR 51.308(e)(2)
 - Allows an alternative program that provides for greater reasonable progress than BART
 - Must identify and include BART-eligible sources

What Is a BART-Eligible Source?

- A stationary source is BART-eligible if ...
 - it belongs to one of 26 source categories,
 - *see attachment*
 - has emission units which were “in existence” on 8/7/77 but “not in operation” before 8/7/62, and
 - has a potential to emit more than 250 tpy of a visibility-impairing pollutant across all date-eligible units.
- A BART source may be a portion of a facility
- That portion may include more or less units over time as individual units are reconstructed or shut down

Project Objectives

- Develop and maintain a regional database of eligible and potentially-eligible sources, their emissions, and current controls
- Promote consistency in how sources are being identified across the region
- Establish a common method and preliminary list of sources

Project Team

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How Were Eligible Sources Identified?

- Few states had a reliable list of eligible sources at the start of the project, and different interpretations of the BART guidelines
- All eligible sources were identified by either ...
 - the SO₂ Annex,
 - a state or tribe and subsequently verified by ERG, or
 - ERG and subsequently verified by a state or tribe.

ERG / Work Group Process

- Cast wide net to identify category-eligible sources
 - Any source in the 1999 or preliminary 2002 NEI with actual emissions greater than 100 tons and an SIC code(s), SCCs, NAICS, or MACT codes related to one of the 26 source categories
 - Developed “crosswalk” of codes with categories
 - Any source in a variety of Title V databases with an SIC code(s) related to one of the 26 source categories
 - Any source identified in a variety of EPA documents
 - Background docs for NSPS, MACT, AP-42, etc.

ERG / Work Group Process

- Obtained date information from ...
 - EIA databases
 - Title V databases
 - EPA background documents
- Dates do not necessarily reflect the “existence” and “operation” definitions in the BART rule
- Dates often pertain to a facility as a whole and are often not available (or could not be obtained by ERG) for specific units, especially non-EGUs

ERG / Work Group Process

- Information on potential emissions is often not available (or could not be obtained by ERG)
 - Somewhat moot until date-eligible units are identified
 - Where such units are identified, a source was deemed eligible if its actual emissions are greater than 250 tons
- As a result ...
 - Eligibility for non-EGUs is only determined on a facility-wide level – i.e., at least part of the source is eligible
- State and local agencies and tribes were consulted individually to verify results and provide missing data

ERG / Work Group Process

- For tribes, additional steps were taken
 - Used GIS to identify NEI sources on tribal lands (already done by ITEP) and then identified those with emissions > 100 tpy and belonging to one of 26 BART categories
 - Obtained lists of Part 71 sources from EPA regional offices and identified those sources belonging to a BART category
 - Compared results above and identified discrepancies
 - Most resulting sources also appear on state lists
- *For illustration of process, see attached flowchart*

Results

- For each facility, each of the three eligibility criteria (category, size, and date) were examined and rated

Y = Yes *[the criteria is satisfied]*

M = Maybe *[there is reason to believe it may be satisfied]*

D = Don't know *[information not yet available]*

N = No *[the criteria is clearly not met]*

- *For more information, see attachment “Definition of Codes Used to Identify the Category-, Date-, and Size-Eligibility of Sources”*

Results

- Based on the ratings assigned to each criteria, an overall BART-eligibility rating was determined for each facility
 - Yes *[at least part of the facility is BART-eligible]*
 - Likely *[2 of the 3 eligibility criteria are satisfied]*
 - Potentially
 - Don't know *[no data available for at least 2 criteria]*
- See attachment “*Excerpt of the WRAP BART Source Database for AZ Sources*”

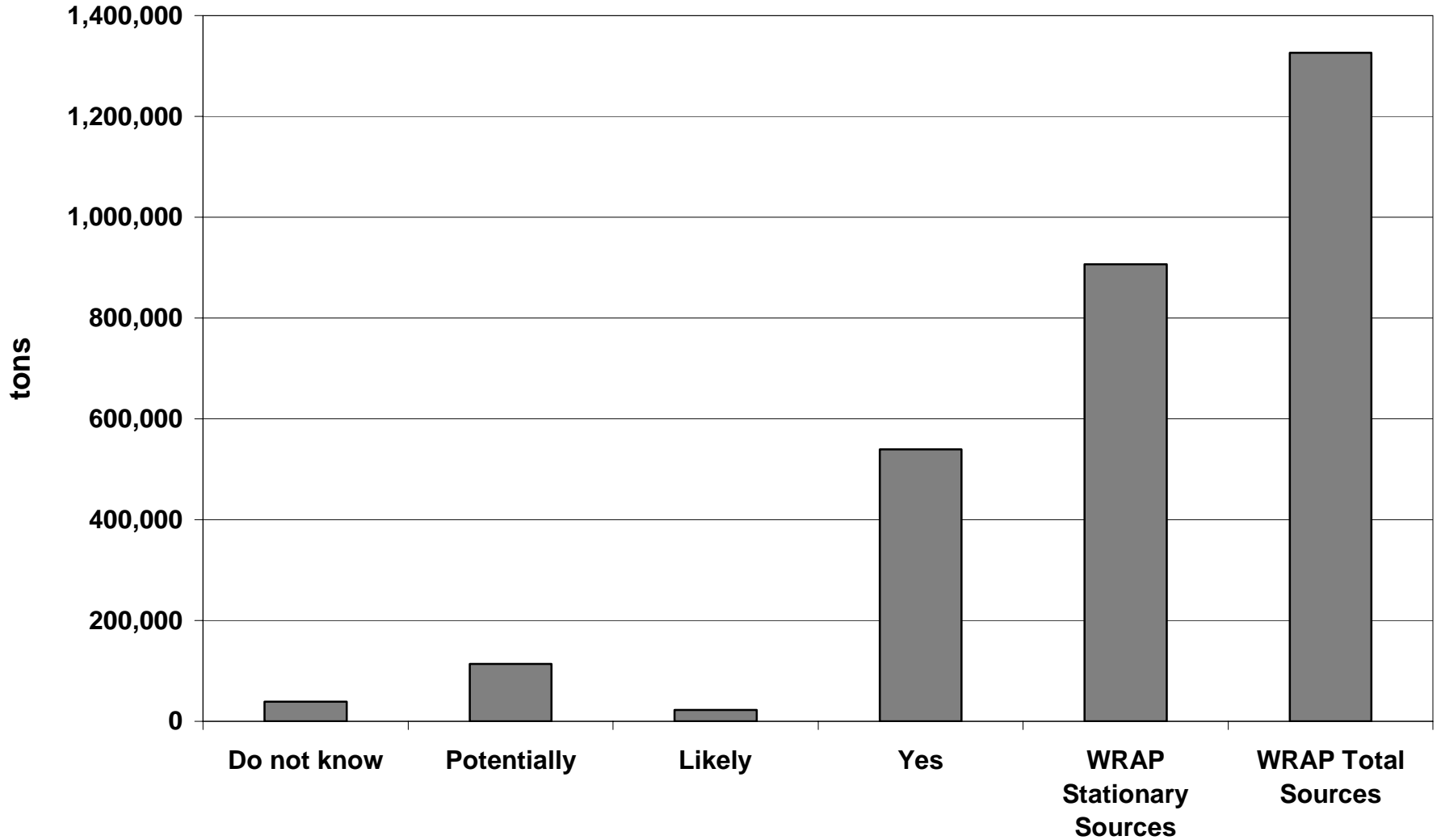
Number of BART-Eligible Sources

State	Number of Sources Considered ^a	Level of Certainty				
		Yes	Likely	Potentially	Do Not Know	No
Alaska	28	1	7	2	2	16
Arizona ^b	61	9	8	3	5	36
California ^b	428	3	27	55	113	230
Colorado	156	13	1	5	2	135
Idaho	45	6		1	3	35
Montana	48	3	1	10	8	26
Nevada ^b	48	8		1		39
New Mexico	139	6	4	4	7	118
North Dakota	30	6	2	3		19
Oregon ^b	85	9	5	9	5	57
South Dakota	53	1	3			49
Utah	61	2		8	3	48
Washington ^b	145	5	9	11	3	117
Wyoming	107	15	2	5	3	82
Tribal Land ^b	98	2		3	6	87
Grand Total	1,532	89	69	120	160	1094
Non-CA Total	1,104	86	42	65	47	864

