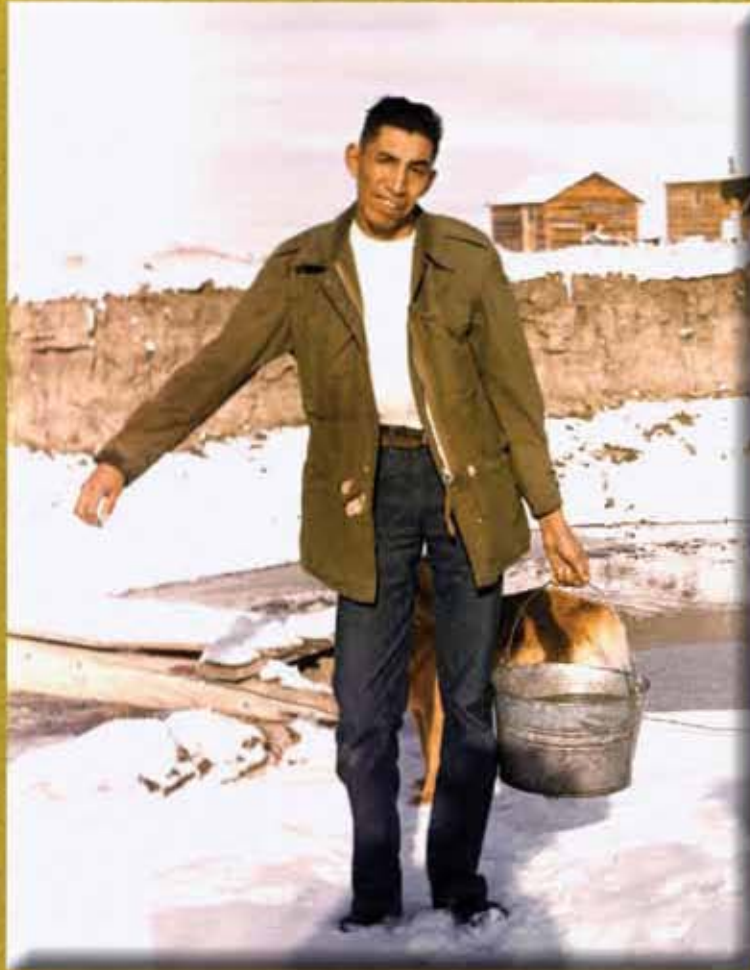




Public Law 86-121 July 31, 1959

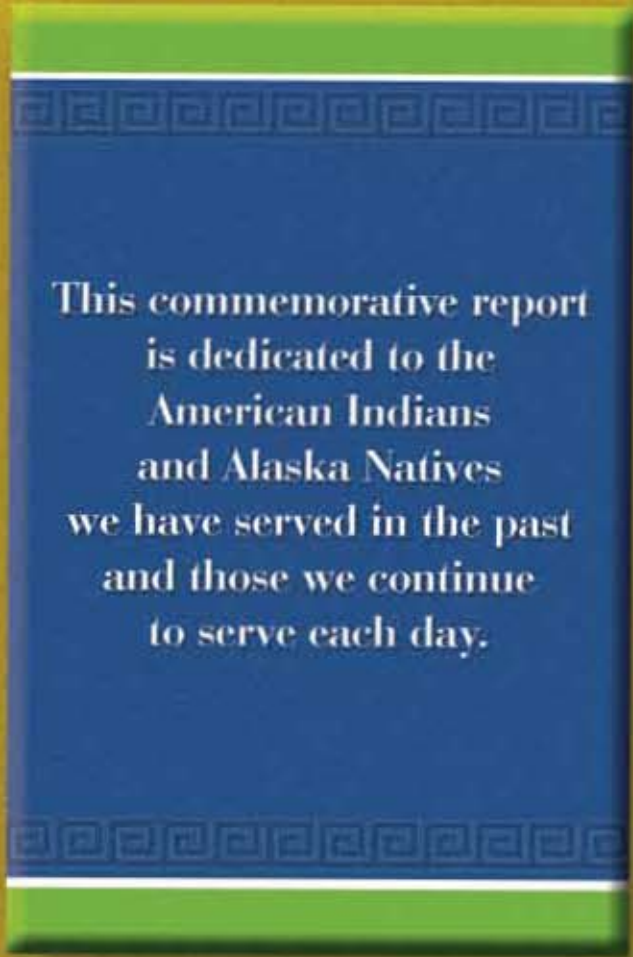


# 50<sup>th</sup> Anniversary



**Water is Life and Sacred**

- Navajo prayer



**This commemorative report  
is dedicated to the  
American Indians  
and Alaska Natives  
we have served in the past  
and those we continue  
to serve each day.**

# Office of Environmental Headq



# Health and Engineering Quarters



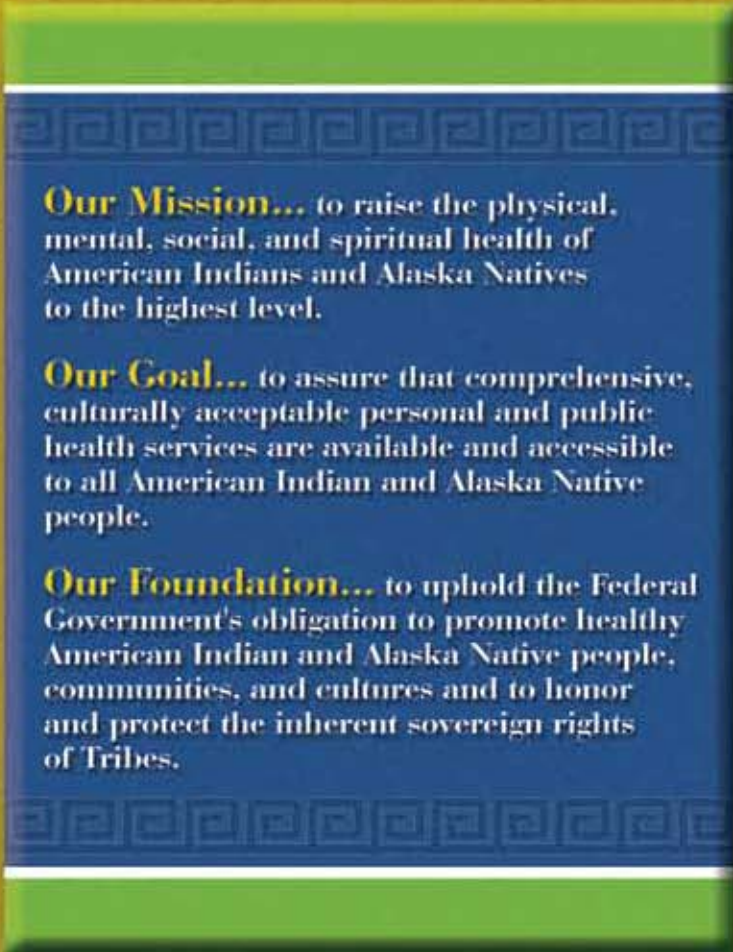


# 50<sup>th</sup> Anniversary



This report commemorates the 50th anniversary of the passage of Public Law 86-121 and the many public health achievements in Indian Country that may be attributed to the work of the Sanitation Facilities Construction (SFC) Program. This publication was created with the assistance of several key people. Vivian Iskander Porter contributed as a writer and editor. Lee Robison and Josh Newcom served as writers. Mike Durkin developed the layout and newly coined SFC logo. Alan Dellapenna served as an invaluable wealth of historical knowledge. Individual Area staff provided photos and information about each Area. The engineers at SFC Headquarters completed the final editing.

[www.dsfc.ihs.gov](http://www.dsfc.ihs.gov)



**Our Mission...** to raise the physical, mental, social, and spiritual health of American Indians and Alaska Natives to the highest level.

**Our Goal...** to assure that comprehensive, culturally acceptable personal and public health services are available and accessible to all American Indian and Alaska Native people.

**Our Foundation...** to uphold the Federal Government's obligation to promote healthy American Indian and Alaska Native people, communities, and cultures and to honor and protect the inherent sovereign rights of Tribes.





On behalf of the Indian Health Service (IHS), it is an honor to recognize the 50th anniversary of Public Law 86-121, The Indian Sanitation Facilities Act, and the many accomplishments of the Sanitation Facilities Construction (SFC) Program.

A recurring theme among American Indian and Alaska Native (AI/AN) cultures is a profound connection to the earth. On this occasion, I strongly believe that it is fitting that we celebrate our Agency's efforts to advance environmental health. Less than 100 years ago, conditions in Indian Country reflected an environment rife with communicable and contagious diseases that were decimating our populations. The incidence of trachoma and tuberculosis (diseases directly linked to environmental conditions) reached world record levels within Indian Country. In 1955, when the IHS assumed responsibility for AI/AN healthcare, infant and maternal mortality rates within our beneficiary population were skyrocketing beyond national averages.

Over the past 5 decades, the Agency's SFC Program played a key role in reducing many health disparities to levels that have nearly equalized with the American population. Public Law 86-121 has been one of the most effective pieces of legislation impacting Indian health in IHS history.

Our Agency's health initiatives cannot be realized without also addressing the environmental health conditions of our people and communities. Efforts aimed at diabetes, obesity prevention, and the treatment of alcoholism are more successful in homes and communities where safe water is available. Infectious diseases are also more readily prevented when sewage is properly disposed and clean water is available.

The notable achievements of the SFC Program have been substantial, but much remains to be done. Until each American Indian and Alaska Native has access to safe water and wastewater facilities, we must keep forging ahead by constructing new sanitation facilities and systems where needed, upgrading aging infrastructure, and making the needed investment of resources to support these critical tasks.

