

Native American Tribal Emission Inventories, A 2006 Update

Sarah Kelly, Institute for Tribal Environmental Professionals (ITEP) at Northern Arizona University

P.O. Box 15004, Flagstaff, AZ, 86011

Phone: (928) 523-6377

Email: Sarah.Kelly@nau.edu

Angelique Luedeker, ITEP at Northern Arizona University

P.O. Box 15004, Flagstaff, AZ, 86011

Phone: (928) 523-5037

Email: Angelique.Luedeker@nau.edu

ABSTRACT

In the years between 1990 and 2000, tribes completing emission inventories (EIs) used them in their own communities and tribal air programs. The main reasons for conducting an EI were to identify sources of air pollution that were affecting the health of community members and to determine the need for a continuing air quality program and/or air quality monitoring. By 2001, tribes and the US EPA were looking for efficient ways to distribute tribal EI data on a regional and national basis. Through a project funded by both US EPA's Office of Air Quality Planning and Standards (OAQPS) and the Tribal Data Development Working Group (TDDWG) of the Western Regional Air Partnership (WRAP), the Institute for Tribal Environmental Professionals (ITEP) raised the number of tribes represented in the 1999 NEI from 1 to 12.

This project is continuing with efforts to increase the number of tribes represented in the 2002 and 2005 NEI. At the end of 2004, 18 tribes had released their data to the NEI. By the end of 2005, that number had increased to 35. This paper categorizes tribes according to what types of sources they have on their reservations and what, if anything, they have included in an EI. Developing these categories provides a framework for analyzing the current completeness of the total US tribal EI effort. Summaries of Clean Air Act (CAA) Title V sources, their emissions and their inclusion in tribal and national inventories are provided.

INTRODUCTION

When thinking of sources of air pollution on Native American Reservations in the United States, there are three categories of reservations to consider. The first are reservations for which complete emissions inventories (EI), covering at least point and area sources, have been completed. These reservations may or may not have major sources of air pollution that are permitted under Title V, Part 71 of the CAA. The second are reservations which have inventoried their Title V sources, but have not completed a more comprehensive EI. The third are reservations which have not completed any inventory of air pollution sources on their land. Each of these three categories will be discussed in more detail in the following discussion.

HOW DO WE KNOW WHICH TRIBES HAVE COMPLETED EIs?

Determining which tribes in the U.S. have completed emission inventories is not a clear cut task. There are 546 federally recognized tribes and Alaskan Native Villages (ANVs) in the U.S., though this number itself is frequently in flux depending on the definitions used and periodic changes in the federal register. It is an extremely difficult task to contact and assess the state of air quality management for each of these tribes and their lands. ITEP has been contracted by the U.S. Environmental Protection Agency's (EPA) Office of Air Quality Planning and Standards (OAQPS) since 2002 to assist tribes in formatting their EI data for submission to the NEI. The Tribal Data Development Working Group (TDDWG) of the Western Regional Air Partnership (WRAP) has contracted with ITEP since 1999 to assess which tribes in the WRAP region have conducted emission inventories and to provide technical assistance and training on conducting EIs. The Lake Michigan Air Directors Consortium (LADCO) and EPA's Region 7 contracted ITEP in 2004 and 2005 to provide similar assistance to tribes in their EI efforts. Through these projects, ITEP has made a concerted and sustained effort over the last six years to determine which tribes are conducting EIs. The information that we have is most accurate for the tribes of the WRAP region and for tribes north of Arkansas and west of the Mississippi River, with the addition of tribes located in Wisconsin and Michigan. It is possible that there are tribes doing inventory work that ITEP has overlooked.

HOW MANY TRIBES HAVE COMPLETED EIs?

As of December 31, 2005, ITEP was aware of 40 tribes in the lower 48 states whom had completed some level of EI for their reservations. Five of the 40 tribes whom had completed some level of EI have not released their data to the public as of December 31, 2005. Of the 35 tribes with EI data released to the public, 11 included only their Title V sources in their inventories to date, classifying them as the second category of tribe listed in the opening paragraph. One of these tribes has released data on their Title V source, but the emissions data is not currently available so an inventory has not been completed. Twenty-nine tribes belong to the first category of tribe described in the opening paragraph and have more comprehensive EIs completed for their reservations. As for the third category of tribe, ITEP estimates that 282 tribes in the lower 48 had not completed EIs. Of those 282, ITEP estimates that approximately 20 were working on EIs at the end of 2005 with and additional 20 or so preparing to start their EI. In Alaska, ITEP estimates that approximately 210 ANVs have not completed EIs at the end of 2005. ITEP does not have adequate information to estimate the number of ANVs working on EIs in 2005. Tables 1 and 2 summarize this information.