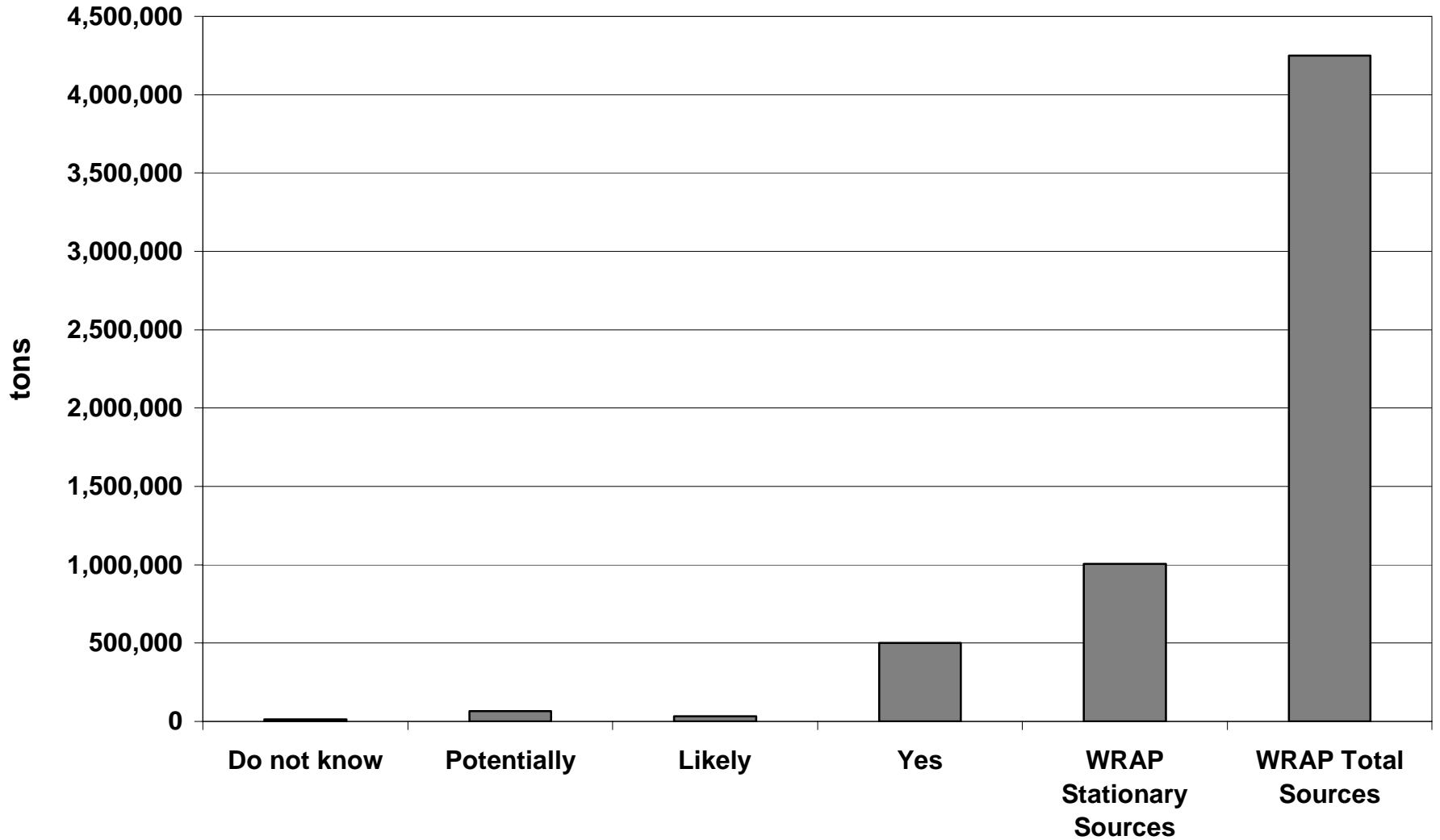
^a Includes sources in the NEI with actual emissions > than 100 tpy, sources with Title V permits in some states with on-line databases, sources identified by the state or tribe, and sources identified in the Source Category Reference Document developed for this project.

^b An on-line Title V database was used to help identify sources to be considered. For California, this was only true for some of the air districts.

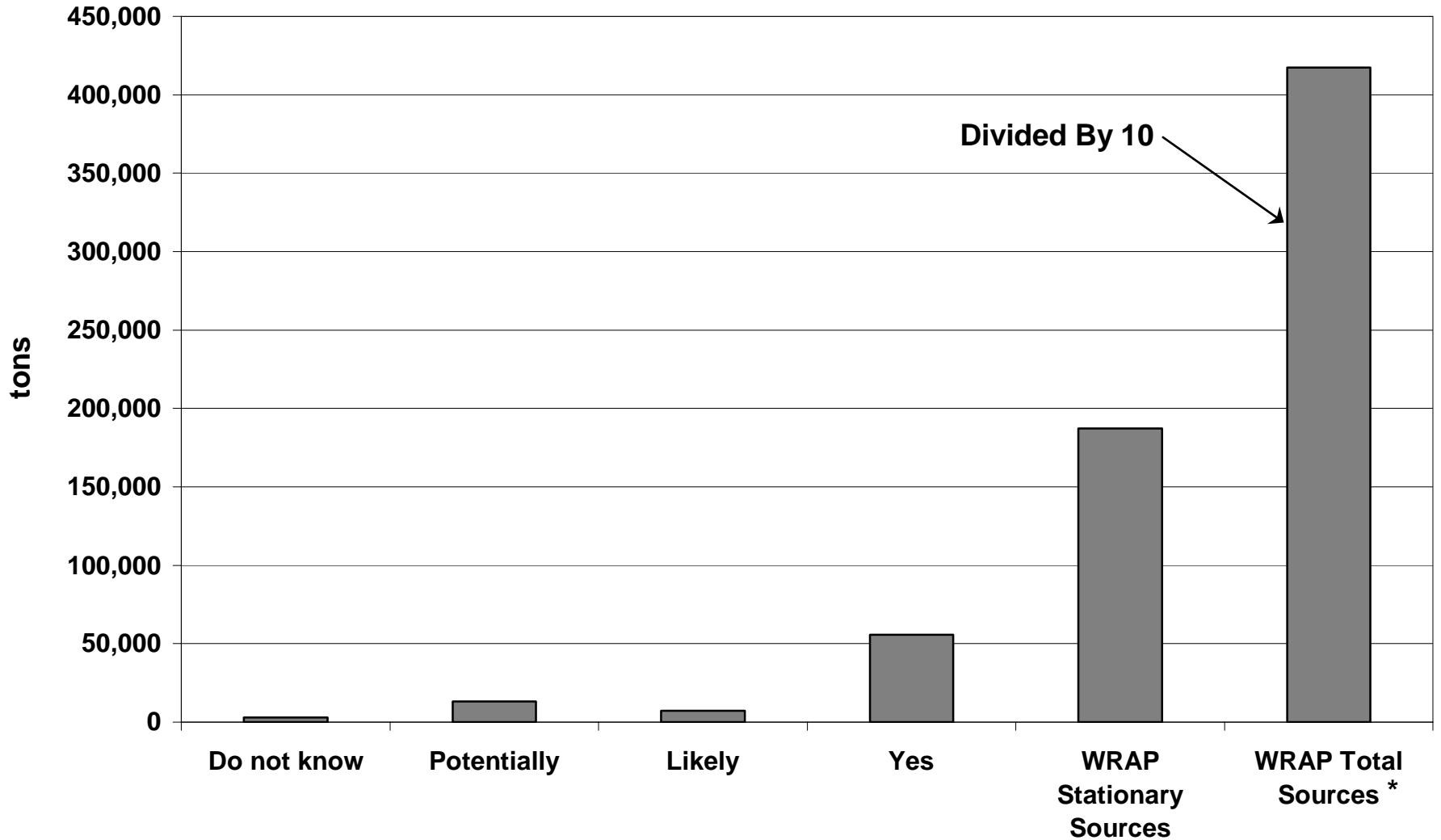
SO2 Facility-Wide Emissions from BART, Possibly-BART, and Other Sources in the WRAP Region (2002 approximate)



