

TRIBAL WASTE Journal

ISSUE 8 | JULY 2011



Innovations in Tribal Waste Management: Open Dump Prevention

Featuring:

- Tribal Success Stories
- Key Elements to Success
- Funding Resources & More



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Open Dumping on Tribal Lands

On March 1, 2010, U.S. Environmental Protection Agency (EPA) Administrator, Lisa Jackson, reported to the National Congress of American Indians that open dump sites "...are a persistent challenge in tribal areas across the country. Hazardous waste sites and open dumps expose tribal residents to dangerous toxins and contamination of land and water. That presents a serious health and environmental hazard. But make no mistake; it is also a significant economic obstacle." Working together to prevent open dumps on tribal lands is imperative to protecting the environment, economy, and social welfare of future generations.

Open dumping continues to be a problem on tribal lands due to many factors including the lack of access to convenient, affordable disposal sites for: bulky materials, electronic waste (e-waste), tires, vehicles, and household hazardous waste. Other challenges include complex open dump sites that are difficult to clean, close, and maintain, as well as lack of funding for solid waste management alternatives to open dumping. In this issue of the Tribal Waste Journal, you will hear from tribal waste managers responsible for initiating, maintaining, and fostering support for new programs that provide ways to prevent open dumping.

This issue aims to give a new perspective on open dumping by highlighting an assortment of successful environmental programs at various stages of devel-

"This issue aims to put a fresh perspective on open dumping by highlighting an assortment of successful environmental programs at various stages of development or implementation."

opment or implementation. We hope that your tribe can relate to one or more of these stories and get some new ideas to implement. To help make new solid waste connections, the tribal waste managers who have shared their stories have provided their contact information at the end of each article. Please contact that person if you would like to learn more about his or her program.

In this issue, you will find information on the many different types of waste you may find in open dumps. These include bulky items, old appliances, and hazardous waste (such as old

paint or batteries) which are not collected along with other household waste. In many of the featured stories, special programs were initiated to focus on the collection and disposal of these along with other waste streams.

It is important to have waste management programs in place before, or along with, efforts to clean up open dumps. Cleaning and closing open dumps may only solve part of the problem. If tribal members do not have another means of disposal, new open dumps may occur. To help you determine sustainable alternatives to open dumping, we have included information on different waste management strategies for your tribe. These include building a new transfer station or initiating a new collection service for tribal members.

Based on the stories enclosed in this issue, we developed a list of six key elements of success. These key elements include: collaboration, support, education, sustainability, perseverance, and respect. Keep an eye out for these elements as you read through the issue.



Preventing Open Dumping: An Overview of Transfer Stations, Collection Programs, and Landfills

Many environmentally safe alternatives to open dumping exist. Some include transfer stations, collection programs and landfills. These types of alternatives may be managed by the tribe, a contractor, or via a partnership (tribe-to-tribe, tribe-to-local government, etc.). The resources available to your tribe will help you identify the best ways to manage your solid and hazardous waste.

Transfer Stations

Transfer stations, or convenience centers, serve as a central collection site for waste from multiple sources (via personal vehicles,

smaller trucks, etc.). The aggregated waste is transferred via large haul trucks to regulated disposal sites such as landfills or waste-to-energy facilities. According to “Waste Transfer Stations: A Manual for Decision-Making,” available at www.epa.gov/waste/nonhaz/municipal/pubs/r02002.pdf, “[t]ransfer stations serving rural or tribal areas tend to be small. They are optimally located within a reasonable driving time from the service area’s largest concentration of homes and businesses.” When planning a successful transfer station, it is important to consider the following:

- central location to collection routes;
- access to major transportation routes;
- site size requirements;
- sufficient space for onsite roadways, queuing, and parking;
- truck and traffic compatibility;
- ability for expansion;
- space for recycling, composting, and public education;
- buffer space;
- gently sloping topography;
- access to utilities;
- zoning designations and requirements.

Issue 2 of the Tribal Waste Journal focused on transfer stations tips, tools, resources, and success stories. It is available at www.epa.gov/waste/wycd/tribal/pdftxt/twj-2.pdf.

Collection Programs

Collection programs may be in the form of a public collection, contract collection, or private collection. Based on the needs of your tribe and the availability of collection services, you may decide to pursue one or more of these types of programs. Some communities use a mixture of public and private collection services based on the size and distribution of residents, businesses, and industries on their reservation. Partnering with neighboring tribes, local governments, or commercial operations

What is a Pay-As-You-Throw Program?

Traditionally, fees for curb-side garbage pickup are the same for every household employing the service. Each household is charged via municipal tax base, or via fixed fee, regardless of the amount of garbage collected. For example, if you only generate one bag of trash, but your neighbor clears out their home generating 10 bags of trash, you both pay the same for the garbage pick-up service. The Pay-As-You-Throw (PAYT) program differs in that it charges each household based on the amount of garbage thrown away either per bag or by weight. The PAYT program, also known as “unit pricing” or “variable-rate pricing,” acts as a financial incentive to decrease the amount of garbage generated. Reduction is accomplished through recycling materials, composting organic waste, and reducing the amount of garbage generated to begin with through source reduction (purchasing products with less packaging, etc.). Many PAYT resources such as videos, tool kits, booklets, lessons learned, success stories, and fact sheets are available on EPA’s PAYT website at www.epa.gov/payt. To help determine whether PAYT is right for your community, visit EPA’s website on SMART BET (Saving Money and Reducing Trash Benefit Evaluation Tool) at www.epa.gov/waste/consERVE/tools/payt/tools/smart-bet/index.htm.

to combine resources may offer financial savings for all involved.

Tribes may work out payment for collection programs in a variety of ways, including adding a fee to an existing utility bill, having tribal members reimburse the tribal government for services rendered, funding the program through fees collected from alternative sources such as a casino fee, or having tribal members work out a rate with the private hauler. Another option for paying for waste collection is a Pay-As-You-Throw program, which charges customers on a per-volume or per-weight basis.

