Strategic Target SP-14 [related to Strategic Target N in FY 07]

Measure: By 2012, improve water quality in Indian country at not fewer than 50 baseline monitoring stations in tribal waters[1] (cumulative) (i.e., show improvement in one or more of seven key parameters: dissolved oxygen, pH, water temperature, total nitrogen, total phosphorus, pathogen indicators, and turbidity).

Type: Target Measure

Who Reports in ACS: Regions

Definition: Baseline stations were selected from among stations located in Indian country that are planned for sampling at times during the FY 2006-2012 period. Stations selected were located on waters that have a potential for improvement in one or more of the seven key parameters. The stations selected are summarized in the table below.

To facilitate the selection, Tribes were asked to provide:

(a) The total number of monitoring stations identified by the Tribe that are planned for sampling (for one or more of the seven key parameters) at times during the FY 2006 – 2012 period. Result: 105 tribes identified 1,661 stations.

(b) Of the monitoring stations in (a), how many will be located on waters that have a potential for improvement in one or more of the seven key parameters. "Potential for improvement" means that water quality is or has been depressed, and some restoration activities are underway or planned to improve water quality for those waters. Result: At least 353 stations were identified with depressed water quality. Of these, 185 were identified as having restoration activities underway.

Of the monitoring stations in (b), EPA identified a national target of 50 stations for reporting actual improved water quality as defined in this guidance by 2012.

Seven key parameters means seven parameters identified in EPA's proposed CWA Section 106 Program Guidance for Tribes: dissolved oxygen, pH, water temperature, total nitrogen, total phosphorus, pathogen indicators, and turbidity. For the purpose of this measure, trends can be reported on these parameters or any appropriate sub-components of these parameters. Reporting on the seven parameters would be in accordance with the degree of maturity of the Tribe's monitoring program, consistent with the following table derived from the proposed Guidance.[*]

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[1] Use of the terms "Indian country," "Indian lands," "tribal land," "tribal waters," and "tribal areas" in the *Strategic Plan* is not intended to provide any legal guidance on the scope of any program being described, nor is their use intended to expand or restrict the scope of any such programs.

[*] p. 4-11, *Guidance on Awards of Grants to Indian Tribes under Section 106 of the Clean Water Act*, U.S. EPA Office of Water, April 2006, available at http://www.epa.gov/owm/cwfinance/106tgg07.htm. See also

For tribes conducting fundamental monitoring programs:

1. Dissolved oxygen
2. pH
3. Water temperature
4. Turbidity

For tribes conducting intermediate monitoring programs: above plus

1. Phosphorus
2. Total nitrogen

For tribes conducting mature monitoring programs: above plus

1. Pathogen indicators

Improved means that (a) at least one of the seven key parameters or parameter sub-components[**] shows an improvement in quality as described in the guidance below, and (b) there is no evidence of deteriorating trends in related parameters included in reporting for this measure. Further guidance for reporting improvement is provided below.

To meet the definition of "improved," a waterbody assessment must demonstrate a positive trend/change in at least one of the parameters or parameter subcomponent – dissolved oxygen, pH, water temperature, total nitrogen, total phosphorus, pathogen indicators, or turbidity – over at least two years. The baseline for the trend or change may be derived from monitoring conducted as far back as 1987. Monitoring must be conducted to show that the trend continues into or near the current reporting period, or the improvement is maintained during such period, allowing for averaging intervals and the time to assemble and analyze the data. For example, to be reportable for FY 2009, the trend would need to continue into or be maintained into (or near) FY 2009.

Sampling and analysis must be conducted in accordance with an EPA-approved quality assurance project plan or other appropriately developed QAPP (e.g., sampling conducted by a federal agency under their own approved QAPP).

Improvement at a station must be shown using one of the following three processes, as described in path "A", "B", or "C" below.

Federal Register Notice, *Tribal Grant Guidance*, April 26, 2006, 71 FR 24852. The table at p. 4-11 also includes two parameters for mature monitoring programs that are not included among the seven key parameters for this measure – Macroinvertebrates and Basic habitat information.