NOx Facility-Wide Emissions from BART, Possibly-BART, and Other Sources in the WRAP Region (2002 approximate)

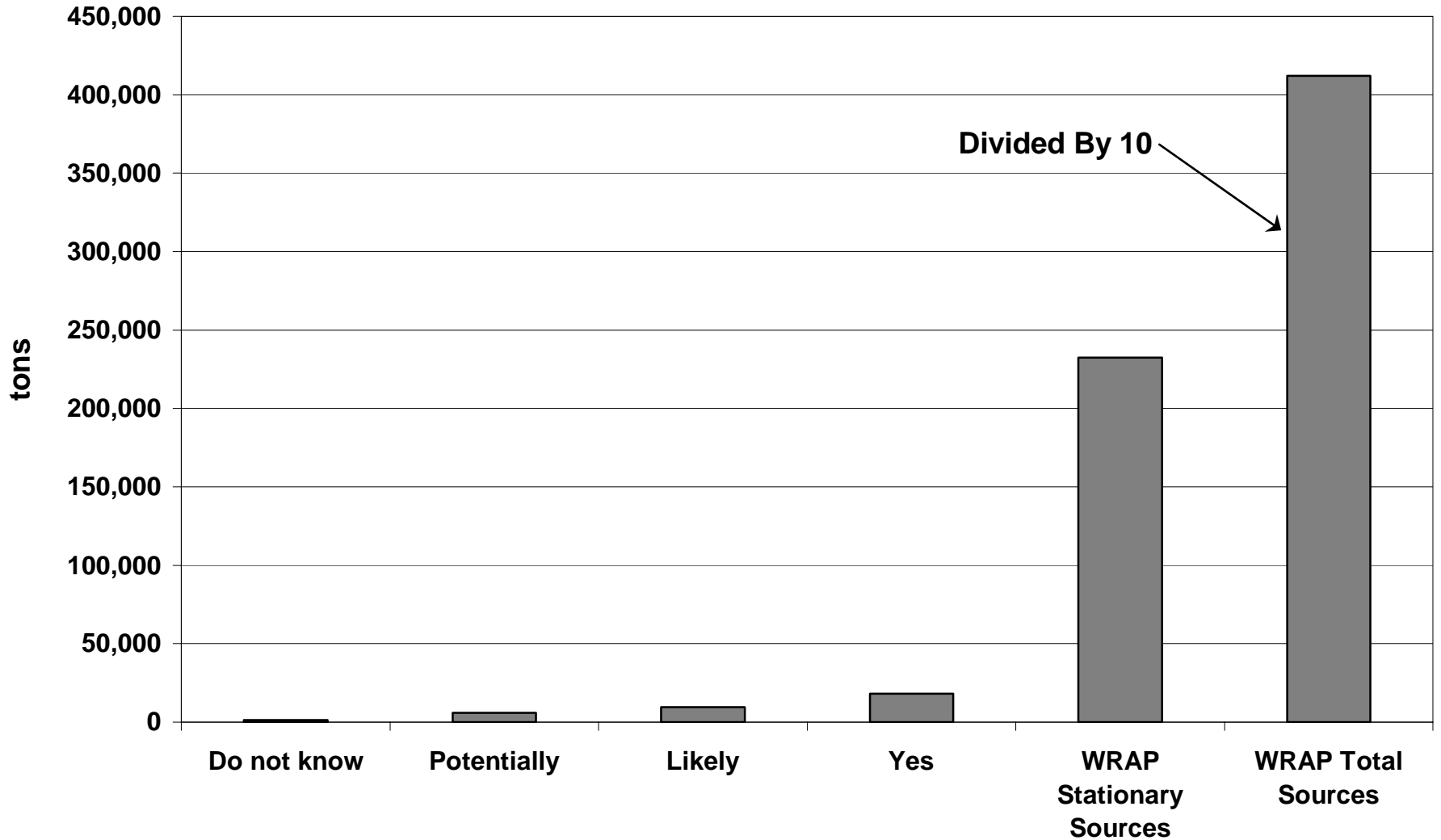


PM10 Facility-Wide Emissions from BART, Possibly-BART, and Other Sources in the WRAP Region (2002 approximate)



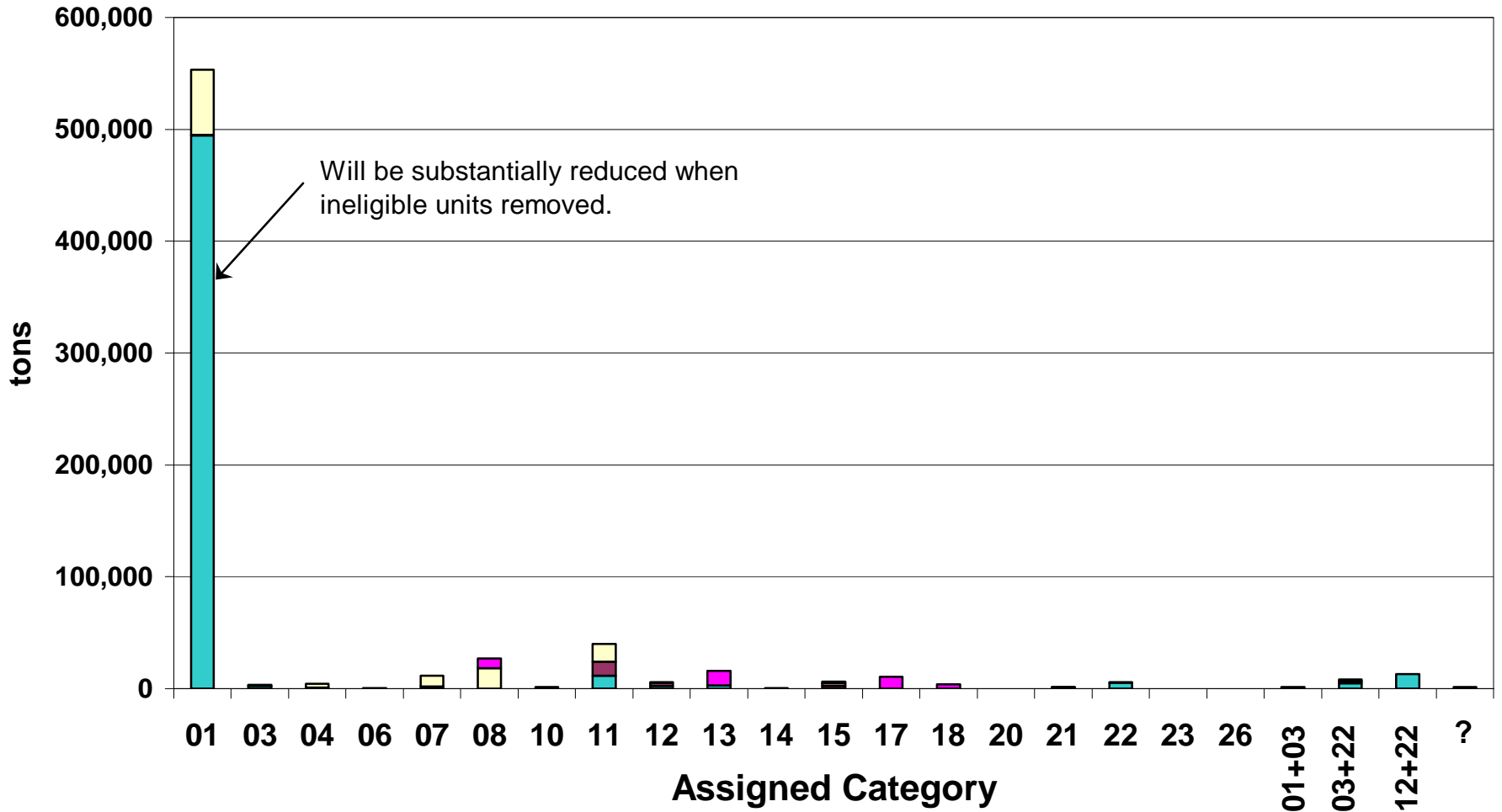
* Does not include windblown dust emissions.