Landfills

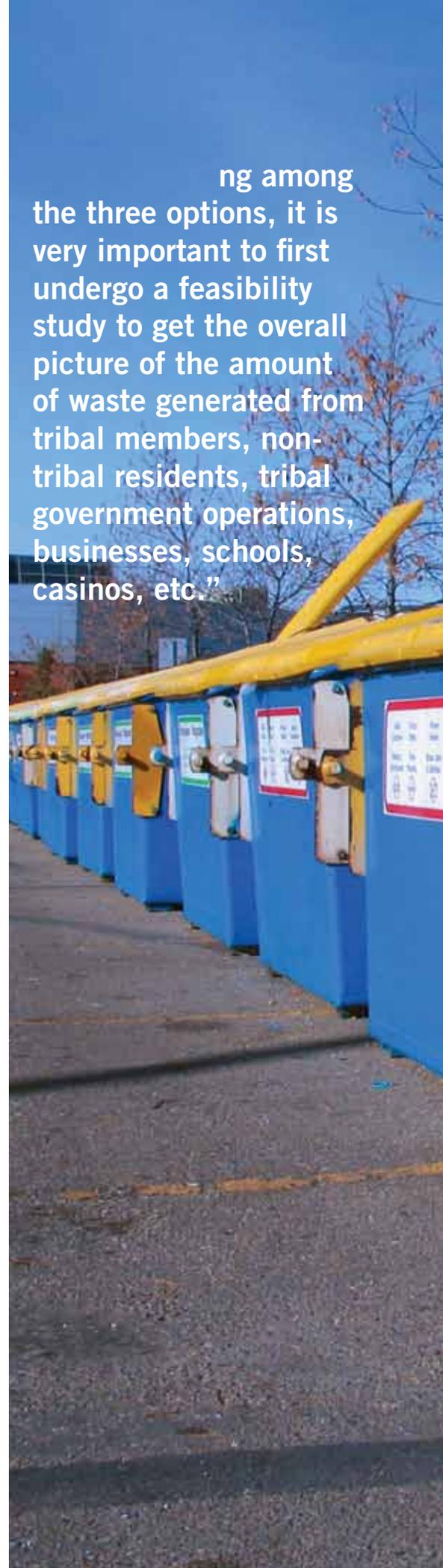
Compared to open dumps – “areas where waste is disposed of without proper controls” – landfills follow prescribed laws and regulations aimed at protecting human health and the environment, including regular application of cover, controlled access to the sites, and other environmental controls. Under the Resource Conservation and Recovery Act (RCRA) (40 CFR 258), the federal government regulates the operation of municipal solid waste landfills (MSWLF). EPA’s RCRA website, www.epa.gov/waste/nonhaz/municipal/landfill/msw_regs.htm, provides detailed information on MSWLF regulations. More information on flexibility requests is available in the draft document, “Site-Specific Flexibility Requests for Municipal Solid Waste Landfills in Indian Country,” located at: www.epa.gov/waste/nonhaz/municipal/landfill/indian/siteflex.htm.

Costing Tools for Transfer Stations, Collection Services, and Landfills

To assist tribes with determining the economic feasibility of tribally-operated waste management services, EPA Region 9 developed the “Tribal Solid Waste Program Costing Tool.” This tool focuses on potential planning, construction, operation, and maintenance costs associated with collection services, transfer stations, and/or landfills. When deciding among the three options, it is very important to first undergo a feasibility study to get the overall picture of the amount of waste generated from tribal members, non-tribal residents, tribal government operations, businesses, schools, casinos, etc. In addition, a feasibility study will help assess the costs of waste collection using different alternatives. The costing tool provides information on different types of funding, including the funding of start-up materials as well as determining a sustainable funding source such as user fees. The costing tool can be found at www.epa.gov/region9/waste/tribal/resources.html.

In 2000, EPA Region 5 developed the “Illegal Dumping Economic Assessment (IDEA) Cost Estimating Model.” The model helps to determine the costs associated with open dumping and its economic impact on a community. The Microsoft Excel application is free and available for download from the EPA Region 5 Illegal Dumping Prevention Project website at www.epa.gov/reg5rcra/wptdiv/illegal_dumping/index.html.

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Kickapoo Tribe's 2009 e-waste collection event. Photo courtesy Luke Terry.

Open Dump Prevention on the Kickapoo Reservation through Community Cleanup Events

Through tribal leadership and community participation, a shift from open dumping to responsible waste management took place on the Kickapoo Reservation, Brown County, Kansas. This shift aligns with the tribe's mission to "enhance the quality of life for the tribe, its members and its community, while preserving its culture and retaining its right to self-governance by protecting tribal sovereignty and its assets." Responsible waste management helps preserve the tribe's mission

and creates a sustainable community for future generations.

In 2000, 14 open dump sites scarred the 19,200-acre Kickapoo Reservation. These dumps consisted of a myriad of wastes; some of which dated back 40 years. Dumping had persisted on the reservation because of the lack of a viable disposal method for bulky and metal items such as used mattresses, broken refrigerators, and other appliances. Vehicle tires were also widely distributed across the open dump sites.

To eliminate open dumping, Kickapoo Tribe's Environmental Program, under the Natural and Cultural Resources Division, holds an annual "community cleanup" event on the reservation. The cleanup event works in two ways. First, several days are spent collecting trash scattered across the reservation that has accumulated in ditches, particularly along roadways. Secondly, Environmental Program staff drive around the reservation collecting bulky items and metal goods left curbside by tribal

Spotlight on: Electronic Waste (e-Waste)

Recycling of e-waste includes used electronic goods such as televisions, computers, printers, phones, fax machines, etc. EPA encourages the re-use of electronics by first ensuring that it is in working order and donating it to an organization, school, or community. Recycling electronics enables manufacturers to strip precious metals, copper, and engineered plastics, all of which require considerable energy to process and manufacture, from your electronics for re-use. Additional information on e-Waste may be found at www.epa.gov/waste/conserve/materials/ecycleing/basic.htm.



members. Requests to assist tribal elders in moving heavy items from inside their home to the curb are encouraged and honored. To ensure participation in the events, the Environmental Program staff regularly updates the tribal website's calendar of events, distributes flyers at community events, posts large informative signs at each housing cluster, and publishes information about the event in the tribal newsletter.

