Operation and Maintenance Guideline

for the

Sanitation Facilities Construction Program

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Working Draft

Prepared by

Office of Environmental Health and Engineering
Division of Sanitation Facilities Construction

Department of Health and Human Services
Public Health Service
Indian Health Service

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ACRONYMS

BIA	Bureau of Indian Affairs
EHS	Environmental Health Services
EHSC	Environmental Health Support Center
GIS	Geographic Information System
HUD	Department of Housing and Urban Development
IHS	Indian Health Service
OMB	Office of Management and Budget
OMDS	Operation and Maintenance Data System
O&M	Operation and Maintenance
PDS	Project Data System
SDS	Sanitation Deficiency System
SFC	Sanitation Facilities Construction Program
STARS	web based Sanitation Tracking and Reporting System

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PURPOSE

Background

This document is the guideline for developing and running an Operation and Maintenance (O&M) Support Program. The requirement for providing operation and maintenance support of tribal water, sewage, and solid waste systems is described in the Indian Health Manual, Part 3, Chapter 11.

Please direct all questions and comments about this document to the Indian Health Service (IHS) Headquarters Sanitation Facilities Construction (SFC) Program through the respective IHS Area Office SFC Program Director. Mention of trade names or commercial products does not constitute endorsement or recommendation for use. Note that the inclusion of laws, regulations, Office of Management and Budget (OMB) Circulars, and other documents are for reference purposes only.

This document is not intended to prescribe a program or program elements but to describe each functional element to give managers and O&M staff a full description of the practice areas. Although an ideal O&M program will deliver on each of the key components and responsibilities, most Areas do not currently have staff or funding to do that. A comprehensive guideline is intended to be a resource from which senior managers can make ala carte choices based on local conditions and constraints. It is also intended to articulate a comprehensive program so that the funding and resources we required to support tribal O&M capacity can be evaluated.

The Indian Health Manual states “An environmental health program which meets Indian Health Service criteria and recognized national standards will be provided within each Area/Program Office”. It also describes the environmental health program objective “To protect the health of and prevent disease among the American Indian and Alaska Native population through the development and implementation of a comprehensive environmental health program”. Chapter 11 of the Manual includes the following sections, each of which describe objectives, activities and operating guidelines and standards for specific operation and maintenance program elements.

> Section J. Operation and Maintenance
> Objective - To promote and assist in the establishment of an effective and economical mechanism for the operation and maintenance of tribal water, sewage and solid waste systems.
>
> Section P. Waste Disposal
> Objective - To assist American Indians and Alaska Natives to acquire adequate liquid and solid waste disposal facilities and to encourage the continued use and operation and maintenance of the systems.

Section Q. Water Supply
Objective - To assist American Indians and Alaska Natives to acquire an adequate, potable water supply and to encourage the continued use, operation and maintenance of the system.

History of Sanitation Facilities on Tribal Lands

Public Law (P.L.) 86-121, the Indian Sanitation Facilities Act, was signed into law on July 31, 1959. P.L. 86-121 created the IHS Sanitation Facilities Construction Program and gave it the authority to provide essential water supply, sewage disposal, and solid waste disposal facilities for American Indians and Alaska Natives. Throughout the 1960s and 1970s the IHS SFC program served as the primary supplier of sanitation facilities in Indian country and its principal focus was the construction of new sanitation facilities infrastructure. Historically operation and maintenance concerns received less emphasis than constructing the basic infrastructure needs of tribes.

By the 1980's basic sanitation facility infrastructure had been installed on a majority of Indian reservations. The 1988 amendments to the Indian Health Care Improvement Act, P.L. 94-437, required that IHS maintain inventories of sanitation facility deficiencies for new and existing Indian homes and communities, prioritize these deficiencies, and annually report them to Congress. The IHS Sanitation Deficiency System (SDS) was created as a result of the 1988 amendments and became the vehicle through which needed facility upgrades were identified and funded by a variety of government agencies.

The 1990's saw a significant shift of IHS SFC resources toward replacement and upgrade of existing sanitation facilities. Much of the renovation was required to build system capacity as a result of expanding populations and new requirements under the Clean Water and Safe Drinking Water Act, but a substantial portion was attributable to the lack of system operation and maintenance.

From a funding standpoint, multiple agencies and government programs supported sanitation facilities construction on tribal lands. Tribes, with the advent of gaming and improving economies, also began to make substantial contributions toward sanitation facilities infrastructure. The IHS, Environmental Protection Agency, Department of Agriculture and other public agencies provided operation and maintenance support through capacity building at the tribal level. Capacity building served to identify and provide the organizational structures, procedures, and skills necessary for running a utility operation, but did not address the inherent need for funding to carry out the tasks associated with a comprehensive operation and maintenance program. Relatively few tribes collected user fees for water, wastewater or solid waste service, and as a result, operating budgets were minimal and tribal utility departments were understaffed, lacked the necessary equipment to maintain facilities, and were left to respond to emergencies.

With maturing sanitation facilities infrastructure and improved economies in some cases, tribes and the federal agencies tasked with serving them have recognized the health and financial benefits resulting from improved sanitation facilities operation and maintenance. It has also been recognized that many of the facilities on tribal lands are aging, require increased maintenance, and may require replacement in the near future.

This requires those tribes and the federal government inventory existing facilities to progressively plan for future operation, maintenance, and replacement costs. The IHS Operations and Maintenance Data System (OMDS) contain the inventory of sanitation facilities and entities that operate those facilities.

O&M Practice on Indian Lands

Tribal operation and maintenance capacity varies widely from tribe to tribe. The largest factors influencing ability to adequately maintain facilities appear to be financial capacity and willingness to assume responsibility for the facilities. The trend over the past several years has generally been one of improving operation and maintenance of sanitation facilities by tribes. Certification of tribal operators is more common, stability in operations workforce is improving, and facilities are being better cared for.

IHS does not have an O&M program at the national level, although the DSFC added coordination of national O&M efforts as part of the duties of the Assistant Director in 2005. All Areas provide O&M support in some fashion, but the Area programs vary from one part-time IHS O&M technical assistance provider to full programs with multiple service providers.

Policy Basis for Providing O&M Support to Tribes

Indian Health Manual, Part 3, Chapter 11, Section J clearly states the IHS policy is to promote and assist tribes to develop O&M capacity. Chapter 2, Section IV, paragraph 5 of the SFC Criteria manual defines O&M training and technical consultation as an SFC program service and Chapter 5 Section II describes O&M financial assistance. The Criteria manual also describes O&M activities as "non-project" workload which means manpower is distributed accordingly through the RRM formula.

O&M activities are also authorized by statute, although funding to provide those activities has not been authorized by Congress.

P.L. 86-121 Sec 7 states "In carrying out…the Surgeon General is authorized - 1) to construct, improve, extend, or otherwise provide and maintain by contract or otherwise, essential sanitation facilities ….."

Public Law 94-437 Sec 302(b)(2) states "The Secretary.… is authorized to provide….

(A) Financial assistance to Indian tribes and communities in the establishment, training, and equipping of utility organizations to operate and maintain Indian sanitation facilities;
(B) Ongoing technical assistance and training in the management of utility organizations which operate and maintain sanitation facilities;
(C) Operation and maintenance assistance for, and emergency repairs to, tribal sanitation facilities when necessary to avoid health hazard or to protect the Federal investment in sanitation facilities."

Sec 302(e)(1) of that same law states, "The Secretary is authorized to provide financial assistance to Indian tribes and communities in an amount equal to the costs of operating, managing, and maintaining the facilities provided…"

COMPREHENSIVE SANITATION FACILITIES SURVEYS

Background

Chapter 11, Environmental Health Services, Part 3, of the Indian Health Manual states that surveys of completed sanitation facilities constructed under Public Law 86-121 are required, subsequent to the transfer of such facilities to tribes. The Manual also prescribes that surveys of community sanitation facilities and O&M organizations be conducted on an annual basis to provide guidance and assistance to tribes, the Bureau of Indian Affairs (BIA), and the IHS. By statute, public water supplies are required to conduct a sanitary survey every 3 or 5 years depending on the nature of the system. There is no statutory requirement for inspection of wastewater or solid waste facilities.

The IHS Guideline for Survey of Sanitation Facilities and Operation and Maintenance Organizations dated July 1991 indicates that surveys should be conducted by a team consisting of an environmental health officer and engineer.