VOC Facility-Wide Emissions from BART, Possibly-BART, and Other Sources in the WRAP Region (2002 approximate)

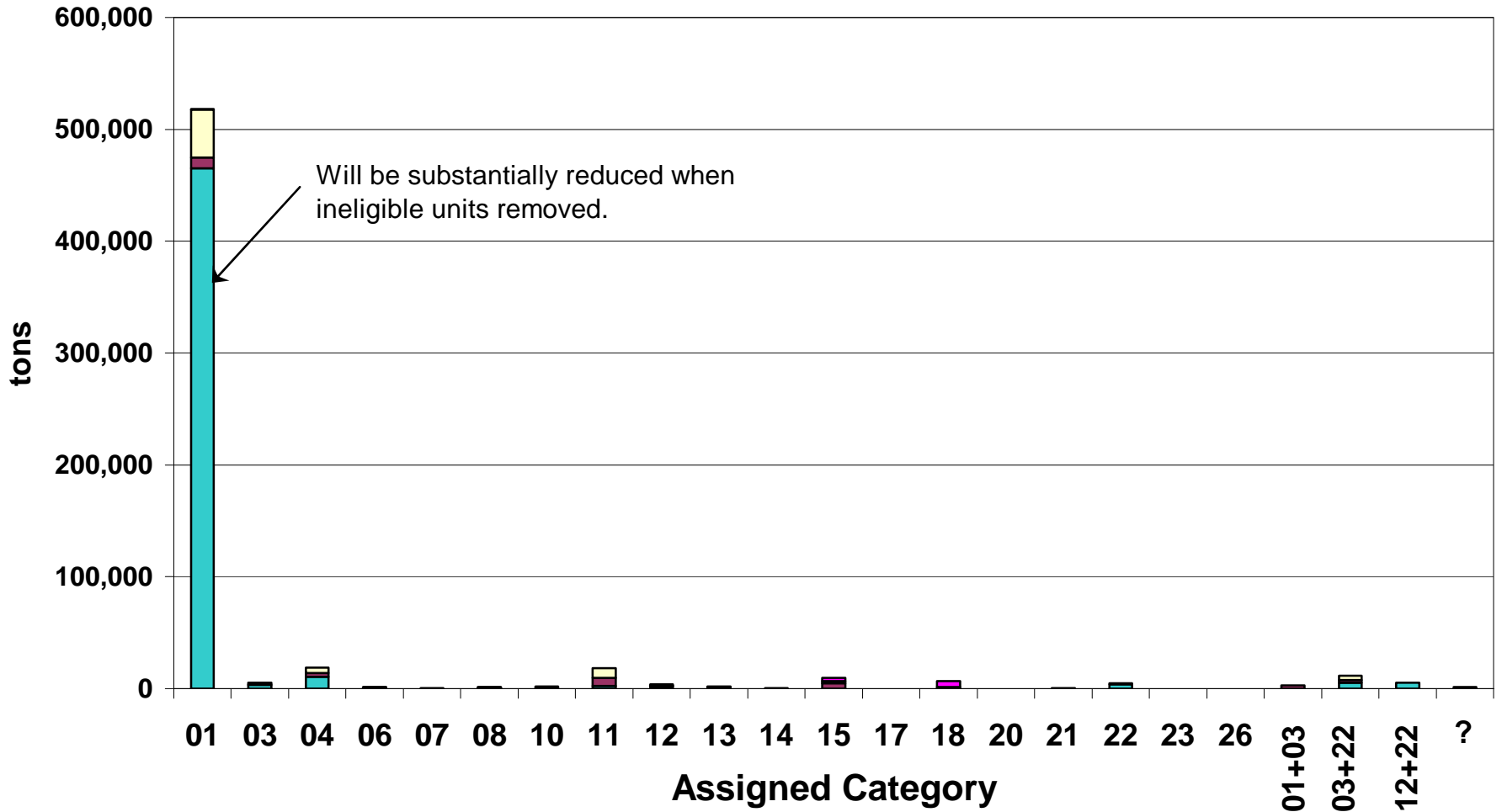


SO2 Facility-Wide Emissions from BART and Possibly-BART Sources in the WRAP Region By Source Category (2002 approximate)

■ Yes
 ■ Likely
 ■ Potentially
 ■ Don't Know

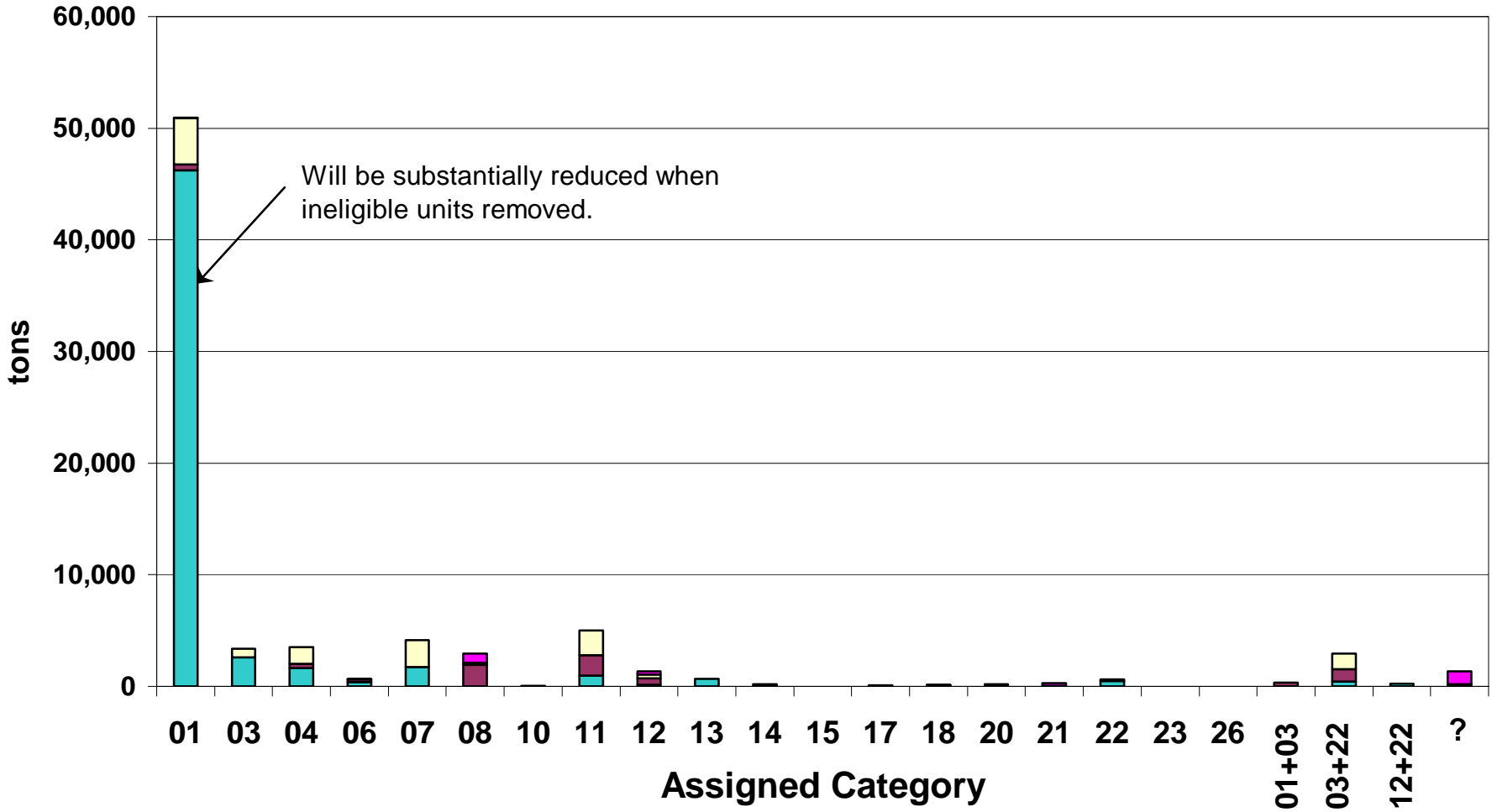


NOx Facility-Wide Emissions from BART and Possibly-BART Sources in the WRAP Region By Source Category (2002 approximate)