Tribal member support of the cleanup event over the past ten years has enabled the Kickapoo Tribal Government to provide an array of solid waste collection events through the Environmental Program. In 2008, the annual cleanup event became a twice-a-year event. Continued success of the event provides momentum for the tribal government to support other waste management initiatives on the reservation, including a tire collection campaign, an electronic waste (e-waste) event, and a recycling program. From 2008 to 2011, the Environmental Program has removed and recycled 3,015 tires from open dumps on the reservation. Once the tires were removed, the Environmental Program was



Kickapoo Tribe's tire waste collection event. Photo courtesy Luke Terry.

able to fully clean and close half of the open dumps in only two weeks. In addition, e-waste collection events were held in 2009, 2010, and 2011, each yielding six pallets worth of phones, fax machines, computer monitors, television sets, and copy machines that would have otherwise been dumped. Nearly two tons of recyclables were collected over the course of one year from tribal government offices and local businesses. The Environmental Program also started recycling services at the school and casino located on the reservation. The casino recycling effort started in August 2010 with tin and shredded paper. In April 2011, a cardboard baler was purchased by the Environmental Program for use at the casino. Thus far, 7,747.5 pounds of tin, 8,772 pounds of shredded paper, and 15,400

The Environmental Program has changed the behavior of tribal members from relying on open dumps to relying on the community cleanup events. New waste collection and management initiatives on the reservation have targeted problematic waste streams with great success.

pounds of cardboard have been diverted from the waste stream and recycled.

For more information on the Kickapoo Tribe's activities, contact Luke Terry, Environmental Director, at 785-486-2601, Extension 1 or luke.terry@ktiknsn.gov. The Kickapoo Tribe website is located at <http://ktiknsn.gov>.

Spotlight on: Household Hazardous Waste

Many products that are found in homes contain potentially corrosive, toxic, ignitable, or reactive ingredients. When discarded these products are called household hazardous wastes (HHW). Common HHW include paints, cleaners, oils, batteries, and pesticides. If mixed and disposed together with regular household waste, these products may contaminate air, water, or soil depending on their final disposal method (landfill or incineration). Additionally, dumping toxics down drains or storm sewers creates a direct and immediate negative impact to your environment. Proper disposal is essential to protecting human health and the environment. EPA encourages HHW collection programs that may be facilitated by your local transfer station or tribal government. For more information, visit EPA's HHW website www.epa.gov/waste/conservematerials/hhw.htm.

Saginaw Chippewa: Utilizing Casino Earnings to Eliminate Open Dumping

In 2000, Tribal Council representatives for the Saginaw Chippewa Indian Tribe, located in Michigan, removed the recycling program from the Soaring Eagle Casino and Resort operating budget. Recycling activities were then seen as unnecessary and having little economic value to the tribe, especially given tight financial constraints. However, the tribe's Recycling Coordinator, Mr. Craig Graveratte, thought that this might not have been the case. Mr. Graveratte presented the Tribal Council with an idea to perform a waste audit utilizing tribal and county resources. This audit would determine the actual costs of the previous recycling program which would help Tribal Council best decide how to budget for waste management at the casino. After the idea was approved, Mr. Graveratte began interviewing casino management and housekeeping staff,

collecting data on the amount and type of waste disposed over a period of three months, and presented his findings to the Tribal Council. From this audit, he determined that the Tribal Council could save an estimated \$140,000 annually by recycling just cardboard. Impressed with the findings, the Tribal Council immediately reinstated the recycling program at the casino.

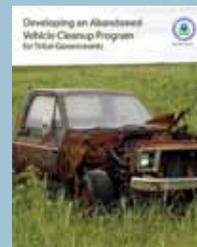
This audit and the subsequently positive financial gain through recycling sparked interest in providing more comprehensive waste management services to tribal members from the Bands of Ojibway, including the Saginaw, Black River, and Swan Creek living on the 138,240-acre reservation. A gaming contract was drawn between the Soaring Eagle Casino and Resort and the members of the tribe. Currently, two percent of earnings are invested into tribal



“From this audit, he determined that the Tribal Council could save an estimated \$140,000 annually by recycling just cardboard. Impressed with the findings, the Tribal Council immediately reinstated the recycling program at the casino.”

Spotlight on: Abandoned Vehicles

Abandoned vehicles threaten the environment and health of a tribe by: attracting pests which may become disease vector breeding grounds, serving as a detriment to local businesses because of their unsightliness, producing leaking fluids that may seep into the soil, groundwater, and/or surface water, and by possibly containing lead-acid batteries and mercury switches that are especially toxic and must be properly disposed of prior to crushing. EPA's publication, “Developing an Abandoned Vehicle Cleanup Program for Tribal Governments,” provides a step-by-step guidance for developing a vehicle cleanup program for your tribe. This publication is available on-line at http://epa.gov/region9/waste/tribal/pdf/Abandoned_Vehicle_Guide.pdf.





The Soaring Eagle Casino and Resort. Photo courtesy of Craig Graveratte.

government operations. This new revenue stream funds the tribal members' curbside trash removal and recycling program.

With the momentum of its recycling program success, the Tribal Utility Authority also began programs targeted at special waste streams. They collected used grease from grease pits, 2,000 tires, and 2,300 pounds of household hazardous waste (HHW). The casino also initiated their own program to reduce the number of disposable cups being used by staff during breaks. By switching to reusable cups in 2005, the casino prevented 1 million non-biodegradable cups from ending up in the landfill.

For the Saginaw Chippewa Indian Tribe, the successful waste management operation has improved the health, safety, and welfare of the community. Mr. Graveratte reported that initiat-

In 2007, the Saginaw Chippewa Indian Tribe won the Michigan Recycling Coalition's Outstanding Recycling Program Award.

ing the curbside pick-up and recycling program eliminated the issue of open dumping on the reservation.