Survey Goals

The primary goal of sanitation facilities surveys is to ensure that facilities and the services/products provided to tribal members are in proper working order and environmentally safe. Sanitation facilities surveys are integral to virtually all activities conducted by the SFC program and have historically been a focal point for coordination by SFC and Environmental Health Services (EHS) personnel. Data and knowledge is obtained to ensure that:

- IHS sanitation facilities planning/scoping, design, and construction services are enhanced,
- Sanitation facilities needs/deficiencies for inclusion in the SDS database are clearly defined,
- Area-wide scoring of tribal O&M capability under the SDS is consistent,
- Composite drawings of existing water, wastewater and solid waste facilities can be created and utilized for planning, zoning, design, and operational activities,
- Water, wastewater, and solid waste facilities can be inventoried for spare parts and for a determination of assets value and future replacement needs,
- Tribal technical and organizational assistance needs can be identified and addressed, and
- The OMDS and/or Geographic Information Systems (GIS) can be maintained as central repositories for composite record drawings, sanitation facilities inventories, engineering reports, designs, population data, etc.

Potential IHS O&M Responsibilities

The IHS O&M technical assistance provider can develop survey protocols in conjunction with Environmental Health staff and can conduct surveys in a team consisting of an environmental health officer and engineer. In some cases, however, third party technical assistance providers may provide this service. In those cases the IHS O&M technical assistance provider can manage or direct third parties to deliver these program elements. Regardless of delivery method, the list below includes a variety of basic elements required to provide sanitation facilities surveys.

1. Develop standardized Area survey procedures, surveying tools, and reporting format.
2. Conduct or ensure that surveys of O&M organizations and sanitation facilities are performed as required by Agency and Area policies.
3. Coordinate survey activities with Federal, State, and local agencies and non-profit O&M service providers.
4. Maintain and update OMDS consistent with the Data System Management section of this guideline.
5. Coordinate development of composite utility drawings with link to GIS product if applicable.

COMPOSITE UTILITY DRAWINGS

Background

SFC field and Area offices often serve as the repository of sanitation facilities documents and drawings for their respective tribal customers. Sanitation facilities drawings typically consist of as-built or record drawings and/or construction drawings that were not updated at the conclusion of construction. Typically, each of these drawings represents only a limited portion of the infrastructure in a given community. Many are hand drawn, although recent drawings may be in digital format, and drawings in any given community were often generated by a variety of entities (IHS, BIA, Department of Housing and Urban Development (HUD), tribal entities, private engineering firms, contractors, etc.), resulting in inconsistent format, scaling, and orientation. Tribal and IHS planners/designers typically are required to collect these varying forms of information to gain a clear understanding of existing system layout and function.

A composite utility drawing is a comprehensive system drawing resulting from combining the various drawings into a single scalable drawing. This allows for effective and efficient system evaluations and long term development planning. When developed using a georeferenced digital format in compliance with tribal or IHS design standards, the composite utility drawings can serve as the basis for a Geographic Information System (GIS).

Composite Utility Drawings Goals

Comprehensive System Drawings

The primary goal of composite utility drawings is to create a single location/product that represents all sanitation facilities installed in a given community. This will improve the effectiveness/efficiency of future systems analysis, assets inventory, preventive maintenance planning, community planning, and sanitation facilities design. As sanitation facilities are expanded, the composite utility drawing and any associated analyses (ex. hydraulic analysis) can be upgraded as well. From an IHS perspective, this effort would also serve to ensure that system knowledge is not lost through staff transfers.

At a minimum, the composite drawings should be scalable, georeferenced, and include basic infrastructure details including local numbering, naming, identification, and addressing, installation dates, sizes, and materials of construction. Geographic details including house addresses, and homeowner, street, and road names should be included where appropriate.

Assets Inventories

Composite utility drawings can provide the basis for an assets inventory. Typically tribal utility organizations and governing bodies do not have enough knowledge about the value and complexity of their utility assets to make informed decisions about the management of their sanitation infrastructure. Assets inventories are the fundamental device to provide that knowledge.

Lengths and quantities of assets can easily be determined from the scalable composite drawings. The assets inventory results from combining the basic infrastructure details from the drawings with asset-specific information in a spreadsheet, database, or data table in a GIS. To be meaningful, the asset-specific information should include, at a minimum, an identifying number, description, brand make and model, expected life, installed cost and a comment on condition. Installed cost can be estimated from replacement cost in current dollars. The assets inventory provides both current and replacement value and the basis for preventive maintenance and manpower planning.

Geographic Information Systems (GIS)

Composite utility drawings can also provide the basis of a GIS. The GIS can be further enhanced when overlaid on an ortho-rectified photograph. Vector data from AutoCAD utility drawings can be transferred to ESRI-based GIS platforms through the use of a Feature Manipulation Engine (FME) that converts *.dwg files to *.shp files. A GIS combines composite utility drawings with attribute tables that can include infrastructure and geographical data. Population and homeowner data, original design calculations and notes, original plan sets, photographs, etc. can also be included in the GIS to form a historical record of sanitation facilities.

Potential IHS O&M Responsibilities

The IHS O&M technical assistance provider can develop composite utility drawings, assets inventories, and GIS products directly, or in some cases coordinate IHS activities with existing tribal programs providing these deliverables. In many cases, however, the staff assigned to the O&M role may not have the time or skills required to provide these deliverables directly. In those cases the IHS O&M technical assistance provider can manage or direct third parties to deliver these program elements. Regardless of delivery method, the list below includes a variety of basic elements required to provide composite utility drawings, assets inventories, and GIS systems.

1. Conduct or ensure that surveys of O&M organizations and sanitation facilities are performed as required to gather data that might later be incorporated into an IHS or tribal GIS system.
2. Develop methodology and plan to provide base mapping for composite utility drawings.
3. Collect and compile existing drawings of all sanitation facilities on a community or system-wide basis.
4. Develop methodology and plan to transfer existing utility information onto base mapping.
5. Develop plans and specifications to solicit aerial mapping products and for rubber-sheeting and digitizing of existing hard copy utility drawings.
6. Overlay or draw sanitation infrastructure layout onto base mapping to provide comprehensive utility drawings.
7. Direct field surveys to confirm location of existing utilities and accuracy of existing utility drawings.
8. Identify and collect the basic infrastructure details from the composite or design/record drawings in a spreadsheet or database.
9. Develop methodology and plan to convey basic infrastructure details from IHS-constructed projects to existing tribal composite drawings and asset inventories.
10. Identify and collect asset-specific information in a spreadsheet or database.
11. Combine basic infrastructure and asset-specific information to comprehensive utility drawings to create the GIS.
12. Coordinate sanitation facilities data with existing tribal GIS systems.

OPERATOR TRAINING

Background

Tribal operators and managers must know how each component of their water, wastewater, and solid waste systems work and how to keep these in working condition to ensure that the goals of the utility to protect public health, protect the environment, and meet customer needs are fulfilled. Their job is to manage, operate and maintain the systems so that they function effectively and reliably over the long range.

Operator Training Goals

Appropriate Training

A primary goal of training is that it be relevant and appropriate to the participants. The training needs of tribal staff will differ widely, depending on the role in utility operations the staff person fills. For example, managers will require different skills than operators, and even among operators the training needs will vary from utility to utility. They will depend on the complexity of the system to be operated and maintained, as well as the operator's prior training and experience. Training may be specific to the operator's job or be part of a broader field of knowledge as required to pass certification exams.

Course Development and Delivery

After identifying training needs, courses should be developed that meet those needs. The purpose and scope of the training should determine the appropriate delivery method. Hands-on, one-on-one, or "over the shoulder" training may be the most effective way to teach specific maintenance or mechanical tasks. Formal classroom training may be more effective to teach managerial, certification, or "theory" related topics. Ideally, all training offered to operators and managers will have an optimal combination of hands-on and lecture type training to engage adult learners, provide skills to use on the job immediately, and also develop broader professional knowledge.

For example, a hands-on session to instruct how to install a repair kit on a chemical feed pump coupled with a lecture session on using vendor catalogs may be the most effective method to teach feed pump maintenance. A formal class at a community college might be the most appropriate setting for an update on regulatory requirements for continuing education credits related to certification.

The operator training opportunities offered through the IHS Environmental Health Support Center should reflect the collective need of all 12 IHS areas. Annual review of the course offerings and periodic refreshing of the courses offered will be critical to maintaining currency of those courses.

Coordination with Other Training Providers

It is frequently inappropriate to develop a course because it is otherwise already available. Rural water associations, professional and trade associations, and regional and local regulatory agencies frequently offer relevant training at low or no cost. In addition to receiving the content, tribal staff will be able to network with other small system operators and managers at these third party courses. The IHS O&M technical assistance provider can identify, facilitate, and coordinate attendance to this type of non-IHS training.