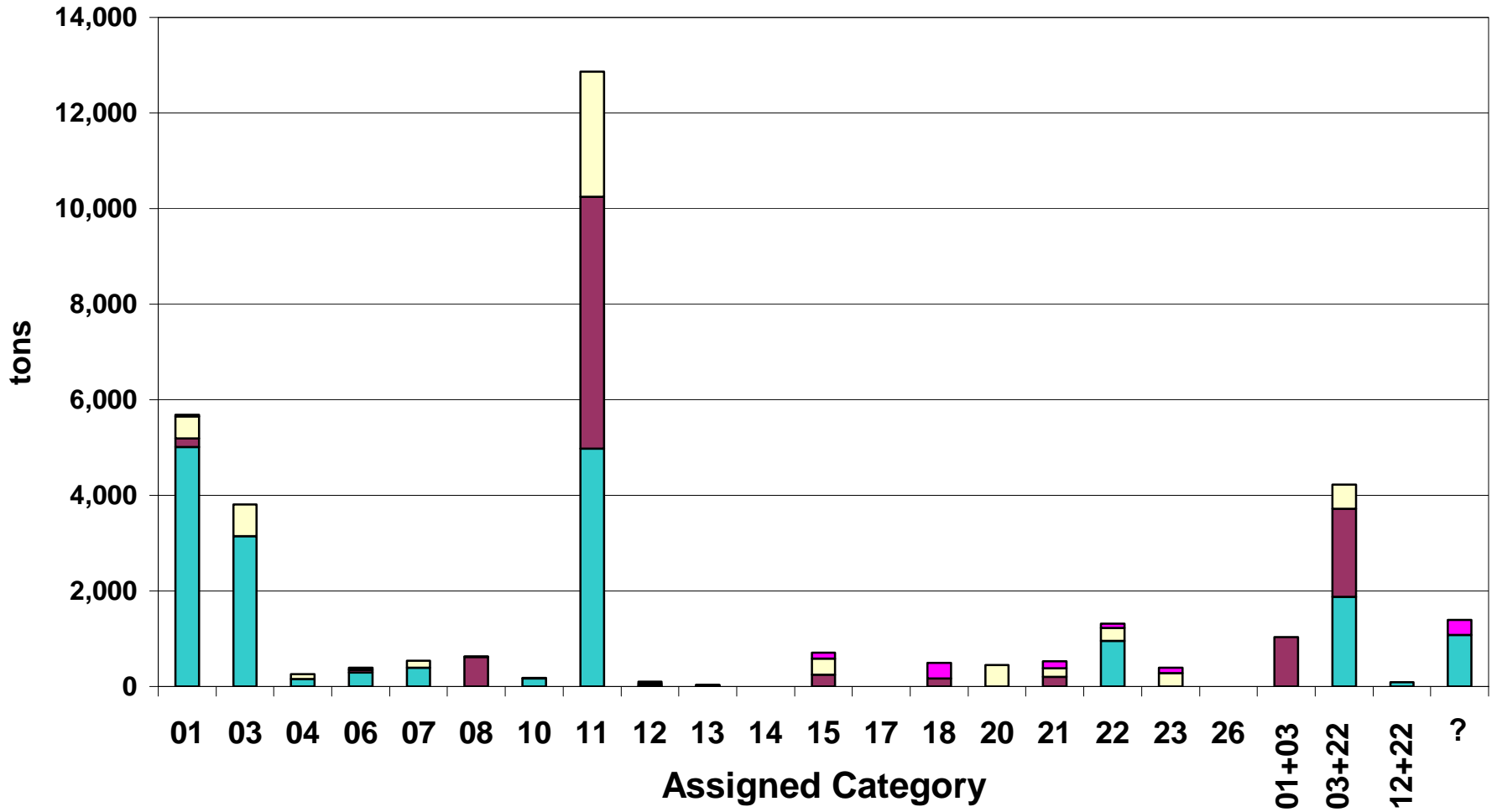
PM10 Facility-Wide Emissions from BART and Possibly-BART Sources in the WRAP Region By Source Category (2002 approximate)

■ Yes
 ■ Likely
 ■ Potentially
 ■ Don't Know



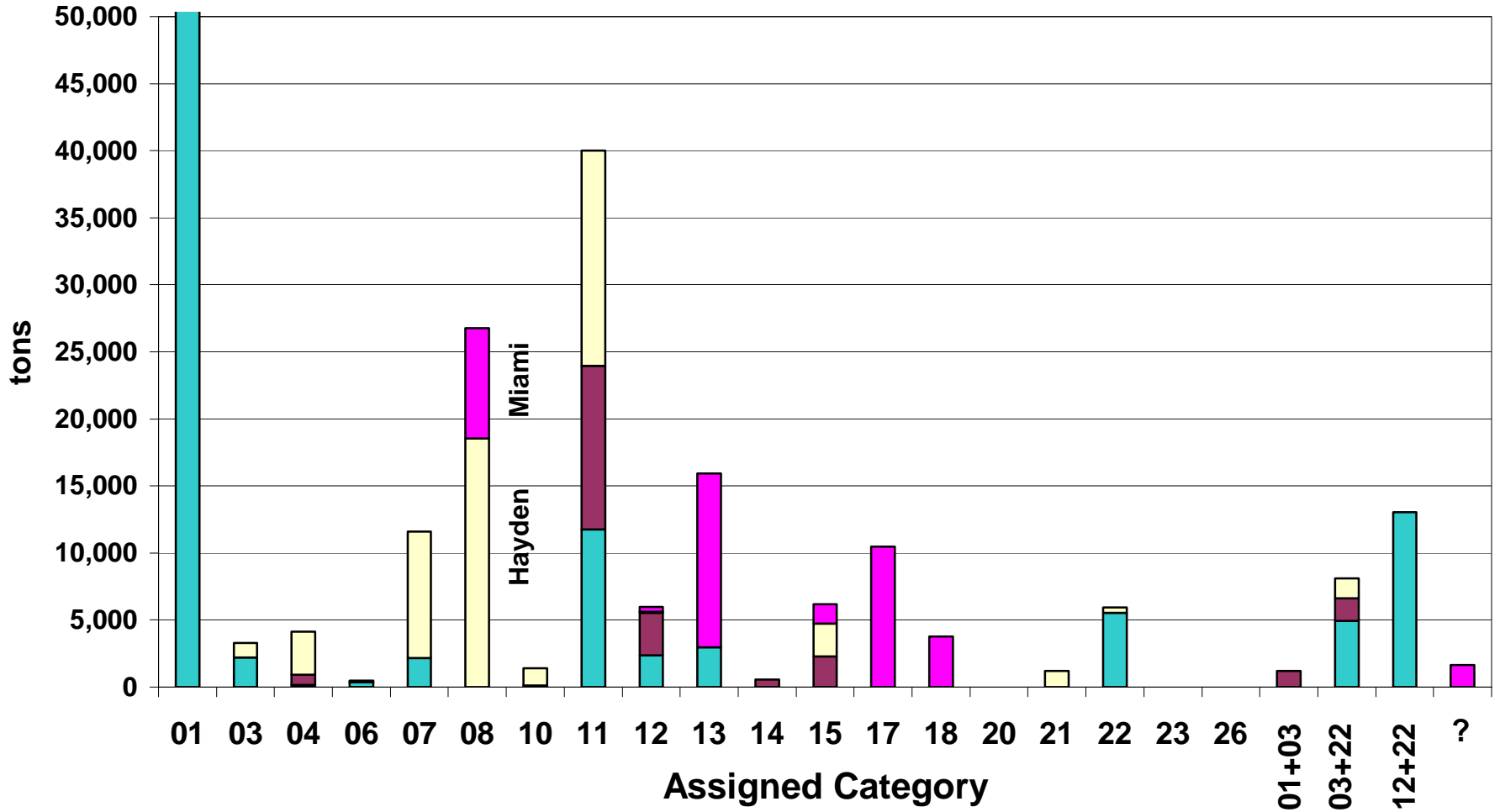
VOC Facility-Wide Emissions from BART and Possibly-BART Sources in the WRAP Region By Source Category (2002 approximate)