Sincerely yours,

A handwritten signature in black ink that reads "Yvette Roubideaux".

Yvette Roubideaux, M.D., M.P.H.  
Director



# 50<sup>th</sup> Anniversary



This Golden Anniversary of the passage of the Indian Sanitation Facilities Act provides an opportunity, once again, to thank all of the Tribal, Federal and Congressional partners who have been so successful in the funding and implementation of the Sanitation Facilities Construction Program. Since 1959 the program has completed nearly 14,000 projects serving American Indians and Alaska Natives (AI/AN) in over 300,000 homes.

My personal and professional involvement in the SFC program for over three-fourths of this half century, from a field engineer in Tohatchi, New Mexico and Southeast Alaska to Director of the National Sanitation Facilities Construction Program, has been a distinct honor and privilege—immensely rewarding! Being a member of the public health team, which has accomplished so much in raising the health status of AI/AN, is an unparalleled experience.

But, while the IHS and tribes have come a long way in improving sanitation conditions, there are still more than 35,000 AI/AN homes without potable water. This is over 10 percent of all AI/AN homes, which compares to the U.S. national average of about 1 percent of all homes. I am confident that the Sanitation Facilities Construction Program, which has led the way in so many environmental health activities in Indian Country, will continue to lead, and will continue to listen to and respond to the leadership in Indian Country about the needs of their people and their Nations.

Sincerely,

Gary J. Hartz, P.E., BCEE  
Director, Office of Environmental Health and Engineering



This report celebrates passage of Public Law 86-121, legislation which allows us to enter into unique agreements with those we serve in order to provide sanitation facilities. This simple one page Act has allowed the Tribes and IHS through partnerships with others and through self help by the Tribes and the individual homeowners to leverage resources and make progress with the construction of needed sanitation facilities. The strength of this leveraging is evident: in 1973 less than 20% of American Indian and Alaska Native (AI/AN) homes had adequate water and waste facilities and now nearly 90% of all AI/AN homes are served with adequate facilities. As part of the Indian Health Service comprehensive health care system, our efforts have helped reduced infant mortality and gastro enteric disease rates to near national averages. We still have a long road ahead to reduce these disparities in Indian Country but through our strong partnerships we ultimately will succeed.

One significant aspect of the Program has been the provision of sanitation facilities that are easily and affordably operated by the tribes and communities while maintaining the highest industry standards. Over the past 5 decades we have moved from installing hand pumps on water wells to constructing state-of-the-art surface water treatment plants. We have also seen many changes including passage of the Indian Self Determination and Education Assistance Act (ISDEA). We now have many tribes operating their own programs. Approximately 75% of all IHS-funded Sanitation Facilities projects are completed through various forms of tribal procurements. Regardless of the Program delivery method, whether direct service or self determination, it is still the Sanitation Facilities Construction Program.

Over the past five years I have been honored to lead this Program through a comprehensive independent evaluation and an extensive strategic planning process. We have completed this process through the efforts of the IHS and tribal program staff. We have designed and are now implementing a Program ready to meet future challenges and more responsive to the needs of the people we serve.

I have been privileged to be a part of this Program since 1980 and continue to be proud to serve with the outstanding IHS and Tribal staff that have made this Program so successful.

Sincerely,

A handwritten signature in black ink that reads "Ronald C. Ferguson". The signature is written in a cursive style.

Ronald C. Ferguson, P.E.  
Assistant Surgeon General, U.S. Public Health Service  
Director, Division of Sanitation Facilities Construction



# 50<sup>th</sup> Anniversary

## THE EARLY YEARS



This report commemorates the 50th anniversary of the passage of Public Law (P.L.) 86-121, the Indian Sanitation Facilities Act. P.L. 86-121 granted the U.S. Public Health Service (PHS) broad authority to address the dire sanitation conditions in American Indian and Alaska Native (AI/AN) communities. These conditions had been the source of the communicable disease epidemics that had plagued AI/ANs for generations. Through the legislation, the Surgeon General received authorization to construct water, wastewater, and solid waste facilities for AI/AN communities and individuals through partnership with their tribal governments.

### Before Public Law 86-121

The relationship of sanitation conditions on reservations and their impact on the health of AI/ANs have been known for a long time. The earliest steps to address sanitation problems in AI/AN communities were taken by Charles Burke, Commissioner of Indian Affairs in the U.S. Department of the Interior, with the issuance of a circular directing agency physicians to serve as health officers for their reservations. Subsequent circulars directed agency health and education staff to conduct annual inspections of AI/AN homes and to organize and conduct annual community clean-up campaigns.

In 1927, the Office of Indian Affairs and PHS entered into an agreement that directed sanitary engineers and physicians in PHS regional offices to conduct annual sanitary surveys of reservations in their region. The sanitary surveys

assessed a wide range of community-based facilities that could affect public health, from water and waste disposal systems to community buildings and dairy farms. The sanitary surveys provided advice on correcting identified problems.

In 1949, the Bureau of Indian Affairs (BIA) detailed one sanitary engineer and two sanitarians to the Navajo Indian Reservation to establish a field-based sanitation program. Their efforts focused on improving sanitary conditions in public places and developing a few community watering points but did little to address conditions in AI/AN homes.

A 1952 survey of environmental conditions on reservations found that most AI/AN families lived in unsanitary conditions, with 80% of all AI/AN families hauling water for drinking from ditches, creeks, stock ponds, and other unprotected sources. These findings prompted BIA to initiate the Sanitarian Aide Program. Sanitarian aides were tribal members who received specialized training in environmental sanitation and worked in their communities to demonstrate and promote improved sanitary practices.

In July 1955, the responsibility for the health of AI/AN families was transferred from BIA to PHS in the U.S. Department of Health, Education, and Welfare. PHS created the Division of Indian Health (DIH), which later became the Indian Health

Service (IHS). Broad authority to improve sanitation was removed from the Transfer Act (P.L. 83-568) as a compromise to ensure the bill's passage.



**“P.L. 86-121 had the biggest impact on Indian health since the smallpox vaccination campaign of the 1830s.”**

-Dr. Everett R. Rhoades  
IHS Director, 1982-1993  
First American Indian Director

PHS received a sanitation program from BIA that included 13 PHS engineers and sanitarians and 31 sanitarian aides. The early DIH environmental sanitation staff provided direct assistance to tribes and individuals on sanitary matters and assisted tribes in accessing funds for sanitation projects from state and other federal programs. DIH received limited funding for sanitation construction on a project-by-project basis through the congressional budget process.

### **Signing of P.L. 86-121 Starts Indian Country on the Road of Self Determination**

P.L. 86-121, the Indian Sanitation Facilities Act, was signed into law on July 31, 1959, by President Dwight David Eisenhower. It had taken over 4 years to gain congressional approval for the sanitation program that had been removed from the Transfer Act. With the passage of P.L. 86-121, the Congress authorized PHS to take direct action in resolving the dire sanitation conditions on AI/AN reservations by authorizing the use of federal funds to design and construct water, wastewater, and solid waste facilities for AI/AN homes.

P.L. 86-121 also required PHS to “consult with and encourage the participation of Indians” in the development of their sanitation projects. This requirement was the first that most tribes had experienced in making decisions about their health priorities and programs.

### **The Early Years after P.L. 86-121**

The first budget for P.L. 86-121 was \$200,000 and funded 37 emergency sanitation facilities projects. The projects developed water sources to replace

dried-up wells, contaminated springs, or watering points not accessible during parts of the year. These simple projects had an average cost of \$5,400, low even by 1960 standards, and were completed in less than 2 years.

The most complex project included a highway and gas line crossing. It served 80 homes in Twin Lakes, New Mexico, with a water system that included a 5,000-gallon water storage tank and about 5 miles of plastic piping. Actual construction of the project took less than 7 months and cost under \$20,000. Individual homeowners were required to dig the house service line trenches and provide onsite labor.

### **The Early Years of OEH**

PHS Engineer Albert (Al) Stevenson was Director of the DIH environmental sanitation program from 1956 to 1966. Stevenson was instrumental in securing the passage and successful implementation of P.L. 86-121.

In 1963, the DIH environmental sanitation program was reorganized into the Office of Environmental Health (OEH) with the Sanitation Facilities Construction (SFC) Branch and the Environmental Health Services (EHS) Branch. Stevenson was the first OEH Chief and Charles C. (C.C.) Johnson, Jr., was the first SFC Branch Chief.



**Al Stevenson**



**C. C. Johnson**



# 50<sup>th</sup> Anniversary

**“A project providing basic modern plumbing facilities to residents of the Elko Indian Colony was completed this week. . . .”**

## ELKO INDIAN COLONY

In February 1958, the Elko Daily Free Press announced the completion of the first PHS project to provide water and sewer services to AI/AN populations. It was an emergency project funded by the Congress for \$34,000 in August 1957 to replace the existing well serving a community watering point that had failed. Six months after funding, the community had running water.

The Elko Indian Colony Project was a cooperative effort. Under agreements with the City of Elko, and the leadership of the Elko Indian Colony, the PHS Division of Indian Health (now IHS) provided 2,000 feet of water main, 4,000 feet of sewer main, water and sewer service lines, and 28 sinks and toilets. A PHS engineering officer supervised construction and provided technical assistance to individual homeowners. Before and during the project, the engineering officer met with tribal leaders and homeowners to discuss the plan and each participant's responsibility. The City of Elko constructed the water and sewer mains; the Indian Colony and homeowners provided “sweat equity” by installing service lines and plumbing. The water and sewer mains were transferred to the City of Elko and

individual service lines and plumbing transferred to homeowners. This project became the model for future SFC projects.