The IHS Environmental Health Support Center supplies several operator training opportunities annually. At the annual O&M workshop each Area requests courses to be delivered locally. Any Area can send tribal or IHS staff to Environmental Health Support Center trainings in other Areas.

Financial Support for Tribal Training

As part of the annual program budget, Headquarters OEHE has identified funding to be used to support O&M training. This money is disbursed to the Environmental Health Support Center and to each Area. Financial support for tribal staff training related to sanitation facilities is an appropriate use of this funding. Although this funding may be inadequate to satisfy all of the training needs in an Area, it is likely to provide a basis for an adequate training program. Training should be a cooperative effort between IHS and the tribes.

Part of the philosophy of training the IHS O&M technical assistance provider should convey to tribal operators and managers is the concept of ownership of the training program as a part of their capacity development to ensure their success. Training is an investment in competence and part of the cost of doing business.

Operator Summits

Interaction and cooperation between tribal operators and managers should be promoted and facilitated. In addition to interaction with other utility staff from other tribes within an Area, interaction and cooperation between tribal staff, IHS staff, and other funding and regulatory agencies should be promoted and facilitated. Sharing of resources, including tools, equipment, materials, expertise, and technical providers are all possibilities. The IHS O&M technical assistance provider should develop and convene an operator summit at least annually with the express goal of promoting this interaction. As with training, the content of the summit ideally will include a mixture of working sessions and presentations by a variety of participants.

Tribal operators and managers should also be encouraged to participate in events sponsored by rural water associations, professional and trade associations, and regional and local regulatory agencies for the benefit of all operators.

Operator Certification Support

Certification ensures that an operator has adequate education, training, and practical experience to be entrusted with the operation and maintenance of the tribal sanitation infrastructure. An operator has to demonstrate experience and be able to pass a written examination to be certified. IHS should encourage tribes to hire only certified operators or people who can become certified operators within a reasonable period of time. The IHS O&M technical assistance provider should support the philosophy that it takes good pay to recruit and retain good operators, and that it is worth it because it results in success.

A variety of certifications are available to tribal operators. In cases where tribes or tribal operators do not wish to certify through state agencies, certification is possible through a variety of tribal umbrella groups. The IHS O&M technical assistance provider should facilitate the analysis of tribal certification needs and coordinate certification from one of these non-State entities, should a tribe or operator not wish to pursue State certification.

In the event uncertified operators are employed by tribes, training must be identified or developed that provides the basic knowledge those operators will need to pass certification exams. Once certified, operators will need to maintain their certifications through continuing education. The IHS O&M technical assistance provider should identify or provide training to facilitate this.

As they plan operator training, the IHS O&M technical assistance provider and the tribes must recognize that much of the material required to pass certification exams may not directly applicable to many tribal systems. Certification preparation training must be supplemented with practical, hands-on events pertaining to the components of each operator's system.

Potential IHS O&M Responsibilities

The IHS O&M technical assistance provider can identify, develop, deliver, and evaluate training directly. In many cases, however, the staff assigned to the O&M role may not have the time or skills required to provide these services directly. In those cases the IHS O&M technical assistance provider can manage or direct third parties to deliver these program elements, facilitate the availability of third party training to tribal staff, or coordinate the delivery of training courses provided by the IHS Environmental Health Support Center in Albuquerque. Regardless of delivery method, the list below includes a variety of basic elements required to provide training to tribal staff.

1. Identify tribal operators and staff that need or desire training.
2. Identify tribal operator and staff training needs.
3. Determine how that training can be delivered most effectively.
4. Participate in an annual review of the course offerings and content of the courses offered through the IHS Environmental Health Support Center.
5. Identify and coordinate Environmental Health Support Center and third party training appropriate for tribal staff in your Area.
6. Develop and manage a protocol for sponsoring tribal staff to third party training or to IHS training not offered locally, as appropriate.
7. Identify annual amount and establish an accounting system to track O&M training funding disbursed from Headquarters OEHE to the Area.
8. Schedule and convene an annual operator summit with the express goal of promoting interaction among tribal and IHS staff and other funding and regulatory agencies.
9. Facilitate the analysis of tribal certification needs and coordinate certification through a State or non-State entity.
10. Identify, schedule, or develop and deliver certification training for uncertified operators.
11. Identify, schedule, or develop and deliver annual certification training to provide relevant continuing education for certified operators.

TECHNICAL ASSISTANCE

Background

Technical assistance is providing operational, planning, financial, and/or managerial guidance to an organization or individual, usually at or through a tribe or tribal entity. This assistance can be provided directly by IHS staff, through third party service providers, or through funding provided or overseen by IHS to purchase the services of outside consultants, service providers and/or tribal staffers.

Technical Assistance Goals

Appropriate Technical Assistance

To provide effective technical assistance, the service provider must clearly understand the structure and function of the organization or individual for whom the technical assistance is provided. To facilitate this understanding, the structural, operational, planning, financial, and personnel components of the organization should be considered. The operational requirements and functions designed to address the requirements of each component should be identified. The IHS O&M technical assistance provider must carefully distinguish between symptoms and direct causes of deficiencies within the organization or system. Generally, technical assistance to help tribes or tribal staff deal with the symptoms while leaving the direct causes unaddressed does not provide long term relief from deficiencies.

Method of Delivery

The IHS O&M technical assistance provider must first select the method of technical assistance delivery. Generally, these are direct delivery, collaborated delivery, and contract delivery. Direct delivery is technical assistance that is developed and delivered by an IHS employee. Collaborated delivery is where an IHS employee joins with other agencies or organizations to provide technical assistance. Contract delivery is technical assistance provided by third parties paid for by IHS, a third party, or a combination of both. These delivery methods may be combined to provide the highest impact technical assistance for the lowest cost.

Coordination with Other Technical Assistance Providers

Technical assistance can be enhanced by the ability of the IHS O&M technical assistance provider to find and leverage available resources to satisfy identified requirements. Resources can typically be leveraged by receiving third party financial contributions to provide direct service, by directing third party providers paid by others, or at a minimum by coordinating technical assistance provided directly by IHS with that provided by third parties operating independently. When leveraging resources, the IHS O&M technical assistance provider must be aware of reporting and management required by the third party contributor.

Areas of Technical Assistance

Regardless of the delivery method, the types of technical assistance will generally correspond to the functional components of the tribal organization or utility. These are likely to include:

- Daily operations and operational planning,
- Operational and managerial troubleshooting,
- Managing composite drawings and assets inventories,
- Identifying hazards and vulnerabilities and safety, emergency response, and contingency planning,
- Managing human and material resources associated with operations and maintenance,
- Preventive maintenance planning,
- Master and capital improvements planning,
- Capital, repair and replacement, and operational budgeting and budget management,
- Regulatory compliance, records management, and sampling planning
- Developing utility ordinances, by-laws, and design and construction standards,
- Financial management including rates and billing.

Potential IHS O&M Responsibilities

The IHS O&M technical assistance provider can identify, develop, deliver, and evaluate the effectiveness of technical assistance. In some cases however, the staff assigned to the O&M role may not have the time or skills required to provide all of these services directly. In those cases the IHS O&M technical assistance provider can manage or direct third parties to deliver these program elements, facilitate the availability of third party technical assistance to tribal staff, or coordinate the delivery of technical assistance. Regardless of delivery method, the list below includes a variety of basic elements required to provide technical assistance to tribal staff.

1. Clearly identify and understand the structure and function of the organization or individual to whom technical assistance is provided.
2. Carefully distinguish between symptoms and direct causes of deficiencies within the organization or system and develop a technical assistance approach accordingly.
3. Identify resources that can be leveraged to enhance technical assistance delivery.
4. Identify other technical assistance providers from whom a tribe or operator are likely to receive technical assistance.
5. Coordinate all technical assistance providers from whom a tribe or operator are likely to receive technical assistance.
6. Identify specific topics of technical assistance desired or needed in conjunction with a tribe or operator.
7. Schedule or deliver technical assistance consistent with identified tribal or operator needs.

O&M ORGANIZATION CAPACITY DEVELOPMENT

Background

Capacity development is closely linked to technical support. It is assistance provided to tribes and tribal organizations specifically to help develop the managerial, financial, and regulatory framework necessary for a fully functional and self sustaining utility. Although this assistance is generally directed to utility organizations, the IHS O&M technical assistance provider will likely also deliver these services to other tribal departments and governmental units with budget or managerial impact on the operations of sanitation facilities. As with technical assistance, capacity development assistance can be provided directly by IHS staff, through third party service providers, or through funding provided or overseen by IHS to purchase the services of outside consultants, service providers, or tribal staff.