For more information on the Saginaw Chippewa Indian Tribe's environmental activities, contact Rick Meyers at 989-772-8810 or rmeyers@sagchip.org. Craig Graveratte may be reached at cgraveratte@sagchip.org. The Saginaw Chippewa's website is www.sagchip.org.

Spotlight on: Compostable Material

Organic materials including yard waste and food scraps comprise 25 percent of the entire amount of municipal solid waste (MSW) generated in the U.S. in 2008. These materials may easily be composted and reused in gardens or on agricultural fields. For more information on what can and cannot be composted and how to start your own composting program, visit www.epa.gov/waste/conservation/rrr/composting/index.htm. The June 2005 Tribal Waste Journal features information and successful tribal composting success stories. This publication is available online at www.epa.gov/waste/wycd/tribal/pdf/twj-4.pdf.

Umatilla's Waste Management Program: Finding an Alternative to Open Dumping

In the past, tribal members living on the Confederated Tribes of the Umatilla's Reservation in Oregon disposed of their solid waste in open dumps located across the 172,000 acre reservation. The municipal solid waste landfill criteria implemented by EPA in the 1990's (40 Code of Federal Regulations 257 and 258) provided insight into the potential harm that the open dumps may be causing to the environment and health of the tribal members. The Confederated Tribes quickly began to evaluate other solid waste management alternatives. Options included using rail to move waste to a regulated landfill, incineration or installing a new transfer station. They determined that a transfer station would be the best option for eliminating open dumping on the reservation.

Construction of the transfer

station took place from 1999 to 2001 at a cost of \$1.3 million. It was financed, in part, by federal government funding. The 13,000 square foot transfer station was built by a tribally-owned construction company. Waste is either collected curbside or hauled by residents to the transfer station seven days a week. The waste is then processed, and transported to an EPA-approved landfill located 55 miles away. Recyclables and household hazardous waste are collected, sorted, and stockpiled on site and transferred to facilities off site. The minimum fee charged is \$8.00 per bag to take out waste less than 200 pounds or \$55 per ton, which remains competitive among other area transfer stations. Currently, the transfer station serves 900 residents and 93 commercial customers throughout the

Reservation. The transfer station is currently 1,500 tons short of reaching the optimum operation efficiency level of 6,000 tons.

Ms. Bonnie Burke,

Operations Manager for the Tribal Environmental Recovery Facility (TERF), launched an education and outreach campaign focused on the benefits of using the transfer station. The campaign educated people on the hazards of open dumping and the effects it has on both human health and the environment. The campaign also helped ease the transition to reducing solid waste by recycling. Targeted outreach and education to both tribal elders and children was a critical component of Ms. Burke's campaign. Ms. Burke is conducting a survey of the participating tribal elders requesting feedback on the success of the curbside recycling program. Umatilla is also working with an intern to run an afterschool program to educate school children on recycling.

Over a period of ten years, the amount of waste collected has increased by 4,000 tons due to the TERF staff's determination and outreach and education efforts.

For more information on the Confederated Tribes of the Umatilla Reservation's activities, contact Bonnie Burke at 541-276-4040 or terfmngr@gmail.com. The tribe's website is www.umatilla.nsn.us.

Spotlight on: Recycling

Based on the total amount of trash generated on an annual basis, EPA estimates that a single individual living in the U.S. generates 4.34 pounds of garbage on a daily basis. Of the 4.34 pounds of garbage, only 1.5 pounds of it is estimated to be recycled. Recycling reduces air and water pollution associated with making new products from raw materials. It also reduces the amount of greenhouse gas (GHG) emissions contributing to global climate change. For more information on how recycling reduces GHG emissions, visit EPA's Waste Reduction Model (WARM) website at www.epa.gov/warm. More information on municipal solid waste in the U.S. may be found at www.epa.gov/waste/nonhaz/municipal/msw99.htm.

The Importance of Outreach and Education in Open Dump Prevention

Community members are more likely to support and participate in new waste management programs when they are involved in the planning process from the very beginning. When developing alternatives to open dumping on your reservation, consider creating an outreach plan to ensure all tribal members are well-informed and engaged in

all of the various aspects of the process. Key elements in an outreach plan include:

- Target audience, including children and tribal elders;
- Outreach goals;
- Targeted message tailored for each audience; and
- Appropriate outreach method(s) (see Table 1 for

ideas which can be used individually or combined).

Once you begin outreach, ensure that you are responsive to community feedback and continually modify methods and the message to address community concerns and changing program goals.

Table 1. Comparing Tribal Outreach Methods

Method	Investment of Time/Labor	Monetary Cost	Effectiveness
Signage	Low. Develop message for sign and set up at sites.	Low-Medium. Dependent on the quality of the signs (i.e., temporary versus permanent).	Low-Medium. Tribal members will have to read and respond to signs.
Inserts/ Flyers/ Articles	Low. Develop message for flyer and distribute.	Low. Paper, printing/photocopying, labor.	Low-Medium. Message must be compelling to tribal members so they read and remember it.
Door-to-Door Campaigns	Medium-High. Canvassers must dedicate afternoons/evenings over a set period of time to promote message.	Low-Medium. If volunteers agree to canvass, costs will stay down.	Medium-High. Talk to residents one-on-one to address their concerns.
Outreach to Schools	Medium-High. Dependent on size of event(s) and activities planned.	Medium-High. Dependent on size of event(s), activities planned and materials needed.	High. Potentially large audience; reaches children and their families; fun events can help residents find favor with your message.
Meetings and Community Events	Medium-High. Dependent on size of event(s) and activities planned.	Medium-High. Dependent on size of event(s), activities planned and materials needed.	High. Potentially large/diverse audience; fun or memorable activities can draw residents to your message.
Workshops/ Training	Medium-High. Dependent on size of workshop and training activities planned.	Medium-High. Dependent on size of workshop or training activities planned and materials needed.	High. Provide specific training to audience, address their questions and concerns. Helpful when introducing new programs.

Adapted from the Tribal Decision Maker's Guide

For more information, Chapter 6 of the “Tribal Decision Maker’s Guide” provides additional information on Public Education and Community Outreach and includes tribal examples. This document may be found at: www.epa.gov/waste/wycd/tribal/index.htm.