The success of this project defined the SFC Program and generated a great deal of publicity, which affected the development of P.L. 86-121 the following year. Officials in DHEW (now the U.S. Department of Health and Human Services) and members of the Congress used the success of this project and the documented need for sanitation facilities in Indian Country to promote the need for a national program to provide sanitation facilities to AI/AN families. The next year, the Congress passed P.L. 86-121, the Indian Sanitation Facilities Act, which gave the Surgeon General the authority to fund construction of water, sewer, and solid waste facilities. On July 31, 1959, President Eisenhower signed this Act into law.



## TODAY'S SFC PROGRAM

Today, the SFC Program operates in 12 IHS Areas to serve the sanitation facilities needs of the 562 federally recognized tribes.

The Program continues to work cooperatively with tribes, housing authorities, individuals, and many government agencies, such as the U.S. Environmental Protection Agency (EPA), the U.S. Department of Housing and Urban Development, BIA, and the U.S. Department of Agriculture, to ensure that sanitation needs are identified and addressed. Through interagency agreements, IHS is able to construct necessary sanitation facilities and provide technical assistance and support.

PL. 86-121 authorizes the SFC Program to provide water, wastewater, and solid waste facilities to homes owned and occupied by eligible AI/ANs. The law prohibits using SFC funds for facilities serving industrial or commercial purposes. Eligible projects are funded under three categories: Housing Support Projects, Regular Projects, and Special/Emergency Projects.

Housing Support Projects provide sanitation facilities to homes that are new or in like-new condition. Typically, these are AI/AN homes being constructed or rehabilitated by BIA, tribes, individual homeowners, and other nonprofit organizations. Regular Project funds address the needs of existing homes and communities based on a priority listing of all identified sanitation deficiencies in Indian



Country. Special/Emergency funds are limited and these projects are approved by the SFC Program Headquarters office.

In addition to constructing water, wastewater, and solid waste facilities, the SFC Program provides technical assistance to the tribes and tribal organizations. This assistance may include review of engineering plans and specifications, review of feasibility studies and grant proposals, training on the proper operation and maintenance of constructed sanitation facilities, tribal operator training for certifications, and capacity development at the tribal utility organization.

The Sanitation Deficiency System (SDS) is an inventory of projects to address sanitation issues; the SDS is updated annually and reported to the Congress as required by the Indian Health Care Improvement Act. The SFC Program uses the SDS to identify and prioritize projects to serve homes and communities with unmet water, sewer, and solid waste needs. Currently, the SDS inventory reflects a total projected need of nearly \$3 billion to fund more than 3,200 projects.



# 50<sup>th</sup> Anniversary

## PUBLIC HEALTH IMPACT

The foresight of PHS and the Congress five decades ago helped generations of AI/AN children to escape the hardship and poor health that accompany life without safe and adequate sanitation facilities. Today, most elderly AI/AN people need not fear becoming unable to carry water into their homes. Improving the environment in which people live results in significantly healthier populations. Providing sanitation facilities, along with higher quality housing, is a key factor in improving the public health of AI/AN communities.

The availability of essential sanitation facilities is a major factor in breaking the chain of waterborne communicable disease episodes, but by no means is their value limited to disease intervention. Safe drinking water supplies and adequate waste disposal facilities are essential preconditions for most health promotion and disease prevention efforts. Consistently and optimally fluoridated drinking water has been shown to virtually eliminate tooth decay among children. Readily available water enhances the efforts by other public health specialists, such as nutritionists and alcoholism counselors, and the availability of safe water and adequate wastewater disposal systems make home health care nursing services much more effective.

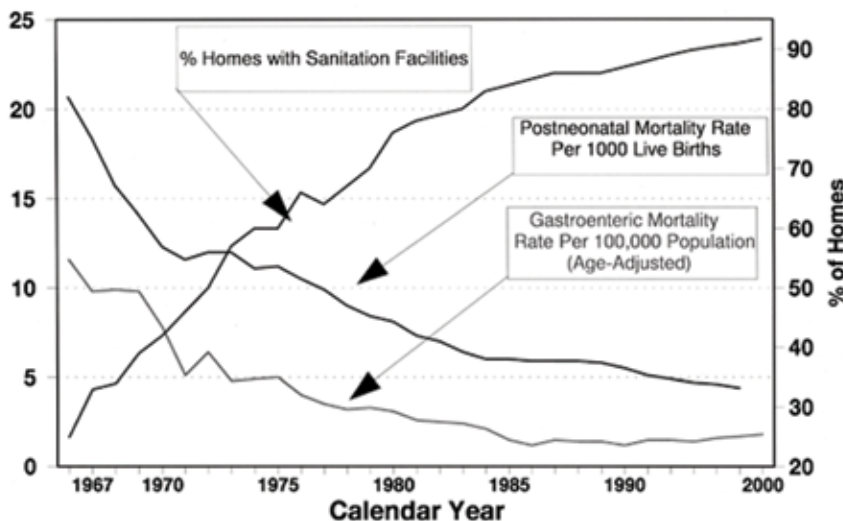
Providing sanitation facilities also has other far-

reaching, positive effects. The availability of such facilities is fundamentally important to social and economic development. In turn, such development leads to an improved quality of life and an improved sense of well-being.

Several studies assessing the environmental conditions on AI/AN reservations were conducted during the early part of the 20th century. Although they presented a bleak picture and a dire need to address unsanitary conditions, no action was initially taken by the Federal Government. In the early 1900s, the dominant diseases among AI/AN people were trachoma (a serious eye disease) and tuberculosis, both of which are contagious infectious diseases that spread rapidly in unhygienic conditions. It was also well understood at that time that contaminated water sources readily transmitted a host of other infectious diseases, including cholera, typhoid, and dysentery. The 2008 article "The Relationship between In-Home Water Service and the Risk of Respiratory Tract, Skin, and Gastrointestinal Tract Infections among Rural Alaska Natives," by Hennessey et al., linked the lack of proper sanitation within a home to higher rates of respiratory and skin infections.

The impact of the SFC Program on gastrointestinal disease among AI/ANs reveals the most striking example of the connection between environmental and human health. In 1955, before the passage of P.L. 86-121, the age-adjusted gastrointestinal disease mortality rate for AI/ANs was 15.4 per 100,000 population, more than four times higher than the mortality rate for the rest of the United States. By 2000, four decades after P.L. 86-121 was enacted, this rate was 1.8 per 100,000 population.

**Gastroenteric and Postneonatal Mortality Rates Compared with Percent of Homes with Sanitation Facilities for American Indians and Alaska Natives**



## Benefits and Costs

The SFC Program is a preventive health program yielding positive benefits that exceed program costs. Western civilization has always



recognized that the benefits of prevention are worth more than the cost. Fundamental truisms from “An ounce of prevention is worth a pound of cure” to “A stitch in time saves nine” all attest to that commonly accepted principle.

Sanitation is one of the cornerstones of public health. Sanitation is so intertwined with other health initiatives from waterborne disease, water fluoridation, injury prevention, and hygiene to infant mortality that it is difficult to separate or quantify the benefits. All public health officials and most policy makers recognize the tremendous public health benefits (i.e., positive Benefit-Cost Ratio) derived from sanitation facilities. They also would agree that the lack of sanitation facilities significantly increases the costs associated with illness for AI/AN communities and the IHS direct health care delivery system. The benefits of providing sanitation facilities for a community include reductions in the rates for infant mortality; reductions in the mortality rate for gastroenteritis; reductions in

the mortality and hospitalization rates for pneumonia; the increased level of protection through reductions in waterborne pathogens, particularly *Cryptosporidium*; avoided illnesses and mortalities from bladder, lung, and skin cancer; and the dental health benefits of water fluoridation.



## Fluoridation

Fluoride is a mineral ubiquitous throughout the environment and found naturally in ionic form in all water in very low concentrations. In the early 1900s, the collaborative efforts of an astute private dentist, coupled with the expertise of the first PHS dentist-researcher, showed that an optimal minute concentration of fluoride ion in drinking water was associated with significant decreases in dental decay. Municipal water systems began adjusting the fluoride ion concentration after the landmark fluoridation studies of the late 1940s. More recently, the Surgeon General called water fluoridation “... the cornerstone of caries prevention in the United States.” He went on to note that “...the Centers for Disease Control has recognized water fluoridation as one of the great public health achievements of the twentieth century.”

Beginning in 1960, IHS recommended that water systems be fluoridated. By 1966, two dozen water systems serving AI/AN populations had optimal fluoride ion concentrations. By 1985, 40% of the AI/AN homes served by tribal water utilities were receiving fluoridated water. To this day, fluoridation systems are still installed for communities that choose this safe and effective preventive measure.

The recent testimony by representatives of the American Dental Association (ADA) to the Congress stated “Community water fluoridation is one of the most effective ways to reduce the burden of dental decay before it starts, and the ADA would like to see all AI/AN people have access to fluoridated water.”



# 50<sup>th</sup> Anniversary



## The Alaska Study

Many people know that safe drinking water reduces intestinal diseases such as diarrhea, dysentery, shigellosis, salmonellosis, gastroenteritis, and gastritis. A 2008 study of rural Alaskan villages suggests that piping water into homes can also reduce other diseases, including influenza, pneumonia, and skin infections. This study, “The Relationship between In-Home Water Service and the Risk of Respiratory Tract, Skin, and Gastrointestinal Tract Infections among Rural Alaska Natives,” was a cooperative effort of the IHS and the Centers for Disease Control and Prevention (CDC). It was published in the November 2008 issue of the *American Journal of Public Health*.

To determine the relationship between in-home piped water and disease, the study looked at the percentage of homes with piped water in 128 Alaskan villages and compared this percentage with hospitalization rates for these villages. The study showed that villages with a low percentage of piped water had higher hospitalization rates for pneumo-

nia, influenza, skin infections, and lower respiratory tract infections. Respiratory and skin infections are water-washed diseases that are more rapidly spread when in-home water service is not available for hand washing and hygiene practices.