O&M Organization Capacity Development Goals

Ordinance Development

Utility ordinances provide the rules and conditions for operating a utility organization. The principal advantage of well developed ordinances endorsed or approved by a tribal government is to minimize politics in the day to day operation of sanitation facilities. To be effective, ordinances have to include the following as appropriate to local conditions:

- Service area,
- An organizational description of the operating entity,
- Description of the services to be furnished,
- Application process for service,
- Responsibilities of both utility organization and customers,
- Standard specifications and details for new facilities connected to tribal systems,
- Specific hardware requirements including meters,
- Grievance procedures for both utility organization and customers,
- Rate structure and billing procedures,
- Disconnection and reconnection procedures,
- Access, easement, right-of-way, and permits requirements,
- Waivers and suspensions, and
- Civil penalties.

Formal inclusion of a utility operating ordinance into the tribal body of law by tribal resolution or other legal procedure will be required to elevate it above politics. It may be advisable to reference those portions of the ordinance that are likely to change over time to separate documents. Examples of these might be the rate structure, an application form, or a service agreement form.

Budget Development

Budget development requires accurate understanding of the costs and revenues associated with operating and maintaining sanitation facilities. Although typically not the responsibility of the operating staff, developing a budget that accurately recognizes the

true personnel and material costs of operating the sanitation facilities is fundamental to self-sustaining operations. An accurate inventory of assets and manpower requirements of the system components is essential prior to completing a budget.

The IHS O&M technical assistance provider will likely provide assistance in developing the cost side of the budget and may be valuable as a liaison between the operations staff and tribal management. Facilitation of third party financial and budget consultants may be an effective way to ensure the budget process is rigorously developed.

Financial Management

Financial management is the control of resources that flow through the utility after a budget is in place. Expertise in accounting is essential to financial management. This is an area of utility management that the IHS O&M technical assistance provider typically will not have experience with, and as such, facilitation of third party financial consultants may be the most effective way to support financial management.

Potential IHS O&M Responsibilities

1. Collect and present sample ordinances from other tribal utility organizations as concept documents to serve as the basis for developing local ordinances.
2. Develop ordinances tailored to local conditions and present to operators, managers, and tribal officials, as appropriate.
3. Develop accurate annual manpower requirements based on assets inventory and unit task requirements.
4. Annually review and adjust manpower estimates based on expenditure of time and resources from previous year(s).
5. In collaboration with utility operators and managers establish a schedule to develop a budget.
6. Develop and present workload requirements to tribal councils, operating board, and other oversight or financial bodies, as appropriate.
7. In collaboration with utility operators and managers, establish the extent of liaison services desired between the operations staff and tribal financial managers.

MAINTENANCE MANAGEMENT PROGRAM DEVELOPMENT

Background

A maintenance management program (MMP) is a systematic method of assuring that sanitation facilities function properly for the duration of their design life. To do this, installed facilities require ongoing care and maintenance. The MMP identifies the tasks necessary to ensure proper operation and both preventive and corrective maintenance of the facilities.

The MMP identifies personnel, material, time, and financial resources required by a tribe or tribal entity to support preventive and corrective maintenance of sanitation facilities. These resources are balanced against tribal policies and ordinances, regulatory requirements, and the desired level of service to meet customer requirements. When

fully implemented, specific tasks are identified and then recorded and analyzed by using a work order system. The maintenance work can be prioritized, leveled, and scheduled using a work order system and a work scheduler.

A well developed maintenance management program is an excellent tool to protect tribal sanitation facilities from premature failure or retirement. This is the best interest of the tribes, the individuals served by tribal utility systems, and the Indian Health Service.

Maintenance Management Program Goals

Maintenance Management Policy

For a maintenance management program to be effective, each tribal utility should have a formal policy to support its MMP. This policy should clearly assign responsibilities and authorities to the personnel filling the various roles of the MMP. It should also define accountability for program objectives, both successful and unsuccessful. The policy limits the scope of activities included in the MMP. Activities not included in the MMP policy should not be undertaken by utility staff. Over time, the policy should be updated as required by adding, subtracting, and modifying activities to meet tribal and utility MMP objectives.

The IHS O&M technical assistance provider will likely provide assistance in developing the maintenance management policy and may be valuable as a liaison between the operations staff and tribal management. Facilitation of third party financial and budget consultants may be an effective way to ensure the budget process is rigorously developed.

Identifying Operational and Maintenance Tasks

To plan for long term sustainability of a tribal utility organization, a complete list of the routine and non-routine tasks necessary for proper operation and maintenance of its facilities will be required. Routine tasks are those done once a month or more often. Non-routine tasks are those performed less frequently. The complete list of routine and non-routine tasks is used to develop the work order program and work scheduler. Consistent use of the task list increases the effectiveness of the MMP.

Allocating Resources to the MMP Tasks

Each routine and non-routine task requires personnel, materials, time, and financial resources to accomplish the task. Asset inventories, staffing plans, vulnerability assessments, hazards analysis, and sampling plans all provide data to determine the resource requirements. The resource requirements should be included in the annual operational plan and operational budget. The goal of resource allocation is to effectively and efficiently allocate the tribal utility organization’s resources to achieve the tasks identified in the MMP.

Establishing the Level of Service

"Level of service" is a measure of effectiveness of the condition or availability of the goods and services provided by a utility operation. The measure can apply to both operating conditions and the utility's deliverables such as water supply or waste water collection. The goal of establishing a level of service measure is to balance the tribal utility organization's resources with its requirements.

Comparing the total resources required for all operational and maintenance tasks to the tribal utility organization's total resources will indicate the level of service. If the organization's total resources are less than those required, the level of service must be lowered. However, if the organization's resources are more than those required, the level of service can be raised. A well defined level of service will help utility organization managers create and defend operational budgets in addition to managing utility operations.

Examples of action to affect the level of service include reducing the hours of operation or number of employees at the utility office, reducing the frequency of maintenance or operational tasks, and increasing the customer rates.

Work Order Program

A work order program is a tool to organize, authorize, and manage operations and maintenance work. On the front end the work order program establishes the backlog of known work that is required. It is also used to authorize and manage the actual performance of that work. On the back end the work order program is used to document the work accomplished. It also is used to maintain inventories of consumable resources required to perform the work. Generally, the work order program can be used as a quality measure for the performance of the MMP.

Work Scheduler

Resource availability to perform operational and maintenance tasks can be significantly impacted by scheduling because many of those tasks in a small utility require the same resources. Because of this, effective scheduling is critical. The goal of the work scheduler is to sequence the tasks identified in the maintenance management program to most efficiently use the available resources. This goal can only be achieved by actively managing the work schedule and associated resources. The desired level of service may constrain the schedule. A well-developed maintenance management program will level the workload and resources across a predictable schedule.

<u>Potential IHS O&M Responsibilities</u>

The IHS O&M technical assistance providers can assist tribal utility organizations develop maintenance management program policies, task lists, resources allocation, work schedules, work order programs, and help to determine the level of service. These activities should be followed by the development of a work scheduler. Specific activities

the IHS O&M technical assistance providers can provide to help tribes develop a maintenance management program include the following.

1. Conduct field investigations to assess the operations and maintenance practice for tribal utility organizations and make specific recommendations about developing maintenance management policies and programs as appropriate.
2. Provide training on the appropriate organizational structure for the tribal utility organization that includes authority, responsibility, and accountability.
3. Identify the routine and non-routine tasks necessary to create an effective MMP for the tribal utility organization.
4. Identify the personnel, material, time, and financial resources required for the MMP tasks.
5. Provide training to utility personnel in work leveling and prioritization.
6. Provide technical assistance in the development, testing, using, reporting, and evaluation of a work order program & work scheduler.
7. Provide technical assistance to utility managers to evaluate and use the concept of level of service based on data obtained from the task list, work order program, and work scheduler.
8. Provide technical assistance to utility managers and staff in consumable inventory management.

DATA SYSTEM MANAGEMENT

Background

The SFC data system is the web-based Sanitation Tracking and Reporting System (STARS). Information about sanitation deficiencies, active and completed projects, sanitation projects for existing housing, homeowner and individual sanitation facilities, O&M organizations, and water, wastewater and solid waste systems are included in various data systems within STARS. Although the IHS O&M technical assistance provider may be involved in populating or using most or all of the STARS databases, the OMDS and the SDS contain data specifically related to the IHS O&M support program.