EPA Region 9’s Tribal Solid Waste Outreach website, www.epa.gov/region9/waste/tribal/outreach.html, provides outreach documents such as brochures, fact sheets, and suggested school curricula focusing on waste management.



Cleanup of the Tully Creek open dump site. Photo courtesy Ken Henderson.

Yurok Tribe Cleans their Legacy Dump Sites: Challenges & Opportunities

The Yurok Tribe is located across 63,035 acres in California. A nine-member tribal council represents 5,000 enrolled members and oversees 200 tribal government employees.

Under an \$800,000 grant sponsored by the California Integrated Waste Management Board in August 2008, the Yurok Tribe cleaned and closed the three largest legacy open dump

sites on the reservation: Roaches Creek, Johnson's Road, and Tully Creek. Each site presented unique challenges such as the Roaches Creek site's hill-side location that required a helicopter to assist the cleanup. Johnson's Road was the largest and least accessible of all three sites and required more than half of the grant money for the cleanup. Hazardous waste accumulation

– car batteries, paint cans, fuel cans, etc. – at both the Johnson's Road and Tully Creek sites posed a threat to the health of the community and the environment. Fortunately, none of the sites had yet experienced surface soil contamination from the hazardous waste.

Eighteen tribal members received the 40-hour Occupational Safety and Health Administration Hazardous Waste Operations and Emergency Response Standard training to prepare for cleaning the hazardous waste found at the open dump sites. Funding for this training was supported by Indian Health Services.

After these sites were cleaned, the Yurok Tribe took preventive measures to discourage residents from dumping at the closed sites by posting signs with logistical information on the City of Humboldt's household hazardous waste collection program. Restrictive barriers including gates, rails, and fences

Vehicle Roundup and Disposal in the Klamath River Watershed

The Yurok Tribe collaborated with the Hoopa and Karuk tribes to collect 400 vehicles from the Klamath River Watershed using funding leveraged from IGAP and state grants. The project began with a door-to-door education and outreach campaign to 200 tribal members. They were provided with information regarding the human health and environmental hazards of abandoned vehicles. The most costly aspect of the collection was towing the vehicles to a central location and crushing them using an on-site mobile crusher. The vehicles were then transported to a recycling center. Due to low market demand, the tribes were unable to receive payment for the recycled scrap metal; however, no charges were incurred for vehicle removal. Mr. Henderson plans to monitor the scrap metal market for opportunities to make future collection events profitable for the tribe.

were also installed. Mr. Ken Henderson, Assistant Director, Pollution Prevention Division, keeps the community up-to-date with site cleanup and closure activities during quarterly District meetings held in the seven tribal districts across the reservation.

Five new open dump sites have been identified and are targeted for the next round of cleanup and closure. An EPA Indian General Assistance Gap grant will be utilized during the upcoming fiscal year to offset the costs of cleanup.

For more information on the Yurok Tribe's activities, contact Ken Henderson at 707-482-1822, Extension 1007 or khenderson@yuroktribe.nsn.us. The Yurok Tribe's website is www.yuroktribe.org.

Focus on Ordinances: Prohibiting Illegal Dumping on the Yurok Reservation

The Yurok Tribal Ordinance (Ordinance No. YTC – 1-08) was developed to establish Tribal law prohibiting the “open disposal, dumping, depositing, burying or unpermitted burning of any waste materials whatsoever on any lands or in any waters of the Yurok Reservation...”. The Ordinance is separated into nine sections including:

1. Authority
2. Purpose
3. Definitions
4. Effect of Ordinance
5. Application
6. Enforcement
7. Penalties
8. Sovereign Immunity
9. Effective Date and Amendments

The ordinance includes enforcement by warning, citation,

and prosecution depending on the offense. It also includes fines up to \$1,500 plus the cost of cleanup and time dedicated to community service. For more information on developing an ordinance for your tribe, visit EPA Region 9's website on developing solid waste codes and ordinances at www.epa.gov/region9/waste/tribal/solidwastecode.html.



Watching crew work down slope. Photo courtesy Ken Henderson.

Cleanup of the Johnson Creek open dump site. Photo courtesy Ken Henderson.

“In August 2008, the Yurok Tribe cleaned and closed the three largest legacy open dump sites on the reservation.”

Yakama Nation Streamlines the Cleanup of Large Open Dump Sites

Located on 1.4 million acres in the mid-Columbia River Basin of the Pacific Northwest, the Yakama Nation is home to 10,000 enrolled members. Three full time and two part time staff members comprises the Yakima Nation Solid Waste Program for the one million-acre reservation. In 2006, the Solid Waste Program began overhauling their 1977 Solid Waste Management Plan. They focused on creating a new mission statement and goals for the program. The Yakama Nation wove together the concepts of sustainability – economics, environment, and equity – to create a program that is economical, environmentally safe, and one that incorporates ancestral ecological knowledge into its practices. They determined that capacity building, outreach and education, and empowering tribal members are key components to adapting and managing a successful solid waste management program.

To further understand the current state of their waste management program, the Solid Waste Program office decided to conduct a waste stream analysis. Through the analysis, they determined that the Yakama Nation produces 30,000 tons of solid waste annually. This equates to five pounds of waste per person per day. They also determined that open dumps impose a financial burden of \$720 per ton to remove the waste. However, if the trash were disposed of properly (i.e., at

a landfill) it would only cost \$32 per ton to dispose. In addition, a 1995 study from the University of California at Davis identified more than 130 open dump sites located across the entire reservation.

Beyond the financial burden, open dumps create an unhealthy environment with adverse health and environmental effects for both people and animals. Once the Yakama Nation Solid Waste Program understood the enormity of the problem, they quickly began efforts to build capacity within their department. Ms. Loretta Zammarchi, the Solid Waste Program Coordinator, indicated that training staff to identify and assess illegal dump sites was their first priority. Due to the complexity of the illegal dumping problem, training focused on the following key skills:

- Reading and interpreting maps;
- Distinguishing between recyclable materials and garbage;
- Performing daily logs and site assessment reports;
- Identifying cleanup costs;
- Estimating site volume;
- Bidding out projects;
- Digital photo collection;
- GIS training; and
- Creating cleanup work plans and reports.