Table 1. EI Summary Table for Lower 48 States Tribes.

Estimated total tribes with some level of EI completed.	40
Total number of tribes	322
Percent of tribes with EIs	12.4%
Number of tribes with EI data released to public	35
Number of tribes with comprehensive EIs	29
Number of tribes with EIs including only Title V sources	11
Number of tribes with Title V sources and no EI completed.	5

Number of tribes with possible future Title V sources and no EI completed	5
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ITEP has not done research to date to determine which of the 224 ANVs have done EI work on their lands. Through professional meetings and workshops, we have heard that 5 or less have completed EI work for their villages and/or surrounding lands. The WRAP plans to complete a project in early 2006 in which they did village-specific EI work on 12 ANVs.

Table 2. EI Summary for ANVs.

Estimated total ANVs with some level of EI completed or in progress.	12 - 17
Total number of ANVs	224
Percent of ANVs with EIs complete	5.4% - 7.6%
Number of ANVs with Title V sources	0

RESERVATIONS WITH COMPREHENSIVE EMISSION INVENTORIES

There are 29 tribes for which complete EIs, covering at point and at least some area sources, have been completed. These tribes made an effort to cover significant sources of emissions on their reservations, whether point, area or mobile. The source categories most difficult to account for on reservations are on-road and non-road mobile sources. Both of these source categories require the use of models and activity data that are often only applicable on a county basis. In the EIs ITEP has reviewed, tribes estimate mobile emissions in 3 ways:

1. Run the MOBILE model with national or local default inputs and use the resulting emission factors with vehicle miles traveled (VMT) or other data collected on the reservation to estimate emissions. For non-road sources, research to find emission factors from various sources for the equipment types of interest and use with reservation activity data to estimate emissions.
2. Obtain state or county data and assign some part of those emissions or activity to the reservation.
3. Do not include non-road or on-road emissions estimates in the reservation EI at all.

All of the reservation EIs reviewed by ITEP include major and minor point sources if such sources are present on the reservation. Tribes usually only include those area sources that they have identified as significant on their reservations. In some cases not all significant area sources on the reservations were included. Where the tribes were time and resource limited, they often just included a couple of the most obvious area sources on their reservations.

RESERVATIONS WITH TITLE V ONLY EIs

Eleven reservations have developed complete EI data only on their Title V sources as of December 31, 2005. Two of these reservations have also developed emissions data from oil and gas exploration and production. Five of these reservations

were assessed for significant minor point sources and none were found. No assessment of area or mobile sources had been completed on these reservations as of the end of 2005.

TRIBAL TITLE V, PART 71 SOURCES NATIONALLY

ITEP reviewed records at EPA's Regional Offices to gather information on Tribal Title V sources nationally. As of December 31, 2005, there were 95 Title V, Part 71 permitted sources in Indian Country. Table 3 summarizes these findings. Of those 95 sources, 70% are oil and gas related facilities. Figure 1 illustrates the types of facilities with Title V, Part 71 permits. The information contained in Table 3 and Figure 1 includes data collected for tribes who have not formally released their EI data to the public. Data for 18 Title V, Part 71 sources have not been included in EIs as of December 31, 2005.