[**] Examples of subcomponents include total Kjeldahl nitrogen, and orthophosphorus.

PATH A

Use statistical procedures to demonstrate that significant improvement has occurred with a 90 percent or greater level of confidence. Where data are limited, a level of confidence of 70 percent or greater may be applied. For purposes of this measure, **"**statistical procedures" are those procedures capable of showing statistically significant change in the water quality parameter(s) (e.g. seasonal Kendall trend test, Wilcoxon sign rank). Supporting documentation should describe the environmental significance of any reported changes in water quality.

PATH B

Provide at least two lines of evidence to demonstrate improvement. This approach is suggested in situations where there is not enough consistent data to support the rigorous statistical tests in "A" above. Evidence must include each of the following:

1. Evidence of an improving trend in one or more of the water quality parameters identified in the measure based on empirical data which may or may not be statistically significant (e.g. descriptive statistics) but nevertheless supports improvement.

AND

2. At least one of the following four lines of evidence:
    a. Evidence of an improving trend in a related biological, physical, or chemical indicator/index that is not one of the seven key parameters.
    b. Evidence of an improving trend in water quality based on predictive/ modeled data, with field level ground truthing.
    c. Evidence of relevant load reductions.
    d. Evidence of relevant nonpoint source or point source implementation, or other evidence of watershed implementation actions involving the monitored waters.

PATH C

Report that a waterbody on which the station is located has been restored to attainment with water quality standards associated with one of the seven key parameters. If the Tribe has EPA-approved Tribal water quality standards, these must be used. If not, the Tribe should use one of the following sets of standards: Tribal standards adopted under Tribal law, draft Tribal standards, adjacent state standards, EPA's national recommended water quality criteria issued under section 304(a), or other scientific benchmarks determined by the Tribe. An assessment methodology documenting how the Tribe determines attainment with the appropriate standard is required under this option

More than one path may be utilized to evaluate data at a station, but only one may be used for reporting an actual water quality improvement. Different paths may be used for different stations.

For all three paths above, there should be no evidence of deteriorating trends in related parameters included in reporting for this measure (dissolved oxygen, pH, water temperature, total nitrogen, total phosphorus, pathogen indicators, or turbidity).

For all three paths above, where data are available, the analysis should take account of differences in streamflow or other natural events that could produce false "trends."

Supporting documentation for stations where improvement has occurred includes:

- The station name/number and waterbody name.
- Whether method "A", "B", or "C" above was used to assess the data, with a brief explanation why.
- The results of the assessment. The assessment will present the summary data from "A", "B", or "C" above demonstrating improved water quality. The assessment must identify the specific parameters used to assess improvements, and must also describe the efforts made to locate and analyze any evidence of deteriorating trends in these or related parameters included in reporting for this measure.
- A brief narrative on why the water quality is thought to be improving, including what action(s) took place to account for the improvement, if known.

Acceptable documentation of improvements can be provided to the Region in a variety of formats and can be provided by reference where readily accessible information/data exists.

In accordance with EPA's proposed Section 106 Tribal Grant Guidance, data used in the assessment must be provided to EPA in a format accessible for storage in EPA's data system. EPA Headquarters is working with Tribes and EPA Regional offices to develop a standard format for data reporting, including metadata. Standard templates will be available through EPA Regional offices before Tribes begin to implement this reporting requirement. EPA plans to make templates available before FY 2007 when the Tribal Grant Guidance takes effect.

Tribes must provide EPA a list of stations in the baseline. No further documentation is required, however, for stations where insufficient information exists to assess whether an improvement has occurred, or where no improvement has occurred.

EPA Regions will review the submitted data and assessments, and enter the results in the Agency Commitment System.

The tribal monitoring programs that support this measure are expected to begin functioning under the section 106 Tribal Guidance in FY 2007.

EPA expects the revised measure itself to become effective in FY 2008, when EPA begins reporting on all new or revised measures in the FY 2006-2011 Strategic Plan. The measure is conceived as a long-term measure, with a goal of showing improvements under PART by 2012. EPA has not yet determined when tribes will need to begin formal reporting.