■ Yes
 ■ Likely
 ■ Potentially
 ■ Don't Know

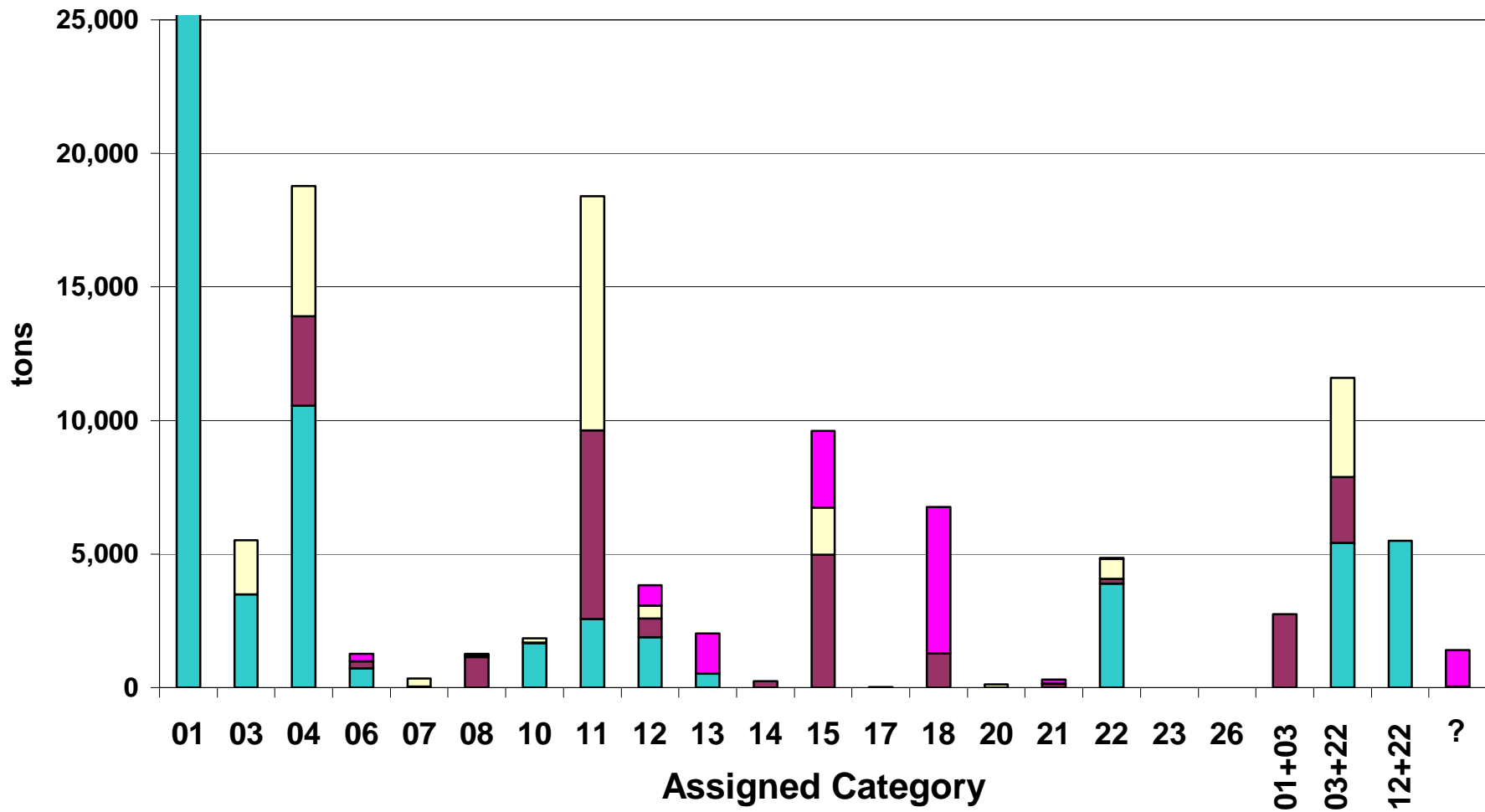


SO2 Facility-Wide Emissions from BART and Possibly-BART Sources in the WRAP Region By Source Category (2002 approximate)

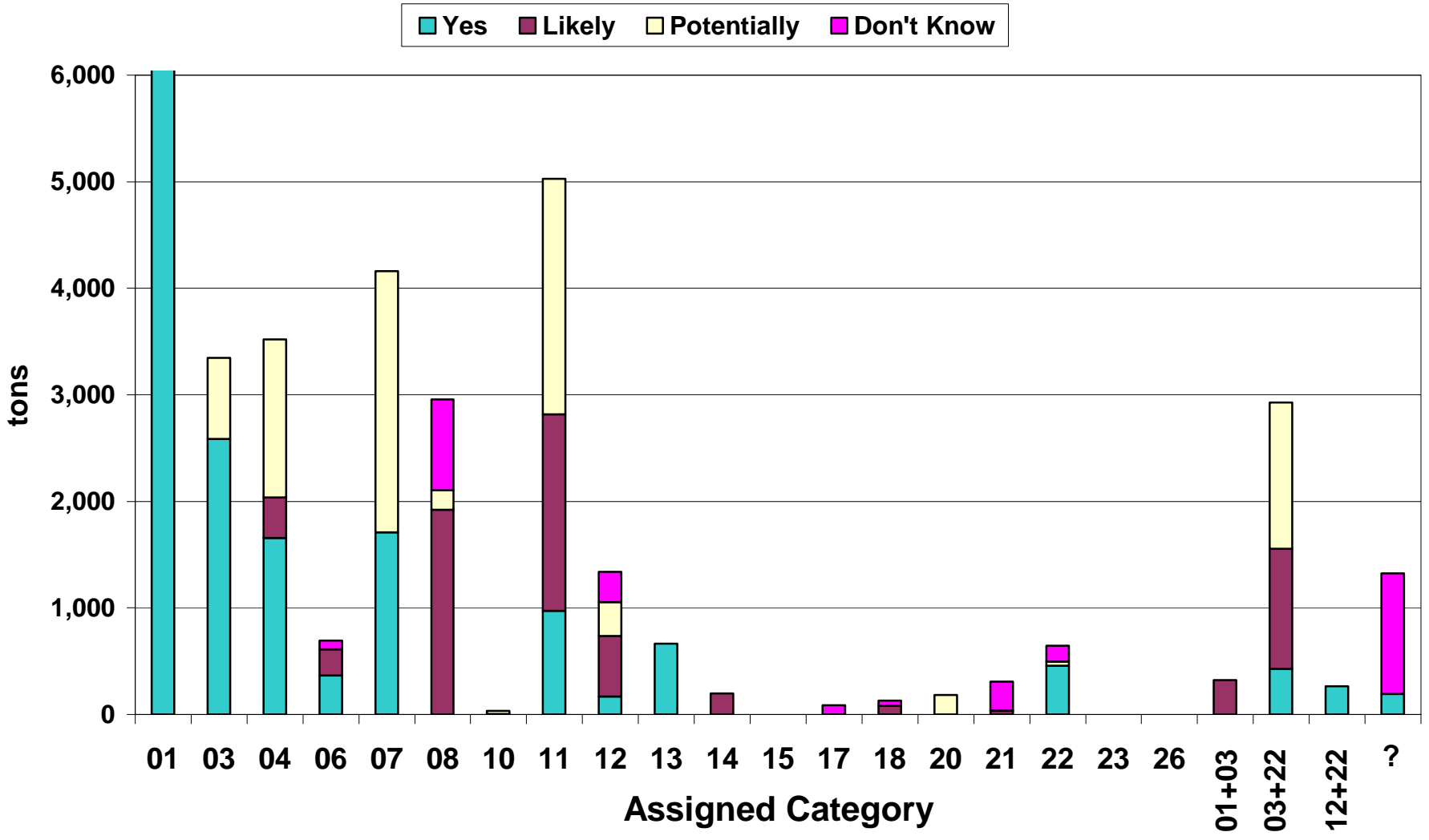
■ Yes
 ■ Likely
 ■ Potentially
 ■ Don't Know