RESERVATIONS WITH TITLE V SOURCES AND NO EI

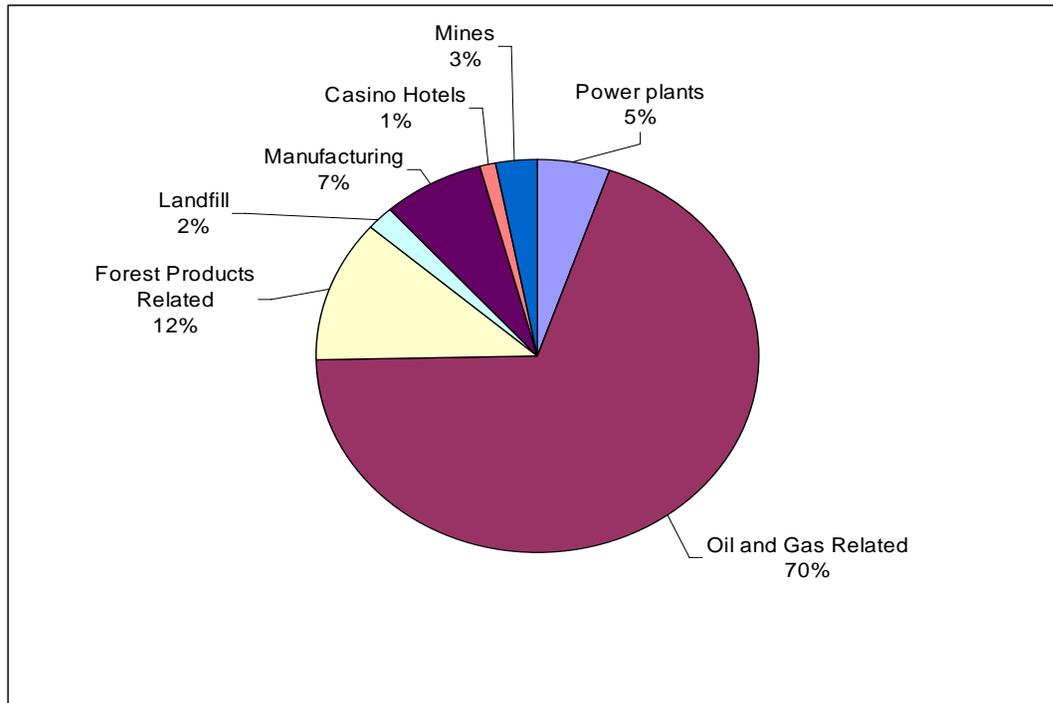
As of December 31, 2005, 5 tribes had Title V sources, but had not completed an EI for their reservation. One of these 5 tribes had agreed to release data on their Title V source, but the emissions data was not currently available so an inventory has not been completed. There is data available for the remaining 4 tribe's Title V sources, but the tribes were unable, for various reasons, to release the data to public or confirm its accuracy prior to December 31, 2005. Five additional tribes have sources with permits currently in process or have sources identified by EPA Region staff for future permitting, but had not completed an EI for their reservation as of December 31, 2005.

Table 3. Title V, Part 71 Sources on Reservations as of December 31, 2005.

U.S. EPA Region	Title V, Part 71 Permitted Sources	Total 2002 SOx emissions, tons	Total 2002 NOx emissions, tons	Total 2002 VOC emissions, tons	Comments
Region 1	0	0	0	0	
Region 2	2	0.1	2	23.6	Emissions only available for one source, 2nd source permit is in process
Region 3	NO TRIBES LOCATED IN REGION 3				
Region 4	0	0	0	0	
Region 5	2	0.2	892	21	Region is in process of permitting 4 additional sources for 4 additional tribes.
Region 6	5	0	926	433	
Region 7	0	0	0	0	
Region 8	50	1,869	9,914	2,438	
Region 9	23	37,320	80,727	781	Black Mesa mine counted twice, once for Navajo, once for Hopi, emissions counted only once.
Region 9 minus 2 Navajo Power Plants	21	471	6,896	730	
Region 10	13	200	1,691	617	Missing emissions for one source.
Total Title V, Part 71 sources	95	39,389	94,152	4,314	

U.S. EPA Region	Title V, Part 71 Permitted Sources	Total 2002 SOx emissions, tons	Total 2002 NOx emissions, tons	Total 2002 VOC emissions, tons	Comments
Total minus Navajo Power Plants	93	2,540	20,321	4,263	

Figure 1. Types of Tribal Title V Facilities of the Total 95 Facilities.