Although the study results showed a strong association between pressurized in-home water service and lower hospitalization rates, a causal relationship was not established. Although further study is needed, the conclusion provides strong support for the SFC Program’s effort to prevent disease through construction of sanitation facilities for AI/AN communities.

*“Sanitation improvements have been credited with contributing to the dramatic improvements in Alaska Natives’ health. Our study indicated that in-home water service is an important determinant of health in rural Alaska communities.”*

## INNOVATIONS

SFC engineers have a long history of innovative design and imaginative problem solving. Remote locations, water barren regions, harsh climates, and finite budgets require resourcefulness and creativity in design and construction of sanitation facilities. Absence of adequate sanitation was often a result of the facilities being considered infeasible. For example, SFC engineers have utilized surging, acidizing, and hydraulic fracturing to increase low well yields instead of drilling more costly new wells. Complete community water systems with treatment have been constructed that utilize gravity, solar power, or wind power in locations where commercial electricity is unavailable. Although the SFC engineering solutions are more numerous than those that can be described here, the following is an example of a SFC engineering innovation.

SFC engineers have been leaders in developing designs for cold climate water and sewer systems. In the 1950s, PHS engineers collaborated with the CDC Arctic Health and Research Program in Alaska to develop recirculating systems. Then in the 1970s, SFC participated in University of Washington research and worked with the Canadian provincial government agencies and the University of Alberta to develop arctic utility system designs, including implementation of pitorifices, arctic pipe, and circulating water systems.



Arctic water systems are kept from freezing by insulating the pipes and by looping systems through a pumphouse to continually circulate water. Insulated polyethylene pipe encased in polyurethane insulation

is used because it does not burst if the system freezes. The pipe and insulation together are encased in larger steel or aluminum pipe. Joints of the arctic pipe are insulated with specially designed polyurethane sponge washers.

In extreme climates, even insulation is not enough to prevent pipes from freezing. Water circulates continuously in a loop from the pumphouse through the distribution system and back. Fresh water is added at the pumphouse to replace that used by customers, and heat is added to keep the system from freezing.

Water service lines easily freeze because they are small. Two devices that resemble scoops with hollow handles are inserted into the mainline. The devices are called pitorifices; the hollow handle of one “scoop” is connected to a service line going to a house, and a second is connected to another service line coming from the house.



The scoop on the upstream side faces upstream to direct the flow of the water through the hollow handle into the service line loop. The scoop on the downstream side faces downstream and permits water to return from the service line loop to reenter the mainline. The water service loop and electrical heat tape are encased in a larger insulated pipe to slow cooling and prevent freezing.

Community water systems were not a viable option for AI/AN villages before the development of recirculating water systems and insulated arctic pipe. Together, these innovations have allowed SFC engineers to provide modern piped water service to remote Alaskan villages, significantly improving the health of those villages.



# 50<sup>th</sup> Anniversary

## HEADQUARTERS

The Headquarters staff of the SFC Program assists and supports the Area offices by establishing policies and providing guidance to ensure high-quality, consistent, and equitable program implementation nationwide. It also assists the Areas in carrying out IHS and Program mission activities. SFC Program management activities include national policy development and implementation; budget formulation; allocation of resources; congressional, departmental, U.S. General Accountability Office, or Office of Management and Budget reporting; annual management control reviews; quality assurance; long-range planning; coordination with other federal agencies; and meetings with tribes and congressional staff. The SFC Program supports knowledge development and dissemination through data, research, and information exchange; establishes nationwide health objectives, priorities, and stimulation of debate on national public health issues; and provides technical assistance to facilitate tribal self-determination.

The Sanitation Tracking and Reporting System (STARS) is managed by the Headquarters component of the SFC Program. This data system is

critical for Program management, especially the maintenance of the SDS, which inventories the sanitation need within Indian Country and is mandated by the Congress. STARS maintenance, data authentication, and enhancements are managed from Headquarters.

Headquarters advocates for AI/AN people on applicable environmental issues. The SFC Program seeks to address the sanitation needs of AI/ANs by providing IHS-appropriated funds and by advocating for non-IHS resources. The SFC Program also advocates for tribes when laws, regulations, and programs are being developed at the federal level. In addition, the SFC Program advocates for tribes and provides technical assistance during regulatory enforcement actions taken against tribes. The organizational structure of the Program facilitates routine communication from field offices up through the Headquarters office. This structure enables the SFC Program to assist tribes quickly and efficiently by linking decision makers at all levels of government to resolve important issues quickly or otherwise advocate for tribes.



Carol Rogers, James Ludington, Sonya McDonald, Ron Ferguson, Steve Aoyama, Dana Baer, Ramsey Hawasly, Vivian Iskander Porter

## OPERATION AND MAINTENANCE SUPPORT

Tribes, and the federal agencies tasked with serving them, have recognized the health and financial benefits resulting from improved sanitation facilities operation and maintenance (O&M). The trend over the past several years has generally been one of improving O&M of sanitation facilities by tribes. Certification of tribal operators is more common, stability in operations workforce is improving, and facilities are receiving better care. These funds become more important as the infrastructure ages.



The SFC Program provides technical consultation and training to improve the O&M of tribally owned water supply and waste disposal systems.

After sanitation facilities constructed by IHS are complete, they are transferred to a tribe, utility organization, individual homeowner, or other responsible nonfederal entity. IHS provides technical assistance to the new owners of the facilities and provides ongoing training for the proper O&M of the facilities.



The SFC Program also provides technical assistance to tribes for the development of tribal utility organizations. This assistance may include capacity development, rate structure assessment to determine appropriate customer user fees, and creation of ordinances and operating policies. It may also include O&M manuals, as-built drawings, and technical handbooks. IHS does not have funding to pay for operating and maintaining sanitation facilities.



The SFC Program is committed to the consistent delivery of O&M technical assistance. A national O&M Guideline was developed in 2008, and SFC Program staff participate in formal interagency coordination of technical assistance delivery for Indian Country. Together, these efforts assist tribes and tribal organizations in better operating and maintaining their sanitation infrastructure.




# 50<sup>th</sup> Anniversary

## DATA SYSTEMS


Since the 1970s, the SFC Program has utilized computer systems to track sanitation facilities projects. Prior to 1989, sanitation deficiencies were reported as unmet needs as part of the Sanitation Facility Data System (SFDS). The SFDS included basic information on existing and needed sanitation facilities and information on existing O&M organizations serving AI/AN communities. In 1989, the Sanitation Deficiency System (SDS) was created and ran on personal computers; Web-based SDS began in 2000. All 12 IHS Areas and compacted tribes have used the Web-based SDS data system to report sanitation deficiencies since 2004. This system is part of a comprehensive online management and reporting system for the SFC known as STARS. STARS includes six major data systems:

- **COMMUNITY** – contains information on the number and type of homes in communities and type of sanitation deficiencies related to them for all AI/AN communities;
- **SDS** – the Sanitation Deficiency System documents sanitation deficiencies related to AI/AN individual homes and communities and identifies projects to resolve those deficiencies;
- **PDS** – the Project Data System manages funded sanitation projects and contains information on every SFC construction project;
- **HPS** – the Housing Priority System documents, prioritizes, and allocates resource needs for projects to serve new and like-new housing;
- **OMDS** – the Operation and Maintenance Data System contains information about water, wastewater, and solid waste systems serving AI/AN people and the organizations that operate these systems; and
- **HITS** – the Home Inventory Tracking System tracks applications for sanitation facilities to individuals and specific home sites.



### Sanitation Tracking and Reporting System (STARS)

Welcome to STARS, a system of the Indian Health Service (IHS).




The mission of the Indian Health Service (IHS) is to raise the health status of the American Indian and Alaska Native people to the highest possible level by providing comprehensive health care and preventive health services. To support the IHS mission, the Division of Sanitation Facilities Construction (DSFC) provides technical assistance and sanitation facilities services to American Indian tribes and Alaska Native villages for cooperative development and continued operation of safe water, wastewater, and solid waste systems and related support facilities. STARS is a web-based database used to track sanitation facilities projects. It also contains information on existing Operation and Maintenance (O&M) organizations serving American Indians and Alaskan Natives (AI/AN).

STARS includes six major data systems:

1. **COMMUNITY**, also known as CDP (Community Deficiency Profile), has information on the number and types of homes in AI/AN communities;
2. **SDS** - the Sanitation Deficiency System documents information about sanitation deficiencies related to AI/AN individual homes and communities;
3. **PDS** - the Project Data System is used to track DSFC sanitation facilities construction projects;
4. **HPS** - the Housing Priority System is used to document, prioritize, and allocate resource needs for DSFC projects for new and like-new housing;
5. **OMDS** - the Operation and Maintenance Data System contains information about water, wastewater and solid waste systems serving AI/AN people and the organizations that operate systems; and
6. **HITS** - the Home Inventory Tracking System is used to track applications for sanitation facilities to individuals and specific home sites.

**SELECT AN AREA**  
Click on areas on the map or the list below



▶ Aberdeen Area	▶ Nashville Area
▶ Alaska Area	▶ Navajo Area
▶ Albuquerque Area	▶ Oklahoma Area
▶ Bemidji Area	▶ Phoenix Area
▶ Billings Area	▶ Portland Area
▶ California Area	▶ Tucson Area

**OEHE** The IHS mission is to raise the physical, mental, social, and spiritual health of AI/ANs to the highest level. In support of that mission, the Office of Environmental Health and Engineering (OEHE):

- Provides optimum availability of functional, well-maintained health care facilities and staff housing;
- Provides technical and financial assistance to promote a healthy environment through the cooperative development and continuing operation of safe water, wastewater, and solid waste systems and related support facilities; and
- Assists each AI/AN community in achieving its unique goals for obtaining health care facilities and establishing and maintaining a healthy environment.