With trained staff, the Yakama Nation began the process of identifying and cleaning up the illegal dump sites on the reservation. Digital imagery was used to identify property own-

ers because of the “checkerboard pattern” of county and tribal lands. None of this would have been possible without the training the staff received.

Using Indian Environmental General Assistance Program (IGAP) funds, the tribe purchased heavy machinery including a mini-excavator to assist in the remediation process. This investment has saved time and money by increasing the efficiency of cleanups.

The Yakama Nation understood that the cleanup of the open dumps would not be sustainable without a mindset change within the community, so they solicited feedback from the reservation’s residents to help them determine the most popular methods for preventing future open dumping. Of the 1,400 surveys mailed, the Solid Waste Program received responses from 170 residents. The

Tire Pile Cleanup

Yakama Nation received an opportunity through the Washington Department of Ecology to clean up a tire pile on the reservation. The remediation process on the pile, which consisted of 350,000 tons of tires, took 18 months at a cost of \$600,000.

For more information, visit Washington State Department of Ecology’s Waste Tire Pile Cleanup website at www.ecy.wa.gov/programs/swfa/tires/cleanup.html.

majority of the responses suggested that the Yakama Nation tribal government impose a fine for those caught dumping trash illegally. It was determined from the survey results that a fine may deter individuals from driving 35 miles out of their way to dump their garbage on the reservation because they consider it to be “free” when in fact it serves as both a financial and time burden on the tribal government’s resources and staff.

After seeing the results of the survey and witnessing illegal dumping from people off the reservation, the Solid Waste Program decided that in order to make the program sustainable, they would need to update their tribal codes. After much research, sifting through old laws and codes, and using tribal legal resources, the Solid Waste Program developed new tribal codes. The codes were adopted by the tribal council within five months. Adopting the codes will help the tribe reach its ultimate goal to “protect the rights, land, and resources of the

Case Study: White Swan Open Dump Site

The open dump site located in the small rural community of White Swan on the Yakama Nation tribal lands was a challenge for the tribe. The dump site was costing \$45,000 per year, including daily cleanup efforts, for the tribe. To combat open dumping, signs were posted at the site and tribal police was contacted to patrol the site. However, the key to reducing the amount of open dumping was developing a positive relationship with the tribal members living in the White Swan community. Through cooperation and collaboration, the Solid Waste Program and the tribal members in the White Swan community worked hand-in-hand in an effort to combat open dumping. Outreach efforts targeted tribal elders, school-aged children, and their families. An annual cleanup keeps tribal members involved in keeping White Swan clean.

Yakama Nation.”

To date, the Solid Waste Program has closed 148 open dump sites and removed more than 4,000 tons of illegally dumped garbage. They continue to monitor those sites to make sure that illegal dumps do not return and are evaluating the impact of the post-site cleanup preventive measures, such as installing site barricades and posting signs. They are also continuing outreach and education to the community on the multiple options available to

the residents for trash removal. These options include a transfer station, personally hauling your waste to the county landfill and curbside pickup.

The Yakama Nation Solid Waste Program serves as an example of how a small group of dedicated individuals can create a successful tribal solid waste management program.

For more information on the Yakama Tribe’s activities, contact Loretta Zammarchi at 509-865-5121, Extension 6453 or loretta@yakama.com.

Spotlight on: Tires

Tire cleanups protect human health and the environment from the threat of large, uncontrollable tire fires that emit hazardous air pollutants including polycyclic aromatic hydrocarbons (PAHs), benzene, styrene, phenols, butadiene, and runoff containing water pollutants such as arsenic and lead. Other threats from tire piles include disease carrying pests inhabiting the piles and mosquitoes breeding in stagnant water collecting inside the tires. Fortunately, used tires may be recycled into a variety of products. EPA estimates that at least 110 types of products can contain recyclable tire rubber. These may include, playground cover, soil additives, flooring/matting, and landfill construction materials. Recycled tires are most often reused in highway pavement mixtures. Choose to commit to the health and safety of current and future generations by utilizing proper disposal methods for old tires. For more information, visit EPA’s Frequent Questions for Scrap Tires website www.epa.gov/waste/consERVE/materials/tires/faq.htm or EPA’s Scrap Tire Cleanup Guidebook available at www.epa.gov/reg5rcra/wptdiv/solid-waste/tires/guidance.

Funding Sources

EPA provides several funding opportunities in the form of grants, cooperative agreements, and interagency agreements to assist tribes and intertribal consortia with waste management activities. These activities may include open dump assessment, cleanup, outreach/education, and compliance assurance/enforcement. General information on these and other solid waste grants and funding for tribes is available at www.epa.gov/waste/wycd/tribal/finance.htm. More specific information on the funding sources below may be found through the Catalog of Federal Domestic Assistance (CFDA) website at www.cfda.gov.

Brownfields Assessment and Cleanup Cooperative Agreements

CFDA Reference Number 66.818

Brownfield sites are real properties whose expansion, redevelopment, or reuse may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. The objectives of the brownfield assessment, revolving loan fund, and cleanup cooperative agreements (project grants) are to provide funding to: (1) inventory, characterize, assess, and conduct planning and community involvement related to brownfield sites; (2) capitalize a revolving loan fund and provide subgrants to carry out cleanup

activities at brownfield sites; and (3) carry out cleanup activities at brownfield sites that are owned by the grant recipient. Funding for the cooperative agreements is estimated to be \$119.6 million for fiscal year 2011.

Brownfields Training, Research, and Technical Assistance Grants and Cooperative Agreements

CFDA Reference Number 66.814

CERCLA 104(k)(6) provides EPA with authority for a program of training, research, and technical assistance to individuals and organizations to facilitate the inventory of brownfields properties, assessments, cleanup of brownfields properties, community involvement, or site preparation. Brownfield sites are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. For more information contact your Regional Brownfields Coordinator. Contact information is found at www.epa.gov/swerosps/bf/corcntct.htm.