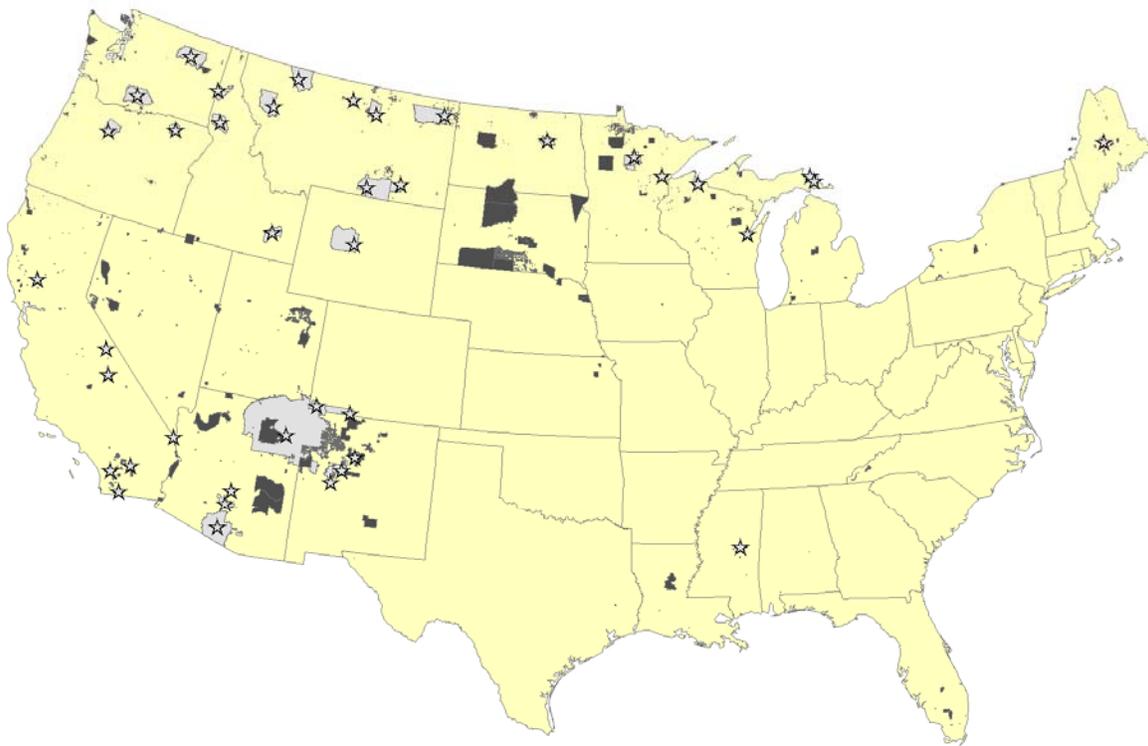


RESERVATIONS WITH NO TITLE V SOURCES AND NO EI

As shown in Table 1, only 12.4% of tribes in the lower 48 states had completed any level of EI for their reservations as of December 31, 2005. These tribes represent 56% of the total reservation land area in the lower 48 states. However, only 29 tribes, representing 18% of total reservation land area in the lower 48, had completed comprehensive EIs including all or most apparently significant reservation emission sources. From this analysis, 82% of reservation land area was not covered by a comprehensive EI as of December 31, 2005. Forty-four percent (44%) of reservation land area in the lower 48 states had not been subject to any level of EI effort by the end of 2005. (Figure 2).

As shown in Table 2, only 5%-8% of ANVs have completed inventories for their villages and/or surrounding areas. An area analysis is not presented here because to our knowledge, ANV EIs to date have mainly been conducted on just the villages or population centers and do not address surrounding areas.

Figure 2. Reservations with some level of EI completed as of 12/31/05.



Star and light gray color = reservations with some level of EI completed.
Dark gray color = reservations with no EI completed.
Oklahoma Tribal Designated Statistical Areas not indicated here, though some have completed assessments of sources in their areas.

CONCLUSIONS

While much remains to be done in inventorying air pollution sources on tribal land, the progress over the past 5 years has been excellent as demonstrated by the change in the number of tribes submitting data to the NEI (Figure 3). Progress on the major sources of air pollution in Indian Country has been excellent. Eighteen of the 95 Title V, Part 71 sources were not included in any inventory as of December 31, 2006. That translates to 81% of all Title V, Part 71 sources which have been covered in an EI. That figure indicates that the majority of Title V sources on tribal lands have been included in an EI, although data for a number of those sources has not yet been released to the public in the NEI.

Our analysis showed that only 12.4% of tribes in the lower 48 states had completed any level of EI for their reservations as of December 31, 2005. These tribes represented 56% of the total reservation land area in the lower 48 states. However, only 29 tribes, representing 18% of total reservation land area in the lower 48, had completed comprehensive EIs including all or most apparently significant reservation emission sources. Only 5%-8% of ANVs have completed inventories for their villages and/or surrounding areas.

The 82% of lower 48 states reservation land area and the 95% - 92% of ANVs not covered by a comprehensive EI represent the work that remains to be done in Indian Country EIs in 2006 and beyond. The 81% of all reservation Title V sources included in EIs at the end of 2005 represents a giant step forward in understanding the sources of air pollution in Indian Country.

Figure 3. Tribes Releasing EI data to the NEI