**Northern Navajo  
Medical Center  
1922, 1961, 2005**



OEHE began as the Environmental Sanitation Branch of DIH and was renamed the Office of Environmental Health (OEH) in 1963. OEH consisted of the SFC Branch and the EHS Branch. OEH was renamed OEHE when the health facilities programs were added to its responsibilities. The OEHE Headquarters administers all IHS Headquarters environmental health, construction, and facilities operations and management functions. It performs this function through five Headquarters divisions: Sanitation Facilities Construction (SFC), Environmental Health Services (EHS), Facilities Operations (FO), Facilities Planning and Construction (FPC), and Engineering Services (ES).

Except for ES, which has offices in Seattle, Washington, and Dallas, Texas, these Headquarters divisions (SFC, EHS, FO, and FPC) are physically located in the IHS Headquarters in Rockville, Maryland. The staff in these Headquarters divisions provides critical coordination and support for programs in the IHS Areas. The OEHE Headquarters helps develop IHS budget requests and allocates funds appropriated by the Congress to Area Offices, projects, or both based on allocation formulas, priority lists, or grants processes. ES manages health facilities construction projects, including major improvements, throughout Indian Country. ES also provides construction contracting services for IHS.

Each of the 12 IHS Areas has an Area OEHE office with SFC, EHS, and FO components.



# 50<sup>th</sup> Anniversary

## ENVIRONMENTAL HEALTH SUPPORT CENTER

The Environmental Health Support Center (EHSC) traces its roots back to the CDC Field Training Program that provided sanitarian aide training from 1952 through the early 1960s. In 1966, OEH established the Special Projects Branch in Phoenix, Arizona. This training program—a key element of a growing environmental health program—was later moved to the Desert Willow facility in Tucson, Arizona. The Special Projects Branch transitioned to the Environmental Management Branch (EMB) and in 1977 moved to Albuquerque, New Mexico, where it currently operates. A reorganization of the IHS Headquarters office in 1999 changed EMB to EHSC under the administrative auspices and functional support of the Albuquerque Area.

EHSC provides national technical support and training services to tribes and the OEHE program divisions. The Center is staffed by five professional and two support positions. Much of the training sessions and technical assistance provided is conducted in collaboration with staff from all levels of the OEHE program.

### Technical Assistance

Technical assistance continues to be an important element of EHSC activities. Technical assistance supporting the SFC Program includes surveying and



AutoCAD standardization, fluoridation policy and support, Area consults, and administrative national meetings. EHSC worked with EPA on national “Operator Certification Guidelines,” DOI on engineering guidance to Trust Territories in the Pacific, and PHS on engineering leadership.

### Training

Training is the largest activity at EHSC and continues to grow. Since 1992, EHSC has trained over 8,500 tribal and IHS technicians, operators, managers, environmental health staff, and engineers. About half of the attendees today are from tribes. EHSC designs and offers courses specific to the needs of SFC and tribal utility personnel. Courses such as the Lift Stations for Operators; Pumps and Controls for Operators; Onsite Wastewater; and Ground Water are unique offerings. EHSC is a long-standing provider of Continuing Education Units under the International Association of Continuing Education and Training (IACET). IACET standards are nationally accepted.





## ENVIRONMENTAL HEALTH SERVICES

The mission of the Division of Environmental Health Services (EHS) is “Through shared decision making and sound public health measures, enhance the health and quality of life of all American Indians and Alaska Natives to the highest level by eliminating environmentally related disease and injury.”

In support of this mission, EHS provides a range of services, including monitoring health; investigating health problems; supporting laws and regulations that protect health and ensure safety; informing and educating; mobilizing community partnerships; linking people to services; evaluating effectiveness of services; ensuring a competent workforce; developing policies and plans that support community efforts; and implementing innovative solutions to environmental health problems.

Three programs are within EHS: General Environmental Health, Institutional Environmental Health, and Injury Prevention. General Environmental Health staff consists of environmental health professionals providing a range of services for issues of water quality, waste disposal, hazardous materials management, food safety, vector control, occupational safety and health, and other environmental health issues. Institutional Environmental Health staff specializes in identifying, evaluating, and responding to unique environmental safety hazards found in health care, educational, childcare, correctional, and industrial facilities. Injury Prevention staff takes the lead in working with communities to develop public health strategies to reduce the burden of injury experienced by AI/ANs.



Although EHS and SFC are currently separate divisions, they began as one entity. Most of the components of the current Environmental Health Program were in place at the time of the Transfer Act, with agency policies for food handler training, radiological health, facility inspections, and water fluoridation. The

emphasis was on establishing, expanding, and resolving basic sanitation services. The sanitarian aides were the workforce in the field with

a few supervisory sanitarians at Area offices. In 1962, the first Headquarters Institutional Environmental Health Officer was hired, providing advice and technical guidance on all community-based institutions.



Robert Haywood served as the first EHS Chief when the Branch was established in 1963. Also in 1963, an Accident Prevention Program was established; in 1969, this program was expanded. The Accident Prevention Program continued as a collaborative effort with Health Education until 1979, when it was formally transferred to EHS. The name changed to Community Injury Control and later to Injury Prevention.

SFC and EHS continue to work closely together.



# 50<sup>th</sup> Anniversary

## STRATEGIC PLANNING

An independent evaluation of the SFC Program was completed in 2005 by a team of outside experts in organizational development, project management, and engineering. One of the key recommendations was for Program-wide strategic planning to improve Program delivery and establish strategic priorities.

In 2006, 10 vision elements were defined through a series of strategic planning workshops involving both senior and mid-level program managers. These vision elements were defined to significantly improve all facets of the SFC Program:

1. Relationships with other federal agencies and states are coordinated to benefit tribal programs.
2. Tribal self-determination decisions are supported and respected.
3. SFC programs are optimally and effectively managed.
4. Formal career development occurs for all SFC staff.
5. The SFC Program is customer service oriented to meet the needs of tribes and participants.
6. Tribal O&M is fully self-sustaining.
7. Technical engineering support is readily available from the national SFC Program.
8. SFC construction-oriented procurement is readily available.
9. Formal project management is part of the SFC culture.
10. Data systems are accurate, updated, useful, and readily available.

Each of these vision elements was supported by implementation teams recruited from all 12 IHS Areas, partner agencies, tribes, and tribal organizations. Almost 30% of the SFC staff served or is serving in some capacity on the implementation teams. All levels of SFC management have a strong and ongoing commitment to the strategic plan and vision elements.

Strategic planning activities completed by 2009 had begun to impact the daily operation of the SFC Program. These included development of the SFC Project Management Program with a preliminary draft Guidance Manual and redesigned approach to SFC projects, a customer service program with a position statement, customer survey templates designed for a wide range of tribal and agency customers, the new STARS library, and a draft comprehensive STARS User Manual. A new utility assessment methodology, a draft O&M Guidance Document, and O&M educational materials for tribes and partnering agencies were developed to improve support for tribal O&M operations. A new analytical method for measuring project and portfolio durations was developed and implemented. Organizational charts, position descriptions, and relevant relocation information for the majority of Areas were completed and an online presentation developed. Project time tracking systems were developed to evaluate the human resources required for SFC projects and to improve project cost estimating.

Strategic planning efforts with implementation teams continue to work in an ongoing effort to fully realize the vision elements.



## VISION

Significant progress has been made over the past five decades in AI/AN communities but work remains to be done. Environmental conditions and the health of tribal communities have vastly improved, but AI/ANs still suffer significant health disparities. Today, AI/AN populations die at higher rates than other U.S. populations from communicable diseases such as tuberculosis and influenza, both of which are more rapidly spread in unsanitary environmental conditions.

The SFC Program goal is to ensure that every AI/AN home is provided with adequate water and wastewater facilities. Population growth, rising construction costs, inflation, and stagnant funding all pose challenges to meeting that goal. Replacing aging infrastructure and meeting more stringent environmental standards are two of the greatest challenges confronting AI/AN communities and the SFC Program. Despite continued emphasis on designing systems that are simple and economical to operate and maintain, the O&M of many community water and sewer sys-

tems in Indian Country needs to be improved. The standards for public water supply systems, sewage treatment facilities, and solid waste disposal facilities are continually being modified by legislation and regulation. The impact of these changes can be significant to small utility systems such as those serving AI/AN communities.

The inventory of unmet needs remains sizable. Remote geography, harsh climates, and the rich cultural backdrop of AI/AN communities present unique challenges and opportunities in Indian Country.

Fifty years of history and experience, a well-developed SFC Program with robust management tools, increasingly sophisticated tribal communities, willing federal partners, and a strong legislative mandate and budget support from the Congress all bode well for the continued improvement of the sanitation facilities infrastructure in AI/AN communities throughout the United States.





# 50<sup>th</sup> Anniversary

## TIMELINE



**1913**  
The first national study of Indian health is conducted by PHS; **Contagious and Infectious Diseases Among the Indians** is issued as a report to Congress. The study points to the lack of basic sanitary facilities and practices as the underlying sources of the contagious disease epidemics plaguing Indians.

**1921**  
The Snyder Act (P.L. 67-85) authorizes the expenditure of federal funds on Indian health with the broad mandate for "relief of distress and conservation of health."

**1924**  
Office of Indian Affairs (OIA, later BIA) establishes a Division of Health under the direction of PHS. PHS Physician Marshall Guthrie is assigned to head the new office.