Community Action for a Renewed Environment (CARE) Program

CFDA Reference Number 66.035

Community Action for a Renewed Environment (CARE)

Program supports analyses, studies, evaluations, surveys, investigations, conferences, demonstrations and special purpose projects which empower communities to reduce risks from exposures to toxic pollutants in the air, in the water, and on the land through collaborative action at the local level. EPA estimates \$2.2 million of funding will be available for CARE project grants for fiscal year 2011. For more information, visit EPA's CARE website at www.epa.gov/care.

Indian Environmental General Assistance Program (IGAP)

CFDA Reference Number 66.926

Authorized under the Indian Environmental General Assistance Program Act of 1992, the Indian General Assistance Program (IGAP) provides capacity building and management capabilities for federally-recognized tribes and intertribal consortia to develop environmental programs. Funding for IGAP has increased from \$8.4 million in the early 1990s to an estimated \$71 million for fiscal year 2011. IGAP funding may be applied to identify baseline environmental needs; establish administrative, legal, technical, and enforcement capability; foster compliance through programs, ordinances, and education and outreach; communications capability; and management. IGAP grants are

administered by EPA's American Indian Environmental Office and are negotiated by EPA Regional Indian Program Managers and Coordinators. The list of regional coordinators is located on-line at www.epa.gov/tribalportal/contactinfo/regcontacts.htm. For more information, visit EPA's Indian GAP website, at www.epa.gov/Indian/gap.htm.

Tribal Solid Waste Management Assistance Project

CDFA Reference Number 66.808

Under the Tribal Solid Waste Management Assistance Project, eligible federally-recognized tribes may apply for funding under one of four categories to: (1) characterize/assess open dumps; (2) develop integrated waste management (IWM) plans and tribal codes and regulations; (3) develop and implement alternative solid waste management activities/facilities (including equipment acquisition); and (4) develop and implement cleanup, closure, and post-closure programs for open dumps in Indian Country. Each proposal must address only one of the four proposal categories. Applicants interested in applying for more than one category may do so as long as each proposal is for only one category. For more information visit <http://epa.gov/waste/wycd/tribal/finance.htm>.

Hazardous Waste Management Grant Program for Tribes

CDFA Reference Number: 66.812

The Hazardous Waste Management Grant Program for Tribes provides financial as-



sistance to federally recognized tribes and intertribal consortia for the development and implementation of hazardous waste programs; building capacity to improve and maintain regulatory

compliance; and developing solutions to address hazardous waste impacting tribal lands. For more information visit <http://epa.gov/waste/wycd/tribal/finance.htm>.

What is w/STARS?

Developed by the Indian Health Service (IHS) in response to the Indian Lands Open Dump Cleanup Act of 1994 (Public Law 103-399), w/STARS, or Web Sanitation Tracking and Reporting System, is a database that inventories sanitation issues on American Indian and Alaskan Native (AI/AN) lands. The data in w/STARS is used by IHS to track sanitation projects across multiple media types including water, waste water, solid waste, human health services, etc.

In 1998, IHS released a report of the status of open dumps

on AI/AN lands to the U.S. Congress. A copy of the report may be viewed at www.oehe.ihs.gov/Solid_W/1998_ODReport/1998OpenDumpsReport.pdf. IHS reported a total of 1,104 open dumps with content ranging from municipal solid waste to hazardous and special waste to combinations of different waste types. In recent years, IHS and EPA have collaborated to refine the Operation and Maintenance Data System (OMDS) portion of w/STARS to list data on all open dumps on AI/AN lands. EPA has assisted IHS in gathering accu-

rate information on open dumps, including the GPS coordinates and exact materials found at the sites. It is expected that more than 3,000 open dumps will be included in the new Report.

For more information on w/STARS OMDS, contact your local IHS Area Office. For more information, visit the IHS website at www.ihs.gov/index.cfm?odule=AreaOffices.