NOx Facility-Wide Emissions from BART and Possibly-BART Sources in the WRAP Region By Source Category (2002 approximate)



PM10 Facility-Wide Emissions from BART and Possibly-BART Sources in the WRAP Region By Source Category (2002 approximate)



Summary

- Approx 1,500 facilities were initially considered
- Approx 1,100 were determined to be ineligible
- Not including CA, 240 facilities were not determined to be ineligible
 - 86 of these appear eligible (yes)
 - The rest are likely, potentially, or don't know
- Most of the tons are in the yes category

Summary

- EGUs are the largest source category for SO₂, NO_x, and PM₁₀
 - The precise extent won't be clear until next week
 - Other significant source categories may include petroleum refineries, aluminum ore reduction, phosphate rock processing, lime plants, lead smelters, industrial boilers, cement plants, sulfur recovery plants, fuel conversion plants, and kraft pulp mills
- Petroleum refineries are the largest source category for VOC
 - EGUs and kraft pulp mills are also significant

Next Steps

(Under Current SOW / Resources)

- Resolve EGUs at the unit level
- Distribute draft report and list of sources
- Obtain and respond to comments
- Finalize report (early March 2005)
- Possible integration with WRAP Emission Data Management System (EDMS)

Next Steps

(After Final Report)

- Resolve the likelies, potentials, and don't knows at the facility level
 - To determine specifically which facilities need to be further analyzed for BART or included in alt. program
 - To determine specifically which source categories ...
 - need to be included in a BART-like analysis to demonstrate an alternative is better than BART
 - need to be analyzed for suitability in trading program
 - Strong state/local participation and/or 3rd party office visits will be important to complete
 - Start with largest sources first

Next Steps

(After Final Report)

- For non-EGUs, determine which part of the eligible facilities are BART-eligible
 - to the extent needed to demonstrate an alternative is better than BART
- Improve data on current emission controls in place

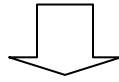
BART Source Categories

BART-01	Fossil Fuel-Fired Steam Electric Plants with a Heat Input Capacity Greater than 250 MMBtu per hour
BART-02	Coal Cleaning Plants (Thermal Dryers)
BART-03	Kraft Pulp Mills
BART-04	Portland Cement Plants
BART-05	Primary Zinc Smelters
BART-06	Iron and Steel Mill Plants
BART-07	Primary Aluminum Ore Reduction Plants
BART-08	Primary Copper Smelters
BART-09	Municipal Incinerators Capable of Charging Greater than 250 tons of Refuse per day
BART-10	Hydrofluoric, Sulfuric, and Nitric Acid Plants
BART-11	Petroleum Refineries
BART-12	Lime Plants
BART-13	Phosphate Rock Processing Plants
BART-14	Coke Oven Batteries
BART-15	Sulfur Recovery Plants
BART-16	Carbon Black Plants (Furnace Process)
BART-17	Primary Lead Smelters
BART-18	Fuel Conversion Plants
BART-19	Sintering Plants
BART-20	Secondary Metal Production Facilities
BART-21	Chemical Process Plants
BART-22	Fossil fuel-fired boilers with a Heat Input Capacity Greater than 250 MMBtu per hour
BART-23	Petroleum Storage and Transfer Facilities with a Capacity of Greater than 300,000 Barrels
BART-24	Taconite Ore Processing Plants
BART-25	Glass Fiber Processing Plants
BART-26	Charcoal Production Facilities

Identification of BART-Eligible Sources in WRAP Region

Step 1:
Over 1500
Sources listed
on Preliminary
Spreadsheet

1. Create preliminary list of sources from National Emissions Inventory (NEI). Use 1999 and Preliminary 2002 NEI to find all sources with actual emission of any visibility impairing pollutants (PM, SO₂, NO_x, VOC or NH₃) greater than or equal to 100 tons. Include sources identified by states.



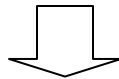
2. Acquire category information for sources over 100 tons and check for completeness.

a. Identify NEI sources with one or more units in BART-eligible categories.

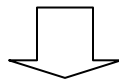
Use NEI and SIC-SCC-NAICS-MACT BART category crosswalk to apply BART categories. Approximately, 80% of sources over 100 TPY have one or more BART categories.

b. Identify additional non-NEI sources that are category-eligible and apply additional categories to NEI sources.

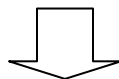
Use source category lists to acquire these additional sources and/or categories including: NSPS Bid Lists, PSD lists, AP-42 support documents, MACT support documents, DOE, CAMD, and Title V lists, etc.



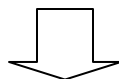
3. Acquire date information for category-eligible sources. Use source category lists from Step 2: NSPS Bid lists, PSD lists, AP-42 support documents, etc.



4. "Quick" permit review. 15 minute review of electronic Title V's for sources with assigned BART category. Extract available date, category, and PTE information.



5. Review source list with state, local, and tribal representatives. Based on Steps 1-4 above, each source is assigned a "Yes", "No", "Likely", "Potential", or "Don't Know". Reviewers confirm, correct, or complete information to adjust assignment.



6. Create final product database of BART-eligible sources by level of certainty. Supplemented with 2002 NEI actual unit – specific emissions for date-eligible EGUs and facility-wide actual emissions for all other EGUs and non-EGUs.

Elimination Process

Step 6:
Preliminary List
Reduced to an
Estimated 278
Yes, Likely, and
Potential Sources

Definition of Codes Used to Identify the Category-, Date-, and Size-Eligibility of Sources.