The STARS system is password protected and a designated official at each Area office is charged with granting access to individual users. Access can be limited depending on the needs of users, and it is possible to limit access to only the OMDS system. The IHS O&M technical assistance provider should have access to the entire STARS system to enable full partnership in the SFC program.

Data System Management Goals

For the data systems to provide accurate and current information for program managers and practitioners, they should be fully accessible to all IHS staff and consistently used as a regular part of the IHS O&M technical assistance provider's duties. Although only the OMDS and SDS have fields specific to operations and maintenance, all of the data systems provide information critical to the duties of the IHS O&M technical assistance provider.

OMDS

OMDS is the archive of profile and descriptive information about tribal water, wastewater, and solid waste systems and the organizations that manage those systems. As with the other data systems within STARS, the systems and organizations are community based. The legacy data that was archived before the web based version of OMDS did not include community associations and as a result some of the associations may be missing.

The OMDS system information was enhanced after migration of the legacy data to provide more complete data for IHS and other federal partners. For this to be fully useful, the IHS O&M technical assistance provider must regularly update the OMDS to reflect changes and updates to systems and organizations that operate sanitation facilities on tribal lands. The objective of these regular reviews and updates is to ensure data in the OMDS is current.

SDS

SDS is the data system that archives and prioritizes the sanitation deficiencies as mandated by Congress. Associated with the goals of the O&M support elements including comprehensive sanitation facilities surveys, technical assistance, project support and liaison between tribe and other federal entities, the IHS O&M technical assistance provider will have a general interest in the SDS.

Primary responsibility for maintaining the data in SDS rests with others in the SFC program, but the IHS O&M technical assistance provider has direct responsibility to determine the O&M score for SDS projects. Data to make this determination will be collected in the course of consulting with tribes in an ongoing O&M support role and through completion of sanitation facilities surveys. These determinations are generally made in conjunction with tribal and other OEHE staff.

<u>Potential IHS O&M Responsibilities</u>

1. Obtain full access to the entire STARS system.
2. Enter and maintain community associations for all OMDS systems and organizations.
3. Enter and maintain profile and descriptive information about tribal water, wastewater and solid waste systems.
4. Enter and maintain profile and descriptive information about tribal organizations responsible for the operation and maintenance of sanitation facilities.
5. Formalize the protocol to assign O&M scores to SDS projects and annually update those scores prior to the August SDS submittal.

PROJECT SUPPORT

Background

The operation and maintenance of sanitation facilities in Indian country has historically been inadequate to ensure that those facilities routinely serve their design life. Many tribal populations and governments may not have the economic capacity to support proper operation and maintenance of community sanitation facilities. Many do not collect user fees sufficient to support their utility operations.

Facilities planning that considers both capital and O&M costs and long term operability is critical to extending the serviceability of sanitation facilities. These considerations should specifically be included in the selection and preliminary design of sanitation facilities. From the tribal perspective, consideration of future operation and maintenance costs outweighs capital cost considerations. It is critical that IHS fully identify the personnel, equipment, operational, and training costs associated with proposed facilities. Prior to transferring completed facilities, IHS shall provide comprehensive and user friendly O&M manuals, operational aids and start-up training to tribes.

Project Support Goals

IHS O&M technical assistance providers should generally support SFC construction projects by participating in:

- Long-term capital improvements planning, including conceptual planning,
- Project scoping and the SDS process,
- Project summary drafting and review,
- Design and construction plan and specifications review,
- Delivering operation and maintenance manuals, and
- Startup training.

The O&M staff should also serve to provide tribal advocacy to IHS and be key in facilitating communications among the various project stakeholders.

Long-term Capital Improvements Planning

IHS is required by statute to identify, prioritize, and report sanitation facilities deficiencies. Part of those deficiencies result from the need for tribes to update or replace aging sanitation facilities and to plan for future housing development. The SDS is the mechanism by which those deficiencies are identified, scoped and reported. All concerned parties, including the owner, operating entity, and IHS O&M and other staff, should participate in a conceptual review of all SDS projects prior to final submittal.

To be effective in ensuring that SFC projects and project selection include a clear awareness of O&M considerations, IHS O&M technical assistance providers should be involved in project scoping during needs assessment, project conceptual determination, and through the SDS process. Preliminary engineering should consistently include facility alternatives and projected O&M costs and manpower requirements.

The O&M staff should foster tribal participation in the selection of long term infrastructure options and encourage the operating authority to establish rate structures or alternative funding sources to accommodate future O&M and replacement costs of sanitation facilities.

Project Summaries

An O&M section should be included in all preliminary designs or engineering reports and in all project summaries. This section should provide an analysis of O&M costs and identify ownership responsibility for O&M. When appropriate, the budget analysis prepared during the annual survey of the organization may be referenced and a summary of costs shown.

A meeting should be conducted prior to the execution of the Project Summary and Memorandum of Agreement with the owner/operator of the system to discuss all aspects of the proposed projects, including O&M responsibility. This discussion should also address the availability of IHS technical assistance and training programs.

Design and Construction Specifications and Plan Reviews

All concerned parties, including the owner, operating entity, and IHS O&M and other staff, should participate in a project design review prior to developing the construction documents. These parties also should review the general construction specifications and plans before final approval for construction. In the absence of a formal design review process that includes tribal participation, the IHS O&M staff should facilitate the design document review by the tribe. Third-party O&M training that may be required of any contractors shall be well defined in the technical specifications.

Facility Operation and Maintenance Manuals and Training

The IHS O&M technical assistance providers shall work with the SFC Project Engineer to provide comprehensive, user friendly O&M manuals to tribes upon completion of facilities and prior to transfer of the facilities. They should also provide any required startup training or operational aids. In some circumstances the responsibility for O&M support documents and startup services may lie with contractors or equipment suppliers. In such cases the IHS O&M staff should facilitate those activities and coordinate them with tribal operational staff.

<u>Potential IHS O&M Responsibilities</u>

The IHS O&M technical assistance provider can provide SFC project support directly in most cases. In those cases where the staff assigned to the O&M role does not have the time or skills required to provide these services directly, the IHS O&M technical assistance provider can manage or direct third parties to deliver these program elements. Regardless of delivery method, the list below includes a variety of basic elements required to provide SFC project support.

1. Develop and maintain composite utility drawings that can serve as the basis for system analysis and preliminary engineering reports that contain facility O&M cost projections.
2. Furnish numeric utility scores for the SDS O&M score and review the SDS projects prior to the end of year submittal.
3. Generate system analyses and preliminary engineering reports.
4. Serve as liaison with potential funding agencies and with a variety of tribal organizations.
5. Participate in project concept and project summary related meetings.
6. Prepare or assist with budget analysis of tribal O&M organizations for inclusion in project summary O&M section.
7. Review and approve engineering designs, construction specifications, and construction plans. Ensure that required training described in project specifications is well defined.
8. Provide technical assistance to tribes in the development of rate structures.
9. Prepare operation and maintenance manuals and operational aids or direct third party development of these.

LIAISON BETWEEN TRIBE AND OTHER AGENCIES

Background

Tribal operators, managers and other staff have frequent and diverse relationships with IHS and a wide variety of other local, state, federal, and non-public entities. Within IHS those relationships often include a variety of programs. Often interactions between tribal staff and these non-tribal entities are not coordinated and at times may work against one another. In many cases coordination at the tribal level is well managed, but in others it is not. One of the roles the IHS O&M technical assistance provider can fill is to help the utility operator or manager manage the diverse outside resources and interests. This may be in a consultant role or may be in the role of liaison between the tribe and other parties. Additionally, the IHS O&M technical assistance provider has an important role in coordinating technical service delivery with other non-IHS and non-governmental providers.

Liaison Goals

Before assuming a direct liaison role, the IHS O&M technical assistance provider and tribal staff jointly decide if that is desirable. Based on that decision, the IHS O&M technical assistance provider should decide the extent to which those services will be useful. Liaison activities may be limited to the parties involved in a specific SFC project or to a specific agency, or may be more general in scope and range. Prior to entering into a liaison role, the IHS O&M technical assistance provider must have a clear understanding of the expectations of all parties, or communications may be diminished rather than enhanced.