EPA intends to further improve this measure, or develop new measures, for succeeding Strategic Plans. These developmental measures will reflect the phasing in of monitoring and assessment work of tribes as they implement the Section 106 Guidance for Tribes. For example, EPA is seeking ways to measure maintenance and protection of current water quality, as well as restoring and improving water quality. EPA welcomes the participation of tribes in these developmental efforts.

The following table summarizes the baseline stations.

	No. of tribes with stations planned	No. stations planned (a)	No. stations with suspected depressed water quality	No. stations with suspected depressed water quality and restoration activities underway (b)	No. stations targeted for improvement by 2012 (c)
Region 1	2	160	Unknown, at least 14	14	4
Region 2	1	14	Unknown	Unknown	0
Region 4	2	37	8 – 9	2	1
Region 5	32	729	118	44	6
Region 6	8	68	35 – 41	1	1
Region 7	7	82	4	4	1
Region 8	19	100	Unknown, at least 10	10	10
Region 9	23	203	Unknown, at least 43	43	15
Region 10	11	268	79	67	15
TOTALS	**105**	**1661**	**At least 311, not more than 761**	**185**	**53**

(a) The total number of monitoring stations identified by the Tribe that are planned for sampling (for one or more of the seven key parameters) at times during the FY 2006-2012 period.

(b) Of the monitoring stations in (a), the number that will be located on waters that have a potential for improvement in one or more of the seven key parameters. "Potential for improvement" means that water quality is or has been depressed, and some activities have been, are, or will be underway to improve water quality for those waters.

(c) Of the monitoring stations in (b), the estimated number EPA will show as a Target for reporting actual improved water quality as defined in the measure by 2012.

The following factors affected the development of the data in the above table.

- Many tribes have not yet finalized a water quality monitoring strategy, or are revising their strategy. Therefore, the number of planned stations may be revised.
- Some Regions were able to obtain information from all of their Tribes; others were able to focus only on tribes with mature or intermediate water quality monitoring programs.

- The majority of stations in column (a) will likely not be able to detect improvements in water quality as defined in the measure for several reasons, including:
    - Many stations are located at relatively undisturbed sites, where water quality is not known to be depressed relative to the seven key parameters.
    - Some Tribes have not developed water quality baselines for the stations that could identify problems.
    - Some water quality problems (e.g., mercury contamination) are not addressed by the seven key parameters.
    - Only a limited number of Tribes have implementation funding (319, watershed grants, etc) or other restoration activities underway. Many of those that do are just getting started. As support for restoring additional Tribal waters becomes available, Tribes will be able to address more of the degraded waters.
- Although many Tribal waters are currently in good shape, development, mining and other anthropogenic impacts are threatening to change this. It is very important for Tribes to be able to continue their efforts to monitor these waters and to access funds to protect high water quality. A few Tribes expressed concern about having waters head in the wrong direction. The work group strongly supports developing a water quality "maintenance" or "prevention" measure or measure component in the future.
- It is often difficult to predict continuity in Tribal monitoring programs. Although a growing number of Tribes have developed a routine monitoring program, there is often no guarantee of stability in the program due to changes in level of funding, changes in priority activities, or significant turnover in key trained staff.
- A significant portion of the monitoring conducted by many Tribes is on waters just outside or near reservation boundaries. In some cases this is a matter of identifying sites with convenient access that can best characterize tribal waters. In other cases Tribes are facing discharges or development pressures outside of tribal boundaries that affect or threaten waters upstream from the Tribal area. At least some of the monitoring stations identified in the baseline for this measure are located to monitor those upstream activities. In some cases stations are established to monitor waters on nearby ceded lands.
- It should be noted that the number of stations does not necessarily represent the number of water bodies monitored. The number of stations needed to characterize a water body may vary greatly.

Contact: Fred Leutner, Office of Science and Technology
leutner.fred@epa.gov; (202) 566-0378