**1927**  
OIA's Division of Health enters into an agreement to have PHS sanitary engineers in PHS Regional Offices conduct annual sanitary surveys of Indian Reservations.

**1930**  
The "Parker Act" authorizes the commissioning of sanitary engineers in the Regular Corps of PHS. Sanitary engineers had been commissioned in the Reserve Corps since 1918.

**1934**  
The Indian Reorganization Act (25 U.S.C. 478) grants the right of self-government to Indian tribes.

**1943**  
The PHS Act of 1943 authorizes the commissioning of sanitarians. PHS sanitarians and engineers conduct Malaria Control projects in Oklahoma under an interagency agreement between the state of Oklahoma, BIA and PHS.

**1952**  
BIA establishes the Sanitarian Aide Program. CDC staff train the first class of sanitarian aides in a 3 month course in Phoenix. The new sanitarian aides were used to staff the first reservation-based environmental health programs.

**1955**  
The Transfer Act goes into effect on July 1. In October the new PHS Division of Indian Health (DIH) releases "The Most Pressing Needs Study". This detailed assessment of health care facility improvements and community sanitation facility construction needs establishes the methodology for determining community sanitation facility construction needs and provided the funding estimates for sanitation facility needs in DIH. The study prompts immediate funding for health care facility improvements and leads to the passage of the Indian Health Care Facilities Construction Act (PL 85-151) in 1957.



**1924**  
OIA Division of Health hires Elinor Gregg to establish a Community Health Nursing (CHN) program. The CHN's work included teaching basic sanitation in homes and introduced the first community health programs among American Indians and Alaska Natives. The program starts with 16 nurses and grows to 600 by 1939.

**1924**  
The Indian Citizenship Act of 1924 (P.L. 68-175) grants citizenship by naturalization to noncitizen Indians born in U.S. Territories.

**1954**  
**Alaska's Health: A Survey Report**, released by the Department of Interior. Commonly known as "The Parran Report" for its lead author, former Surgeon General Thomas Parran, the report is a comprehensive study of Alaska Native health with key findings of wide spread insanitary conditions that contributed to the highest rates of tuberculosis ever recorded. A successful tuberculosis campaign resulted from the report. The report also focuses congressional attention to the need for the Transfer Act under consideration at the time.

**1954**  
**The Transfer Act (P.L. 83-568)** is signed into law, moving the health responsibilities for AI/ANs from BIA to PHS.

**1954**  
BIA and PHS enter into an agreement to provide water fluoridation to BIA schools and facilities under Operating Memo 56-68.

**1957**  
P.L.85-137, the Supplemental Appropriation Act, is passed to provide water and waste water facilities to Elko Indian Colony of Nevada homes. The project requires community participation and became the template for on-going efforts in Congress to grant the authority to PHS to expend federal funds on improving sanitation facilities to Indian homes.

**1957**  
DIH releases **Health Services for American Indians**, commonly referred to as the "Gold Book". The Gold Book is a comprehensive study of health conditions facing American Indians at the time of the Transfer Act, including recommendations for a broad-based sanitation improvement program.



## SANITATION FACILITIES CONSTRUCTION

50 YEARS OF PROGRESS

**1959**  
**The Indian Sanitation Facilities Act (P.L. 86-121)** is signed into law. This amendment to the Transfer Act provides authorization for federal funds to be used for the improvement of individual and community water, sewer, and solid waste facilities for AI/ANs.

**1963**  
Office of Environmental Health (OEH) is established. **CC Johnson** is named the first Director of the SFC Program.

**1969**  
DIH is renamed the **Indian Health Service**

**1975**  
P.L. 93-638, the Indian Self-Determination and Education Assistance Act, authorizes tribes to contract and operate federal service programs within BIA and IHS.

**1976**  
P.L. 94-437, the Indian Health Care Improvement Act, authorizes health professions scholarship program, the urban Indian health program, and Medicare/Medicaid reimbursement.

**1987**  
CWA Amendments establish the Indian-Set Aside Program. EPA currently uses these funds to support projects listed in IHS' Sanitation Deficiency System.

**1993**  
Donald "Bruce" Bad Moccasin, a Crow Creek Sioux member, is the first Native American engineer to become an Area Director (Aberdeen). He began his IHS career as a field engineer in the SFC Program in 1977.

**1996**  
SDWA Amendments (P.L. 104-182) authorize EPA to set aside funding specifically for drinking water projects in tribal communities.

**2004**  
CAPT Carole Boerner is named Director of the Billings Area SFC Program. She is the first woman to achieve this title.

**2006**  
EPA promulgates new standards for arsenic in drinking water. Based on this rule change, 65 Indian communities with nearly 13,000 homes no longer met EPA's Primary Standards for drinking water.

1963 1966 1969 1971 1974 1976 1981 1987 1993 1996 2006 2009

**1966**  
DIH establishes the Special Projects Branch in Phoenix to coordinate and provide training for sanitarian aides and sanitarians provided by CDC since 1952. Orientation courses for engineers and tribal crews are developed as the new P.L. 86-121 program ramps up. The Special Projects Branch is the predecessor to the Environmental Health Support Center

**1970**  
President Richard Nixon, through a Presidential Reorganization Plan, creates the Environmental Protection Agency.



**1974**  
Safe Drinking Water Act (SDWA), P.L. 93-523, passes to set primary and secondary standards for drinking water quality.

**1971**  
Bill F. Pearson, a Choctaw member, is the first Native American to become an SFC Program Director (for the Navajo Area). He later became the Navajo Area OEHE Director and eventually became the first Native American Director of the national OEHE Program. He began his career as a field engineer in the SFC Program in 1964.

**1981**  
Appropriation language for Fiscal Year 1982 clarifies that P.L. 86-121 funding is not authorized for sanitation facilities serving DHUD homes. This has remained in the appropriations language each year since then.

**1988**  
IHS is elevated to an Operating Division within DHHS. IHS Directors are now political appointees.

Under Indian Health Care Improvement Act Amendments (P.L. 100-713), Congress reaffirms the primary authority of IHS to provide sanitation facilities and services under P.L. 86-121 and mandates use of sanitation deficiency levels.

**2007**  
RADM Ron Ferguson is promoted to flag grade. He is the first Director of the SFC national program to achieve the rank of Assistant Surgeon General while serving as Director.

**2008**  
"International Year of Sanitation" is declared by the United Nations General Assembly.





# 50<sup>th</sup> Anniversary

## ABERDEEN AREA



The Aberdeen Area Indian Health Service (IHS) serves 17 tribes on 16 reservations totaling approximately 17,245 square miles in the states of Iowa, Nebraska, North Dakota, and South Dakota. Currently, approximately 119,900 American Indian and Alaska Native (AI/AN) people live within the Aberdeen IHS service area.



The Aberdeen Area Sanitation Facilities Construction (SFC) Program has three district offices—Minot, North Dakota; Pierre, South Dakota; and Sioux City, Iowa—and two field offices in Martin, South Dakota, and Mobridge, South Dakota. In addition, there is SFC staff stationed at the Belcourt Service Unit, North Dakota, and at the Rosebud and Sisseton Service Units, South Dakota. The staff in these offices comprises 25 engineers, 12 technicians, 5 construction inspectors, and 9 administrative support staff.

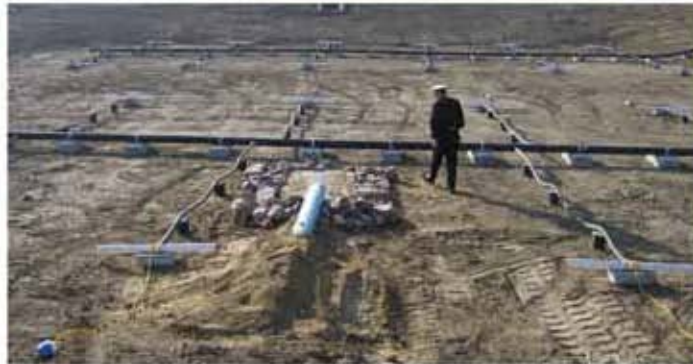


The Aberdeen Area office was first established in 1955, with the first SFC office established in 1960. The Area's first project, AB 60-61, served 16 homes that relied on a shallow well and an undeveloped spring as their water supply within the Black Pipe community on the Rosebud Indian Reservation. The water table that supplied these sources declined, leaving only enough water in the spring to serve one home. The project provided the community with a 120-foot well, a jet pump, a pressure tank, and a pumphouse. The project was completed in January 1962 and cost \$2,400.



The Aberdeen Area SFC Program provides for the construction of community sanitation facilities including community water wells, lake intakes, water treatment plants, water storage tanks, and water main extensions; community sewage collection, treatment, and disposal systems; and solid waste collection and disposal projects. It also provides for the construction of individual onsite water supply and wastewater disposal treatment facilities to serve scattered home sites, which may include the installation of individual septic tank drainfield systems, effluent lift stations, sand filters, individual water wells, water pressure systems, point-of-use arsenic removal systems, and water service lines.







# 50<sup>th</sup> Anniversary

## ALASKA AREA



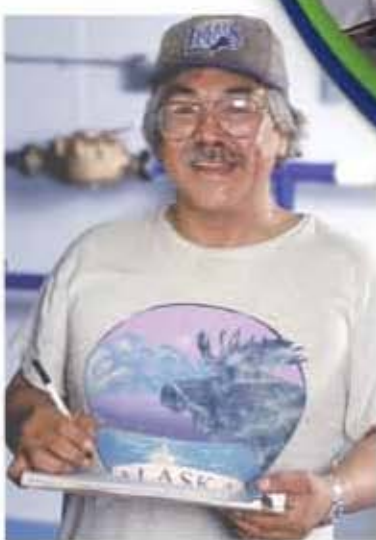
The Alaska SFC Program serves 231 tribes totaling approximately 103,200 AI/ANs on 572,000 acres of land. Currently, the Program has 40 engineers and project managers, 20 computer-aided design and survey technicians, and 35 other staff in Fairbanks and Dillingham field offices.