Prior to engaging in a liaison role, the IHS O&M technical assistance provider and tribal staff should be clear about the reason for the service. Reasons may vary widely from complexity of a project, interpersonal or interagency conflict or discomfort, or personnel

changes that result in various parties being unfamiliar with each other. Regardless of the reason, the liaison should periodically organize a meeting or teleconference with the various parties to facilitate communications. This can be done on an ad hoc basis or in conjunction with specific project or operational activities.

Potential IHS O&M Responsibilities

1. Determine if a liaison role on behalf of tribal staff or organization is a desirable element of O&M support on a case by case basis.
2. Determine the extent of liaison services desired by the tribal staff or organization.
3. Develop and maintain the appropriate contacts to be an effective liaison.
4. Schedule and coordinate periodic or ad hoc meetings or teleconferences with the various parties.

FINANCIAL MANAGEMENT OF THE O&M PROGRAM

Background

Costs associated with an Area O&M support program are generally personnel and costs associated with deliverables. The latter may include travel and per diem, materials, tuition, consulting fees, or any other costs not directly related to staff pay and benefits. Some Areas provide O&M support as line items in construction projects, but this practice has not been consistent. Historically SFC has not maintained budget and financial management of O&M support separate from project or program cost budgeting and accounting. As a result of this, most Areas do not have an accurate account of the cost of delivering O&M support to tribes. Because funding for O&M has historically been largely dependent on third parties it has not been consistently available.

Financial Management Goals

Funding and fiscal control

Funding for O&M training is identified annually by Headquarters out of the OEHE budget and distributed to the Environmental Health Support Center and to the twelve IHS Areas. Although language that describes this funding is included in the OEHE budget documents, the allocation is not designated as such by Congress. This funding has typically been sufficient to support training for tribal operators and staff but is not sufficient to pay for O&M support staff or other costs associated with deliverables.

Most Areas do not account for the O&M training funds separately from program funds, and typically the IHS O&M technical assistance providers do not maintain an accounting of those funds. To improve the management of those funds, a separate account or CAN should be established in which O&M related funds are allocated. Having such an account available to the IHS O&M technical assistance provider will facilitate budget management and better planning.

To further strengthen O&M support delivery, the IHS O&M technical assistance provider must formalize a budget for tribal O&M support. Personnel and non-personnel costs

must be clearly defined separately from one another in the budget. Sanitation projects may be able to support some O&M deliverables depending on project scope. Even when funding is not identified to provide the non-personnel budget items, having a clear budget will help the SFC Director and IHS O&M technical assistance provider better manage the resources that are available. Having a clear budget will put the Areas in a better position to request and negotiate third party contributions for O&M support activities.

Managing third party contractors

Some Areas manage contract IHS O&M technical assistance providers that are paid for by third parties. Although these providers are not IHS employees, the IHS O&M technical assistance provider maintains functional control of the services they provide to tribes. In such cases the IHS O&M technical assistance provider should maintain a work plan and schedule for the contractor and be able to report or account for their work, even if budget control is not part of the management.

Potential IHS O&M Responsibilities

The IHS O&M technical assistance provider will likely be unsuccessful in achieving O&M program funding goals without the full support of the Area SFC Director. The list below includes a variety of basic elements required to provide an O&M support program with adequate budget and fiscal controls.

1. Work with SFC Director to obtain O&M Program funding.
2. Develop standards and procedures to identify and fund O&M related activities specifically included in sanitation facilities construction projects.
3. Develop and maintain a system to track and manage the Area distribution of the HQ O&M training budget.
4. Establish a separate account to facilitate accurate accounting of O&M related budget.
5. Identify and formalize budget requirements for Area O&M support, including staff and program costs.
6. When appropriate, develop a system to manage the work of third party O&M contractors and report to funding agencies as required.

PERSONNEL – IHS STAFF NEEDS

Background

Fully self-sustaining tribal O&M programs are the responsibility of the individual tribes that own and operate sanitation infrastructure, regardless of the IHS service delivery mechanism. Direct service, Title 1 contract, or Title 5 compact tribes share this responsibility. The IHS and SFC program can and should facilitate tribal efforts toward meeting that goal.

To facilitate successful tribal O&M programs, the IHS SFC program must have a clear mission developed from IHS-wide core values, principles, and expectations with the commitment and full support of the SFC Director. Additionally SFC must have fully

qualified IHS O&M technical assistance providers and adequate funding to ensure continuity of O&M support services.

IHS Staff Goals

Staffing

The single factor with the highest impact on quality of O&M support services delivered through the SFC program is the personnel assigned to this role. To achieve the SFC vision of fully self-sustaining tribal O&M programs, it is vital to hire and assign fully capable and highly experienced people to move IHS and the tribes in that direction. In practice, this means assigning these duties to the most senior and experienced staff - O&M assignments should be viewed as late career assignments rather than early or mid-career assignments. This is a departure from the historical SFC practice and will require a philosophical change in how these assignments are viewed and administered both programmatically and by individual staff members.

Qualifications to consider when assigning an IHS O&M technical assistance provider might include:

- More than 10 years experience in sanitation facilities operations design and construction or utility management.
- Education – formal training in civil/environmental engineering, environmental health, or business management with preference to Master's degree.
- Registered professional engineer (PE), environmental health officer (RS/REHS), or experienced utility manager.
- Excellent interpersonal skills with proven ability to work productively with other people from widely differing educational and cultural backgrounds.
- Willingness to travel to tribal utility sites.
- Commitment to the SFC vision that tribal O&M programs be fully self-sustaining.
- Proven ability to develop and deliver technical subject matter to non-technical people.
- Knowledge and experience with SDS.
- Proven experience in managing outside funds.
- Experience with IHS budget and personnel systems. This experience allows an IHS O&M technical assistance provider to integrate his/her program with the overall SFC program.
- Specific and demonstrated knowledge of:
  - Water supply and treatment concepts, facilities, design, and construction,
  - Wastewater collection and treatment concepts, facilities, design and construction,
  - Solid waste management concepts, facilities, design and construction,
  - Pump control systems,
  - Safe Drinking Water Act,

- Clean Water Act,
- Sanitation facilities operation/maintenance requirements,
- Maintenance management/O&M scheduling,
- Utility rate structures,
- Operator certification requirements,
- Utility management,
- Safety programs,
- Troubleshooting systems,
- Enterprise model accounting,
- Assets management,
- Contingency/emergency planning,
- Recordkeeping/data collection,
- Time management.

Funding

Funding specifically identified for O&M activities is a relatively small part of the annual Headquarters OEHE budget. Areas that have O&M staff typically fund the positions with the SFC budget and contributions from EPA or other agencies, when available. Unless sufficient third party funding is available, every IHS O&M technical assistance provider hired means less project engineering staff the SFC Director has available to get projects built. There is currently no mechanism to fund O&M directly as a program of its own because the SFC budget is project-driven.

Funding for O&M program development results from a philosophical commitment on the part of the SFC Directors that doing so enhances the value of the sanitation facilities constructed and is in the best interest of Indian people. In practice, this may mean assigning one or more positions devoted exclusively to tribal O&M program development, integrating tribal O&M development into the design/construction workloads of the SFC engineers, or specifying O&M activities as line items in project budgets.

To further strengthen O&M support delivery and ensure continued funding, the IHS must formalize tribal O&M program development into an identifiable part of the services provided as part of the IHS comprehensive environmental health program.

<u>Potential IHS O&M Responsibilities</u>

The IHS O&M technical assistance provider will likely be unsuccessful in achieving the O&M program staffing goals without the full support of the Area SFC Director. The list below includes a variety of basic elements required to provide an O&M support program fully staffed with experienced people.

1. Review and rewrite O&M consultant job descriptions to reflect goal of attracting highly experienced late-career applicants.
2. Identify and formalize budget requirements for Area O&M support program including staff and program costs.

3. Identify and formalize mechanisms to fund the staff costs of the Area O&M support budget.
4. Participate in the annual national O&M workshop with the specific goal of enhancing the professionalism of the SFC O&M staff.
5. In conjunction with the IHS O&M technical assistance providers from the IHS Areas, develop a comprehensive national budget estimate that reflects the requirements of a fully staffed O&M program.

EVALUATING CUSTOMER SERVICE

Background

In 2005 SFC initiated a formalized effort to enhance its overall program. As a result SFC identified the "SFC Practical Vision Element #5: *The SFC Program is Customer-Service Oriented to Meet the Needs of Tribes and Participants*." This element increases the scope of those considered to be customers of SFC Program services. Currently, tribal O&M managers and operating personnel are considered customers because they receive assistance from the SFC Program in the fulfillment of their duties within tribal water, sewer, and solid waste utilities.