Category Code	
Y	Yes. This source has one or more units belonging to one or more of the 26 BART source categories. This was determined by one or more of the following methods: <ul style="list-style-type: none"> ▪ Analysis performed in the ERG source category reference document. ▪ The source was included in the SO2 Annex. ▪ The source was identified as category-eligible or BART-eligible by the state or tribe.
M	Maybe. This source may have one or more units belonging to one or more of the 26 BART source categories. For example: <ul style="list-style-type: none"> ▪ It is unclear whether an industrial boiler has a heat input that is over 250 MMBtu/hr. ▪ It is unclear whether an EGU boiler sells electricity or whether it burns at least half fossil fuel. ▪ A source has petroleum storage and transfer facilities, but it is unclear whether the capacity is greater than 300,000 Barrels. ▪ A natural gas processing plant may have a sulfur recovery unit, but its existence has not been verified. ▪ A natural gas processing plant may convert natural gas to liquid natural gas, but this has not been verified. ▪ A glass manufacturing plant may actually make the glass fibers, but this has not been verified.
D	Don't know. No information available regarding the source category.
N	No. The source is not category-eligible.
Date Code	
Y	Yes. This source has at least one unit that has a construction or reconstruction date between 1962 and 1977, inclusive. The source received a date code of Y if: <ul style="list-style-type: none"> ▪ A date between 1962 and 1977 was documented in the ERG source category reference document for either an individual unit or an entire source. ▪ The source was included in the SO2 Annex. ▪ The source was identified as date-eligible or BART-eligible by the state or tribe.
M	Maybe. <ul style="list-style-type: none"> ▪ In the case of EGUs, an in-service date between 1978-1985, inclusive, would qualify as M since it may have "commenced construction" before 8/7/77 but not in service for many years later. Similarly, an in-service date prior to 1962 would qualify as M since it may have been reconstructed within the BART time window. ▪ In the case of non-EGUs, the same rules apply, except the post-BART window is limited to 1978-79.
D	Don't know. No information available regarding construction or reconstruction dates.
N	No. This source may only have units that were built before 1962; in this case, the state must have verified that there was no reconstruction performed on the units between 8/7/62 and 8/7/77. In addition: <ul style="list-style-type: none"> ▪ In the case of EGUs, an in-service date for the source after 1985 would qualify as N. ▪ In the case of non-EGUs, an in-service date for the source after 1979 would qualify as N.
Size Code	
Y	Yes. This source has one or more units constructed between 1962 and 1977 belonging to one or more of the 26 BART source categories with a total potential-to-emit of at least 250

	<p>tpy of NH₃, NO_x, PM₁₀, SO₂, or VOC. The source received a size code of Y if:</p> <ul style="list-style-type: none"> ▪ The source was included in the SO₂ Annex. ▪ The source was identified as size-eligible or BART-eligible by the state or tribe ▪ In the case of EGUs, if the actual emissions from the NEI were greater than 250 tpy for units constructed between 1962 and 1977.
M	<p>Maybe. For instance,</p> <ul style="list-style-type: none"> ▪ The source clearly belongs to one of the 26 categories and is currently not operating; however, it is not clear if operations will resume or if the permit is still valid.
D	<p>Don't know. The source received a size code of D if:</p> <ul style="list-style-type: none"> ▪ There is not enough information to determine whether the BART-eligible units emit greater than 250 tpy for a BART pollutant.
N	<p>No. The source or potentially BART-eligible units have a potential to emit less than 250 tpy for all BART pollutants or the source is no longer in operation (shutdown).</p>

Definition of Terms Used to Identify the Overall BART-Eligibility of Sources.

Yes	At least part of the source is BART-eligible. However, exactly which units comprise the BART-eligible source is often not known, especially for non-EGUs.
Likely	The source has at least one unit that is eligible based on two of the three criteria.
Potentially	A fair amount is known about the source (more than the "Don't Know" definition below), but not enough to meet the "Likely" definition above.
Don't Know	Eligibility information is not known for at least two of the three criteria.
No	The source is not BART-eligible. At least one of the criteria were clearly not met.

Excerpt of the WRAP BART Source Database for AZ Sources.

ID	State	Facility ID	Company Name	Category	Category Eligible?	Date	Date Eligible?	Size Eligible?	BART Eligible?	2002 Facility-Wide Actual Emissions ¹					BART-Eligible Emissions					Comments
										NH3	NOX	PM10	SO2	VOC	NH3	NOX	PM10	SO2	VOC	
1	AZ	0401700424	ABITIBI CONSOLIDATED SALE CORP - Abitibi Consolidated Snowflake	BART 03, BART 22	Y	1961, 1974	Y	Y	1. Yes		2,388	63	1,974	374						Identified as "eligible" for SO2 by the WRAP in its Annex. Also, the source category reference document, BART 01 tables indicates possible BART-eligible units were constructed in the BART timeframe. In addition, this source is identified on the Kraft Pulp Mill and large boiler source category lists.
2	AZ	0400300037	ARIZONA ELECTRIC PWR COOP INC. - APACHE STATION	BART 01	Y	1965, 1972, 1974, 1979, 2002	Y	Y	1. Yes	5	6,528	1,237	5,167	49						Identified as "eligible" for SO2 by the WRAP in its Annex. Also, the source category reference document, BART 01 tables indicates possible BART-eligible units were constructed in the BART timeframe.
3	AZ	0001	ARIZONA PUBLIC SERVICE CO - CHOLLA	BART 01	Y	1962, 1978, 1980, 1981	Y	Y	1. Yes	1	12,881	1,735	20,770	111						Identified as "eligible" for SO2 by the WRAP in its Annex. Also, the source category reference document, BART 01 tables indicates possible BART-eligible units were constructed in the BART timeframe.
4	AZ	0698	CHEMICAL LIME CO., AKA: CHEMSTAR LIME, I	BART 12	Y	Prior to 1974, 1975, and 1977.	Y	Y	1. Yes		1,197		1,405							Identified as "eligible" for SO2 by the WRAP in its Annex. Also, this source is identified on the Lime Plant source category list and the permit indicates equipment built in the BART timeframe.
5	AZ	0400300176	CHEMICAL LINE COMPANY - DOUGLAS FACILITY	BART 12	Y	Kilns- 1967.	Y	Y	1. Yes		406	118	847	7						Identified as "eligible" for SO2 by the WRAP in its Annex. Also, this source is identified on the Lime Plant source category list and the permit indicates equipment built in the BART timeframe.
6	AZ	0003	SALT RIVER PROJ AG I & P DIST - CORONADO	BART 01	Y	1975, 1979, 1980	Y	Y	1. Yes	1	11,933	1,264	17,727	78						Identified as "eligible" for SO2 by the WRAP in its Annex. Permit indicates a 1975 construction date which is in the BART timeframe. In addition, the source category reference document, BART 01 tables indicates that possible BART-eligible units were constructed in the BART timeframe. Heat input is 4719 MMBtu/hr for two units.
7	AZ	0004	SALT RIVER PROJ AG I & P DIST - NAVAJO	BART 01	Y	1974, 1975, and 1976.	Y	Y	1. Yes	2	35,569	4,128	4,007	253						The source category reference document, BART 01 tables indicates possible BART-eligible units were constructed in the BART timeframe. NEI reveals unit(s) in BART timeframe that have aggregate actuals greater than 250 tpy.
8	AZ	U120	ARIZONA PUBLIC SERVICE CO - YUCCA	BART 01	Y	1959, 1971, 1973, 1974, 1978	Y	D	2. Likely	5	194	13	2	11						The source category reference document, BART 01 tables indicates possible BART-eligible units were constructed in the BART timeframe.
9	AZ	0734	PHELPS DODGE CORPORATION - MORENCI	BART 08, BART 22	Y	Constructed in 1941, modified 1964 and 1970-1977.	Y	D	2. Likely		1,139	1,921	1	617						This source is identified on the primary copper source category list. The permit indicates this copper mine has large boilers constructed during the BART timeframe.
10	AZ	0400700615	AMERICAN SMELTING & REFINING CO	BART 08, BART 10	Y	Constructed in 1912. Modified in 1971.	M	D	3. Potentially		89	183	18,529	4						This source is identified on the Primary Copper Smelter source category list. In addition this source appears, from looking at the permit, to have a sulfuric acid plant.
11	AZ	0400301143	APACHE NITROGEN PRODUCTS INC	BART 10	Y	1978	M	D	3. Potentially		155	31	0	3						This source is identified on the Nitric Acid source category list.
12	AZ		Asarco Ray Mine	BART 22	M		D	D	4. Do not know											This source is identified on the large boiler list. Need to verify if this source has a boiler >250 MMBtu/hr. Arizona thinks it is unlikely that there is a boiler at this source.
13	AZ		FOREST ENERGY CORP.	BART 18	Y		D	D	4. Do not know											This source is identified on the fuel conversion plant source category list; it appears to make wood pellet fuel.