The Alaska Area SFC office was formed in 1955, with the first project established in 1960. Construction for project AN 61-424 was completed in October 1964. The project served 28 homes and included drilling a community well, building a water storage tank, and developing two watering points. Homes were provided with sinks, sink stands, pit privies, and refuse containers. The majority of the project building materials came as surplus from other government agencies: the U.S. Army supplied 6,000 feet of galvanized pipe; the wellhouse came from the Bureau of Indian Affairs; and the 20,000-gallon wood stave storage tank was surplus from the Alaska Railroad. The total project cost was \$23,500.

Today, the Alaska SFC Program continues to serve AI/ANs in arctic and sub-arctic communities with water, wastewater, and solid waste systems. Components of these systems include lagoons and drainfields, lift stations, ocean outfalls, community and individual sewer collection systems, onsite disposal systems, wells, surface water sources, water treatment plants, water storage tanks, washeterias, community water and sewer lines, interior plumbing, community landfills, and transfer stations. Alaska is unique among the IHS Areas because the entire SFC Program has been administered by the Alaska Native Tribal Health Consortium that was created by Public Law (P.L.) 105-83, Section 325.









# 50<sup>th</sup> Anniversary

## ALBUQUERQUE AREA



The Albuquerque Area SFC Program currently serves 24 tribes with a population of 55,000. Portions of four states, Colorado, New Mexico, Texas, and Utah, are served from two district offices and one field office. Area SFC employees include 14 engineers, 7 technicians, and 2 administrative assistants who provide comprehensive engineering services, including planning, design, construction management, and operation and maintenance (O&M) assistance for eligible tribal water, wastewater, and solid waste facilities.

The Area office was established in 1955, followed by the establishment of the SFC Program in 1959. The first project for the Albuquerque Area started in 1960 with project AL 60-282. The project served 120 homes in the Village of Paraje Casa Blanca on the Laguna Indian Reservation by drilling a community water well, constructing a water storage tank, and installing a water distribution main. The total cost of the project was \$88,000.

Since 1959 and through funding provided largely under P.L. 86-121, SFC, in cooperation with Area tribes, has been successful in providing more than 95% of homes in the Albuquerque Area with potable water and domestic wastewater disposal facilities as well as community solid waste disposal systems. Provision of these facilities has been a significant contributor to the improved health status of the AI/AN people, as clearly indicated by the decrease in the gastrointestinal disease death rate and concurrent increase in life expectancy.

Though P.L. 86-121 accounts for the majority of recent funding, other federal agencies, including the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Agriculture (USDA); the State of New Mexico; and tribes have contributed significant amounts to SFC projects. Through its relationships with tribes and other funding entities, Albuquerque SFC has maintained its role as the expert in planning, designing, constructing, and providing O&M assistance for sanitation facilities in AI/AN communities in the Albuquerque Area.

Today, the Albuquerque SFC Program continues to provide services directly to Area tribes. By their continuing support, Albuquerque Area tribes have expressed confidence in the level of service provided by SFC. The Albuquerque SFC was awarded the New Mexico Pinon Recognition Award for Excellence based on Baldrige National Quality Program Criteria. This award recognizes organizations for excellence in customer service and organizational management.







# 50<sup>th</sup> Anniversary

## BEMIDJI AREA



The Bemidji Area SFC Program serves 34 tribes with sanitation facilities on 34 reservations totaling 5,183 square miles. Approximately 99,000 AI/AN people live within the Bemidji IHS service area covering three states: Michigan, Minnesota, and Wisconsin. There are two district offices, Minnesota and Rhinelander, Wisconsin, and two field offices, Sault Sainte Marie, Michigan, and Ashland, Wisconsin. In total, the Bemidji Area SFC Program employs 20 engineers, 14 engineering technicians, and 5 administrative staff.



The Area was first established on November 1, 1974, and prior to that time, was under the guidance of the Aberdeen Area office. One of the first projects completed by the Bemidji Area SFC Program was AB 61-123 to extend an existing water distribution system for service to 69 homes in the Red Lake community. In addition, the project provided for the installation of 14 toilets and 55 pit privies, along with sinks, septic tanks, seepage pits, and associated plumbing, for all 69 homes. The total project cost was \$107,648.



Recent projects include a \$1 million water treatment plant for arsenic removal on the Boise Forte Reservation, Minnesota; a \$5 million water and wastewater system renovation for the Neopit community on the Menominee Reservation, Wisconsin; and a new \$1 million Lake Superior surface water intake for the Village of Baraga on the Keeweenaw Bay Reservation, Michigan.



The Bemidji Area SFC Program continues with its services to scattered homes, as well as undertaking more complex community water and sewer infrastructure projects. Like other Areas, Bemidji seeks opportunities to leverage its available funds with contributions from other federal agencies, such as EPA, the USDA Rural Development, and the Army Corps of Engineers.







# 50<sup>th</sup> Anniversary BILLINGS AREA



The Billings Area IHS serves 9 tribes (totaling 70,000 people) on 8 reservations throughout Montana and Wyoming. The Billings SFC Program employs eight engineers, three engineering technicians, and one administrative assistant.

Most SFC projects in the Billings Area serve new homes through Housing Support Projects. The first Area SFC project, BI 61-520, was approved on December 27, 1960, and completed on April 15, 1962. This project provided domestic water supply, wastewater disposal, and waste disposal facilities for individual families living in the St. Xavier project area on the Crow Indian Reservation. The project was developed for the installation of on-premise water and drain lines (including backfill of trenches) and the installation of wells with hand pumps and appurtenances, concrete slabs, garbage pits, and pit privies.





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# 50<sup>th</sup> Anniversary

# CALIFORNIA AREA



The California Area IHS serves 102 federally recognized tribes and bands in the State of California. Based on Census figures, California's AI/AN population was 333,346 in 2000.

The California Area SFC staff is divided among the Area office, three districts (Sacramento, Escondido, and Redding) and four field offices (Ukiah, Arcata, Porterville, and Fresno). The 35 employees constituting the California Area SFC Program include 13 engineers, 15 engineering technicians, and 7 administrative staff. From 1962 through 2003, approximately \$95 million was appropriated for the construction of sanitation facilities for AI/ANs in California. During this same time frame, IHS appropriations, plus contributions from other sources, funded more than 685 sanitation facilities construction projects that served over 8,200 California AI/AN homes.

The first SFC project in California was started in 1965 by the California program office of the Phoenix IHS Area. The California Area was not officially designated until 1978. The California program office implemented project 65-726 on the Hoopa Valley Indian Reservation to repair sanitation facilities heavily damaged as a result of winter floods along the Klamath and Trinity rivers during the winter of 1964. The cost of the project was \$240,000 and provided the reservation with 79 onsite septic systems; 24 1,000-gallon water storage tanks; 6 500-gallon water storage tanks; 38 spring boxes; 1 well; 2 filter beds; and enough water lines for 75 homes. Construction was completed in December 1967.

Since that first project, the California Area SFC Program has continued in its role of providing California AI/AN communities with quality water, sewer, and solid waste facilities to reduce the number of deficiencies in the Area. Projects have ranged from providing communitywide water sources including solar-powered water systems, ultraviolet water treatment, and individual septic systems located in remote locations to working partnerships with local municipalities to improve water systems for both AI/AN communities and the surrounding populations.









# 50<sup>th</sup> Anniversary

## NASHVILLE AREA



The Nashville Area IHS was formed in 1971. This Area, originally located in Sarasota, Florida, operated as a “program office” of the Oklahoma City Area. The first Nashville Area SFC project was a new water treatment plant for the Seminole Tribe of Florida on the Big Cypress Reservation. The tribe’s water source contained a combination of iron and hydrogen sulfide that had corroded plumbing in tribal homes. The project installed a new water treatment plant and replaced interior plumbing fixtures for 50 homes.

Today, the Area’s SFC Program serves 28 tribes and an AI/AN population of approximately 47,500. Four of the 28 tribes manage their share of the SFC programs under P.L. 93-638, Title V, Self-Governance Compacts: the St. Regis Mohawk; the Eastern Band of Cherokee Indians; the Mississippi Band of Choctaw Indians; and the Seminole Tribe of Florida. The Nashville Area covers 13 states: Alabama, Connecticut, Florida, Louisiana, Maine, Massachusetts, Mississippi, New York, North Carolina, Pennsylvania, Rhode Island, South Carolina, and Texas.

Currently, the SFC staff includes one engineer-director, two district engineers, two utility consultants, four field engineers, five engineering technicians, and two administrative assistants. The Area has two district offices located in Bangor, Maine, and Nashville, Tennessee; and three field offices located in Atmore, Alabama; Opelousas, Louisiana; and Manlius, New York.

The Nashville Area continues to serve AI/AN tribes scattered from Northern Maine to South Florida to East Texas with sanitation facilities. Services range from individual water wells and septic tanks to sophisticated community water and wastewater systems serving populations in excess of 8,000 people.







# 50<sup>th</sup> Anniversary

## NAVAJO AREA



The Navajo Area IHS serves two tribes: the Navajo Nation and the San Juan Southern Paiute (located within the boundaries of the Navajo Reservation). The tribes have a combined population of 239,000, with the San Juan Southern Paiute population at approximately 300. The tribes encompass a total land area spanning approximately 25,000 square miles through the states of Arizona, New Mexico, and Utah. Serving these tribes are four district offices and five field offices employing 39 engineers, 64 engineering technicians, and 19 administrative support personnel.