In December 2007 the SFC Program Directors agreed to implement a standardized practice of measuring customer satisfaction and to use the results of those evaluations in management decisions. The SFC Directors adopted a number of standard customer surveys including a Post Construction O&M Survey and an Annual Operator O&M Survey.

Customer Service Goals

The Annual Operator O&M Survey and the Post Construction O&M Survey instruments are found in Appendix C. The SFC Directors have tasked the IHS O&M technical assistance providers with administering these surveys on regular basis to gain feedback from tribal O&M staff on the delivery of SFC services. The data will be compiled yearly and will be used to make SFC management decisions. Additionally, the data will be reviewed during Area Reviews.

The Annual Operator O&M Survey is intended to be given to each tribal O&M staff person an IHS O&M technical assistance provider works with regardless of whether a tribe has active 86-121 projects or not. The Post Construction O&M Survey is intended to be used at the end of each active 86-121 project. It should be given to all tribal operations personnel and any other staff having a significant interest in the outcome of a particular project.

The information obtained from O&M surveys is crucial to SFC efforts to improve service to its customers. The O&M surveys also uncover and allow recognition of strengths and successes of Area O&M support programs.

Potential IHS O&M Responsibilities

The IHS O&M technical assistance provider will likely be instrumental in identifying the appropriate people to be surveyed, in conducting the surveys, and analyzing and reporting the results. A variety of methods can be used to conduct the surveys. Face-to-face interviews may be the most effective. Third parties should be used in cases where interpersonal dynamics make it difficult for interviewees to provide frank answers. The list below includes a variety of survey tasks for the IHS O&M technical assistance providers to conduct.

1. Identify the tribal O&M staff and individuals associated with 86-121 construction projects appropriate to be surveyed.
2. Identify third party interviewers when appropriate to ensure clear and frank survey results.
3. Coordinate the conduct of surveys including methods of collecting and collating the data.
4. Identify and formalize mechanisms to analyze and communicate the survey results to the appropriate tribal and SFC staff and third parties.
5. Based on survey results, prepare recommendations to adjust or improve the IHS O&M support program.
6. Based on survey results, implement recommendations to adjust or improve the IHS O&M support program.

Operation and Maintenance Guideline
Indian Health Service
Sanitation Facilities Construction Program

Appendix A

Program Elements

Operation and Maintenance Guideline
Indian Health Service
Sanitation Facilities Construction Program

Program Elements

COMPREHENSIVE SANITATION FACILITIES SURVEYS
- Organization Surveys
- Facilities Surveys

COMPOSITE UTILITY DRAWINGS
- Comprehensive System Drawings
- Asset Inventories
- Geographic Information Systems (GIS)

OPERATOR TRAINING
- Needs Evaluation
- Course Development and Delivery
- Coordination with Other Training Providers
- Financial Support for Tribal Training
- Operator Summits
- Operator Certification Support

TECHNICAL ASSISTANCE
- Technical Assistance Needs Evaluation
- Identify Method of Delivery
- Coordination with Other Technical Assistance Providers
- Identify Areas of Technical Assistance

O&M ORGANIZATION CAPACITY DEVELOPMENT
- Ordinance Development
- Budget Development
- Financial Management

MAINTENANCE MANAGEMENT PROGRAM
- Maintenance Management Policy
- Identifying Operational and Maintenance Tasks
- Allocating Resources to the MMP Tasks
- Establishing the Level of Service
- Work Order Program
- Work Scheduler

Operation and Maintenance Guideline
Indian Health Service
Sanitation Facilities Construction Program

Program Elements

DATA SYSTEM MANAGEMENT
- Operations and Maintenance Data System (OMDS)
- Sanitation Deficiency System (SDS)

PROJECT SUPPORT
- Long-term Capital Improvements Planning
- Project Summaries
- Design and Construction Specification/Plan Reviews
- Facility Operation and Maintenance Manuals and Training

LIAISON BETWEEN TRIBE AND OTHER AGENCIES
- Interagency liaison activities
- Indian Health Service project liaison activities

FINANCIAL MANAGEMENT OF THE O&M PROGRAM
- Funding and fiscal control
- Managing third party contractors

PERSONNEL MANAGEMENT - IHS STAFF NEEDS
- Staffing
- Funding

EVALUATING CUSTOMER SERVICE
- Annual O&M surveys
- Program management based on customer feedback

Operation and Maintenance Guideline
Indian Health Service
Sanitation Facilities Construction Program

Appendix B

O&M Support Program Evaluation Sheet

O&M SUPPORT PROGRAM EVALUATION SHEET

Evaluation date: _____ Area: _____

Evaluator: _____

Signature: _____

Self Evaluation ○

Peer Review Evaluation ○

Area Review Evaluation ○

COMPREHENSIVE SANITATION FACILITIES SURVEYS

○ Element not included in Area O&M program

	N/A	Strongly disagree				Strongly agree
Area has standardized survey procedures, surveying tools, and reporting format.	○	①	②	③	④	⑤
O&M organization and sanitation facility surveys are performed as required by Area policy and Indian Health Manual.	○	①	②	③	④	⑤
Survey activities are coordinated with Federal, State, and local agencies and non-profit O&M service providers.	○	①	②	③	④	⑤
OMDS is maintained and updated as part of the sanitation facilities survey process.	○	①	②	③	④	⑤
Composite utility drawings are maintained and updated as part of the sanitation facilities survey process.	○	①	②	③	④	⑤

General comments:

COMPOSITE UTILITY DRAWINGS

○ Element not included in Area O&M program

	N/A	Strongly disagree				Strongly agree
Composite utility drawings for sanitation facilities on a community or system-wide basis are available.	○	①	②	③	④	⑤
Area has standardized procedures to provide and update base mapping for composite utility drawings.	○	①	②	③	④	⑤
Area has standardized procedures to update composite utility drawings.	○	①	②	③	④	⑤
Plans and specifications are developed to solicit aerial mapping products and for rubber-sheeting and digitizing of existing hard copy utility drawings.	○	①	②	③	④	⑤
Asset-specific information is identified and collected into an assets inventory	○	①	②	③	④	⑤
Infrastructure and asset-specific information are part of a GIS.	○	①	②	③	④	⑤
Sanitation facilities data is coordinated with existing Tribal GIS systems.	○	①	②	③	④	⑤

General comments:

OPERATOR TRAINING

○ Element not included in Area O&M program

	N/A	Strongly disagree				Strongly agree
The training needs of tribal operators and staff are identified annually.	○	①	②	③	④	⑤
Environmental Health Support Center and third party training for Tribal staff is identified and coordinated.	○	①	②	③	④	⑤
Certification and continuing education training is identified, scheduled, and delivered.	○	①	②	③	④	⑤
An annual operator summit is scheduled and convened with tribal and IHS staff and other funding and regulatory agencies.	○	①	②	③	④	⑤
O&M training funding disbursed from headquarters OEHE to the Area is specifically accounted for.	○	①	②	③	④	⑤

General comments:

TECHNICAL ASSISTANCE

○ Element not included in Area O&M program

	N/A	Strongly disagree				Strongly agree
O&M providers clearly understand the structure and function of the organizations or individuals to whom technical assistance is provided.	○	①	②	③	④	⑤
All resources and third party providers in the Area that can be leveraged to enhance technical assistance delivery are identified.	○	①	②	③	④	⑤
All technical assistance providers from whom a tribe or operator are likely to receive technical assistance are coordinated.	○	①	②	③	④	⑤
Specific topics of technical assistance desired or needed are identified and scheduled in conjunction with a tribe or operator.	○	①	②	③	④	⑤

General comments:

DATA SYSTEM MANAGEMENT

○ Element not included in Area O&M program

	N/A	Strongly disagree				Strongly agree
IHS O&M providers have full access to the entire wSTARS system.	○	①	②	③	④	⑤
IHS O&M providers routinely enter and maintain system and organization information in OMDS.	○	①	②	③	④	⑤
Area has a protocol to assign O&M scores to SDS projects and annually update those scores prior to the August SDS submittal.	○	①	②	③	④	⑤

General comments:

PROJECT SUPPORT

○ Element not included in Area O&M program

	N/A	Strongly disagree				Strongly agree
Composite utility drawings serve as the basis for system analysis and preliminary engineering reports.	○	①	②	③	④	⑤
O&M cost projections are included in preliminary engineering and project documents.	○	①	②	③	④	⑤
The O&M provider provides/approves numeric O&M score for the SDS and reviews the SDS projects prior to the end of year submittal.	○	①	②	③	④	⑤
The O&M provider participates in project concept and project summary related meetings.	○	①	②	③	④	⑤
All project summaries include an O&M section.	○	①	②	③	④	⑤
The O&M provider prepares operation and maintenance manuals and operational aids or directs other parties to develop these.	○	①	②	③	④	⑤
The O&M provider reviews and approves engineering designs, construction specifications, and construction plans. Also ensures that training required in project specifications is well defined.	○	①	②	③	④	⑤
The O&M provider provides technical assistance to tribes in the development of rate structures.	○	①	②	③	④	⑤

General comments:

FINANCIAL MANAGEMENT OF THE O&M PROGRAM

○ Element not included in Area O&M program

	N/A	Strongly disagree				Strongly agree
The Area has standards and procedures to identify and fund O&M line items in sanitation facilities construction projects.	○	①	②	③	④	⑤
The Area has a system to track and manage the Area distribution of the HQ O&M training budget.	○	①	②	③	④	⑤
The Area accurately accounts for O&M related budget and knows the cost of delivering O&M support to tribes.	○	①	②	③	④	⑤
If third party O&M contractors are used, the Area has a system to manage the work of those parties and reports to funding agencies, as required.	○	①	②	③	④	⑤

General comments:

LIAISON BETWEEN TRIBE AND OTHER AGENCIES

○ Element not included in Area O&M program

	N/A	Strongly disagree				Strongly agree
The O&M provider hosts or participates in a formal interagency coordination effort at least once per year.	○	①	②	③	④	⑤
The O&M provider formally determines the extent of liaison services desired by the tribal staff or organization.	○	①	②	③	④	⑤
The O&M provider schedules and coordinates periodic or ad hoc meetings or teleconferences with the various parties.	○	①	②	③	④	⑤

General comments:

O&M ORGANIZATION CAPACITY DEVELOPMENT

○ Element not included in Area O&M program

	N/A	Strongly disagree				Strongly agree
Utility ordinances are developed under local conditions and presented to operators, managers, or tribal officials.	○	①	②	③	④	⑤
Accurate annual manpower requirements based on asset inventory and unit task requirements are developed.	○	①	②	③	④	⑤
Workload requirements are prepared for tribal councils, operating board, or other oversight or financial bodies.	○	①	②	③	④	⑤
Manpower estimates based on expenditure of time and resources from previous year are annually reviewed and adjusted.	○	①	②	③	④	⑤
Liaison services between the operations staff and tribal financial managers are provided.	○	①	②	③	④	⑤

General comments:

PERSONNEL - IHS STAFF NEEDS

○ Element not included in Area O&M program

	N/A	Strongly disagree				Strongly agree
The Area has an O&M consultant with qualifications consistent with the current job description.	○	①	②	③	④	⑤
The Area has a formalized budget for the O&M support program including staff and program costs.	○	①	②	③	④	⑤
The Area has identified and formalized a mechanism to fund the staff costs of the O&M support budget.	○	①	②	③	④	⑤
The O&M coordinator participates in the annual national O&M workshop.	○	①	②	③	④	⑤

General comments:

MAINTENANCE MANAGEMENT PROGRAM DEVELOPMENT

○ Element not included in Area O&M program

	N/A	Strongly disagree				Strongly agree
O&M providers clearly understand the operational and maintenance needs of the tribal utility organizations to which technical assistance is provided.	○	①	②	③	④	⑤
Training specific to maintenance management is developed or identified and scheduled in conjunction with a tribe or utility manager.	○	①	②	③	④	⑤
Specific topics of maintenance management desired or needed are identified and scheduled in conjunction with a tribe or utility manager.	○	①	②	③	④	⑤

General comments:

EVALUATING CUSTOMER SERVICE

○ Element not included in Area O&M program

	N/A	Strongly disagree				Strongly agree
Tribal O&M operators are surveyed annually to determine their level of satisfaction with O&M support activities provided by IHS.	○	①	②	③	④	⑤
The appropriate tribal staff is surveyed at the conclusion of each 86-121 project to determine their level of satisfaction with O&M support activities provided by IHS as part of the project.	○	①	②	③	④	⑤
Survey data are adequately analyzed and the results clearly communicated to IHS and tribal staff and interested third parties.	○	①	②	③	④	⑤
Survey results are effectively used to manage the Area O&M support program.	○	①	②	③	④	⑤

General comments:

Operation and Maintenance Guideline
Indian Health Service
Sanitation Facilities Construction Program

Appendix C

Post Construction O&M Survey
Annual Operator O&M Survey

POST CONSTRUCTION O&M SURVEY

Sponsored By:
The Division of Sanitation Facilities Construction (DSFC)
The Sanitation Facilities Construction Program of the Indian Health Service

SFC Customer Service

Customer service is the theme that guides our efforts to serve you. Our service mission is the cooperative development and continuing operation of safe water, wastewater, and solid waste systems. We are committed to improving our services by listening to you. In addition, we are committed to listening to our field staff and their views on customer service. Through a strong culture of customer service, we will achieve our mission. Service is the spirit of IHS SFC.

Circle the number that indicates your degree of satisfaction as described below:

1 = Not at all Satisfied
2 = Not Satisfied
3 = No Opinion (Neutral)
4 = Satisfied
5 = Extremely Satisfied
N/A = Not Applicable

		Not at all Satisfied				Extremely Satisfied	
1.	Your input was considered during the project concept stage	1	2	3	4	5	N/A
2.	Time required to complete IHS project design	1	2	3	4	5	N/A
3.	Time required to complete project construction	1	2	3	4	5	N/A
4.	Timeliness and quality of IHS project closeout						
	A. Provided as-built drawings	1	2	3	4	5	N/A
	B. Provided O&M manuals	1	2	3	4	5	N/A
	C. Provided necessary training in the operation of the system	1	2	3	4	5	N/A
	D. Provided necessary spare parts	1	2	3	4	5	N/A
	E. Provided necessary safety equipment	1	2	3	4	5	N/A
	F. Provided necessary testing equipment	1	2	3	4	5	N/A
5.	Amount of communication/coordination you received from IHS staff during this project	1	2	3	4	5	N/A
6.	Courtesy of staff	1	2	3	4	5	N/A
7.	Expertise provided by IHS staff on the project	1	2	3	4	5	N/A
8.	Responsiveness of IHS staff to your information requests	1	2	3	4	5	N/A
9.	Satisfaction with overall operator(s) training needs	1	2	3	4	5	N/A
10.	Overall satisfaction with service received	1	2	3	4	5	N/A

11. What can we do to improve our services in the future?

_____

_____

_____

_____

NAME OF RESPONDENT (optional): _____ Date: _____

TRIBE: _____

ANNUAL OPERATOR O&M SURVEY

Sponsored By:
The Division of Sanitation Facilities Construction (DSFC)
The Sanitation Facilities Construction Program of the Indian Health Service

SFC Customer Service

Customer service is the theme that guides our efforts to serve you. Our service mission is the cooperative development and continuing operation of safe water, wastewater, and solid waste systems. We are committed to improving our services by listening to you. In addition, we are committed to listening to our field staff and their views on customer service. Through a strong culture of customer service, we will achieve our mission. Service is the spirit of IHS SFC.

Circle the number that indicates your degree of satisfaction as described below:

1 = Not at all Satisfied
2 = Not Satisfied
3 = No Opinion (Neutral)
4 = Satisfied
5 = Extremely Satisfied
N/A = Not Applicable

		Not at all Satisfied				Extremely Satisfied	
1.	Responsiveness of IHS staff to your requests	1	2	3	4	5	N/A
2.	Amount of communication/contact you received from IHS	1	2	3	4	5	N/A
3.	Your input was considered by IHS Engineers during the design process (if applicable).	1	2	3	4	5	N/A
4.	Did IHS satisfy the overall operator(s) training needs	1	2	3	4	5	N/A
5.	Responsiveness of IHS staff to training needs	1	2	3	4	5	N/A
6.	Overall satisfaction with IHS technical assistance provided	1	2	3	4	5	N/A
7.	Satisfaction with IHS evaluation of tribal utility organization and existing sanitation facilities	1	2	3	4	5	N/A
8.	Expertise provided by IHS staff	1	2	3	4	5	N/A
9.	Courtesy of IHS staff	1	2	3	4	5	N/A
10.	Overall satisfaction with service received	1	2	3	4	5	N/A

11. What can we do to improve our service to you in the future?

_____

_____

_____

_____

NAME OF RESPONDENT (optional):_____ Date:_____

TRIBAL SYSTEM: _____