Initially, the Navajo Area was part of the Albuquerque Area before becoming a separate Area in the early 1960s. An early project completed by the Navajo SFC Program, WI 61-322, was a combination of five smaller projects to provide sanitation facilities to homes in five separate communities: Chinle, Lukachukai, Moenave, Saint Michaels, and Twin Lakes. The total cost of the project was \$137,829, and it served 214 Navajo homes (\$62,200 was contributed by IHS and the rest by the Navajo Tribe).

Today, the Area's SFC Program has an annual construction appropriation of approximately \$19 million, with annual contributions from \$5 million to \$10 million. Most of these funds go to water main expansion projects to serve Navajo homes. In 2007, 1,091 first-time water and sewer services were made to Navajo homes, with 4,049 homes receiving system upgrades. Although the Navajo Nation manages some IHS programs under P.L. 93-638, it does not manage the SFC Program. Instead, the Navajo Nation operates a tribal enterprise, called the Navajo Engineering and Construction Authority, which contracts with SFC for a number of Title I projects.







# 50<sup>th</sup> Anniversary OKLAHOMA CITY AREA



The Oklahoma City Area IHS currently serves 42 tribes and a population totaling nearly 340,000. The Area covers the states of Oklahoma and Kansas and portions of Texas and Missouri with two district offices (Eastern and Western) and seven field offices located in Holton, Kansas, and in Clinton, Lawton, Miami, Okmulgee, Pawnee, and Shawnee, Oklahoma. Ten engineers, 3 construction representatives, 16 construction inspectors, 7 laborers, and 9 administrative support staff support SFC Program efforts.

The Oklahoma City Area was first established in 1957 and was located in Oklahoma City's old post office and courthouse. The Area's first SFC project, 61-622, was in 1960 for the Cherokee Nation. This project, which included a \$1,000 donation from the 35 families served, cost \$33,397 and supplied the tribe with water and wastewater facilities including wells with hand pumps and pressure systems, septic tanks, garbage pits, privies, seepage pits, and plumbing fixtures.

Today, the Area's SFC workload consists of 75% scattered home site work, 10% rural water district line extensions, 10% water treatment plant improvements, and 5% special and emergency projects.







# 50<sup>th</sup> Anniversary

## PHOENIX AREA



The Phoenix Area IHS, established in 1955, serves a population of over 100,000, comprising 40 federally recognized tribal groups and 45 reservations. The service area includes portions of Arizona, California, Nevada, and Utah, with district offices located in Lakeside, Arizona (Eastern Arizona), Tempe, Arizona (Western Arizona), and Reno, Nevada, and with field offices in Whiteriver, San Carlos, Polacca, Parker, and Yuma, Arizona; Elko, Nevada; and Ft. Duchesne, Utah. The SFC Program's first office was established in the Phoenix Area in 1960 and currently is supported by a staff including 22 engineers, 11 technicians, and 13 administrative personnel.

The first Phoenix Area SFC project, PH 60-6E, commenced in 1960 for the North Blackwater community on the Gila River Indian Reservation in Southern Arizona. The project provided domestic water for the North Blackwater residents, whose water supply had failed, requiring residents to haul water 9 to 12 miles to their homes. The situation was compounded by a flood in 1959 along the Gila River that blocked some residents from their water-hauling route and forced them to obtain their water directly from the flooding river. As a result of the project, the North Blackwater community was provided with a new well and a water storage tank for domestic water use.

Today, Phoenix Area SFC projects involve the construction of community water, sewer, and solid waste disposal facilities with the newest technology to ensure community sanitation facilities meet the latest standards. Such technologies include a coagulation-micro-filtration water treatment plant to remove arsenic from the Fallon, Nevada, water source and Supervisory Control and Data Acquisition systems to control line-shaft turbines on the Salt River Indian community, Arizona, water system.

As an example of developing solution-oriented projects, the Phoenix Area SFC Program was able to create a three-way alternative benefiting the McNary and Hoh Dah communities on the Fort Apache Indian Reservation in Arizona. Both communities suffered from wastewater deficiencies, so a solution was developed to serve both communities through a communal treatment facility requiring funding from five separate sources. The result was a \$2.9 million, 35-acre, 400,000 gallon-per-day wastewater treatment facility. This state-of-the-art facility includes ultraviolet treatment and a wetland filtration system requiring no moving parts and very little O&M efforts and providing habitat to waterfowl and bird species. Another benefit of the system includes incorporation of cattail, whose pollen is culturally significant to the White Mountain Apache people and is used in Apache sunrise dances and other tribal rituals.









# 50<sup>th</sup> Anniversary

## PORTLAND AREA



The Portland Area IHS covers the states of Idaho, Oregon, and Washington and serves 43 tribes. The Portland Area SFC Program has eight offices in Fort Hall, Idaho; Portland and Salem, Oregon; and Bremerton, Port Angeles, Seattle, Spokane, and Toppenish, Washington, which are staffed by 42 employees.

The Portland Area completed its first SFC project in 1961 on the Swinomish Indian Reservation on Fidalgo Island, north of Seattle, Washington. This project replaced an existing water main under the Swinomish Slough and constructed a new community sewage treatment facility to serve the 192 tribal members living on the reservation. The project took approximately a year to complete for a total cost of \$18,400.

In more recent years, the relationships that the Area has developed with other federal agencies helped the Portland Area to develop cooperative projects. Currently, over half of the Area's SFC construction funding is from sources outside IHS. Such partnerships have included efforts with the U.S. Department of Housing and Urban Development, EPA, the Department of the Interior's Bureau of Reclamation, and others. An example of such a partnership served the Squaxin Island Indian Reservation, south of Bremerton, Washington. The project was multifaceted and included drilling new wells, constructing a corrosion control facility, and renovating the tribe's regional community water system. In addition to IHS support, the \$2.6 million project also was supported by EPA, the Tribal Housing Authority, the USDA Rural Utilities Service, and the tribe.







# 50<sup>th</sup> Anniversary

## TUCSON AREA

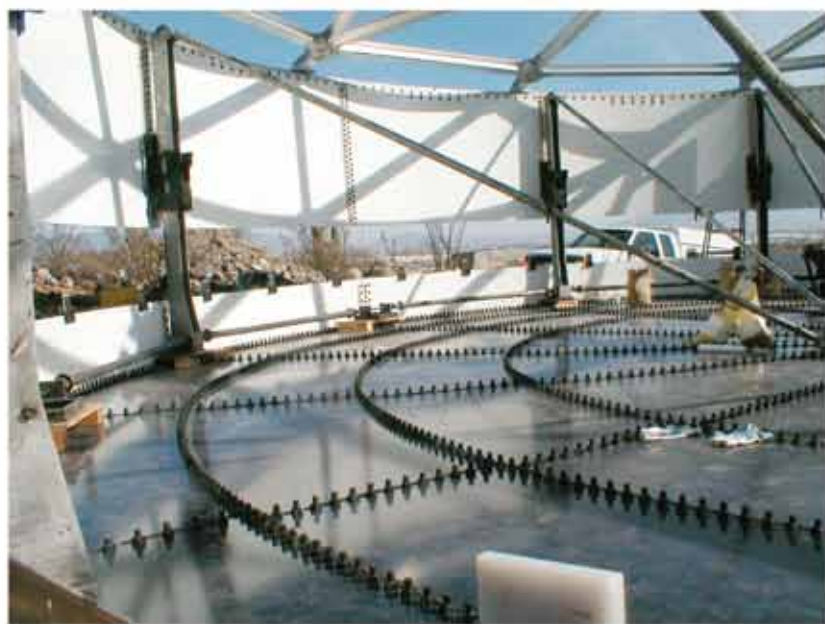


The Tucson Area IHS comprises nearly 3 million acres on four reservations in Arizona serving 41,500 AI/ANs within two tribes—the Tohono O’odham Nation (known as the Papago Tribe before 1990) and the Pasqua Yaqui Tribe. Tucson Area IHS was actually a Headquarters function known as the Office of Health Program Research and Development (OHPRD) until 1997, when it became the Tucson Area. The OHPRD was established in 1965 in a converted BIA tuberculosis sanatorium originally constructed in 1932. This 77 year old facility is still utilized today for the Tucson Area IHS clinic and offices. The 17-person SFC staff consists of one chief engineer, one assistant chief, one district engineer, one deputy district engineer, a full-time contracted engineering consultant, five project engineers, six engineering technicians, and one administrative assistant.

The first project in the Area occurred in 1960 for the Kaka community, Hickiwan District, Papago Indian Reservation. Water for the community was hauled from a village 6 miles away in 50-gallon open barrels or was obtained from charcos (manmade open pools). Under the project, 52 homes were served with community and individual sanitation facilities including a 609-foot well and appurtenances; a 5,000-gallon steel water storage tank, transmission piping, 13 kitchen sinks with waste disposal seepage pits, and 12 sanitary privies for individual homes. Village residents did much of the labor, including the sinks and privy installation, laying pipe and providing materials such as sand and rock. The total cost of the project was \$19,377.

Tucson Area SFC projects include regionalizing community water systems, replacing water storage tanks, and installing community sewer collection systems with total retention lagoons. For scattered housing, projects provide for the construction of onsite septic systems, community water and sewer connections, and plumbing for modular bathrooms.

Over the years, a strong working relationship has been forged with the Tohono O’odham Utility Authority (TOUA), which is responsible for providing power, telephone, water, sewer, and propane services to the Tohono O’odham people. Approximately 90% of the Tucson Area SFC Program work is procured through TOUA under an agreement with the tribe and is carried out either by tribal force account or tribal procurement construction contracts. The result is an efficient method of providing needed sanitation facilities to the population we serve.





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