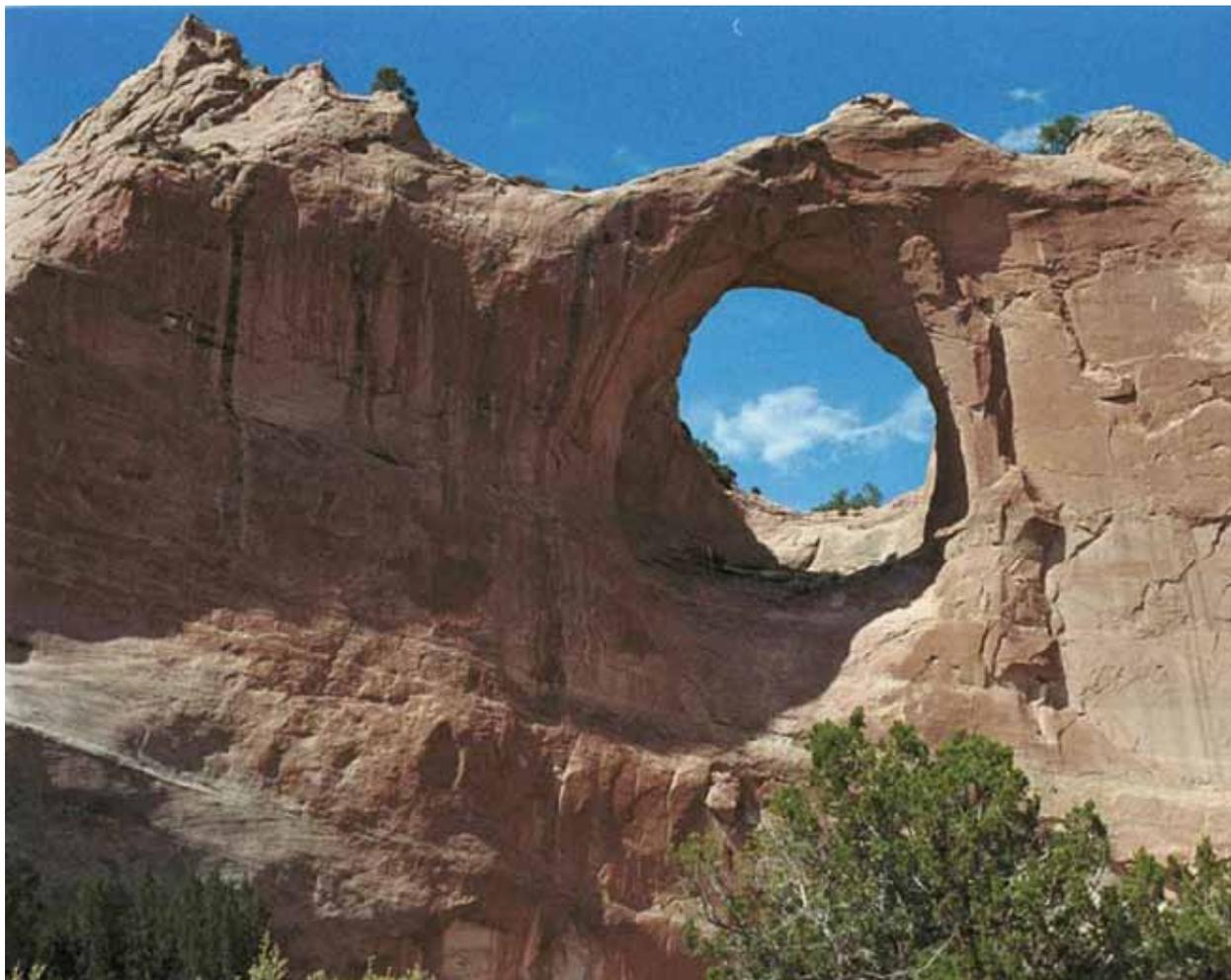


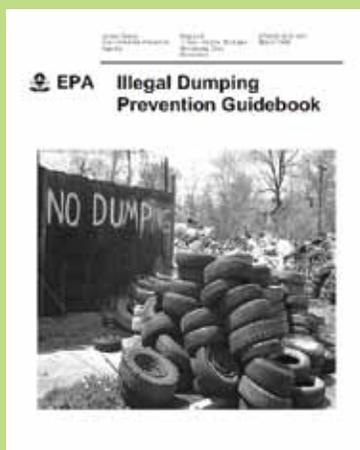
Photo Courtesy of the Indian Health Service/U.S. Department of Health and Human Services.

Resources

Earth 911

<http://earth911.com>

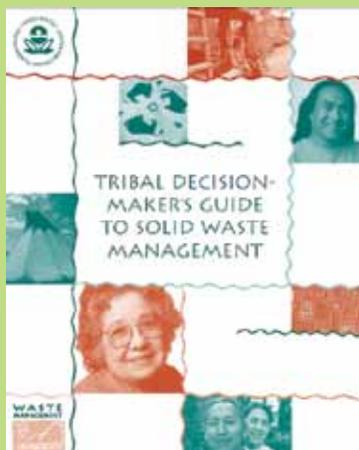
The Earth 911 Recycling Directory is the most accurate and comprehensive directory of its kind and contains information on how to recycle more than 240 different products. The information is free for consumers to use on the website and the toll-free, bilingual hotline (1-800 CLEANUP). A free iPhone application (iRecycle) is provided as well.



Illegal Dumping Prevention Guidebook

www.epa.gov/reg5rcra/wptdiv/illegal_dumping/downloads/il-dmpng.pdf

Published by EPA Region 5 in March 1998, the “Illegal Dumping Prevention Guidebook” is a valuable resource in developing a targeted illegal dump prevention plan. The Guidebook’s Toolkit provides information on site maintenance and controls, community outreach and involvement, targeted enforcement, and program measurement.



Tribal Decision Maker's Guide

www.epa.gov/waste/wycd/tribal/tribalguide.htm

The Tribal Decision Maker’s Guide provides an overview of solid waste management - covering solid waste planning, regulations, collection, disposal, recycling, education, and more. It includes more than 40 case studies and examples from tribes that are leaders in solid waste management, as well as a substantial list of resources at the end of each chapter.

SMM Web Academy: Recycling and Solid Waste Management Educational Series

www.epa.gov/epawaste/rcc/web-academy/index.htm

The Sustainable Materials Management Web Academy provides information on materials management to stakeholders through webinars related to SMM. You can learn about key issues, successful projects, and a variety of best management

practices for creating outstanding waste management programs through free webinars. You may download information from past webinars such as “Electronics: Responsible Recycling Practices,” “Social Marketing - Building a Toolkit to Motivate Environmental Action,” and “Food Waste/Organics Reduction and Recycling,” or sign up for a future webinar.



Tribal Waste Journal, Respect Our Resources: Prevent Illegal Dumping

www.epa.gov/waste/wycd/tribal/resource.htm#twj

The first issue of the Tribal Waste Journal focused on illegal dump prevention and was published in May 2002. This issue focused on the following: building a multi-faceted prevention program, incorporating community outreach and involvement, keeping sites clean, and measuring the success of your program.

Learn about the President's Environmental Youth Awards (PEYA)



Dear Future Environmental Leaders (that means you!),

Have you started a project that helps clean up the environment? Maybe you started a campaign to clean up trash from your neighborhood or worked with elders to start a recycling program? If so, the President of the United States would like to hear about it! That's right, the President's Environmental Youth Awards, also called "PEYA," was created in 1971 to recognize the awesome projects created by kids in grades K-12.

To learn more, check out the facts presented here or visit www.epa.gov/peya or check out this video <http://yosemite.epa.gov/opa/MMWebContent/HTML/KCHK-7S6LBQ?OpenDocument>.

Quick Overview

PEYA is open to:

- Students in K-12 grade;
- US citizens or its territories or have been lawfully admitted for permanent residency; and the
- Project must be sponsored by at least one adult.

PEYA has two types of programs:

1. Annual regional award with a deadline every year on December 31. Winners of the annual regional award travel to Washington, D.C. for the awards ceremony to receive a presidential plaque!
2. Certificate of recognition with no deadline! Apply any time! Qualified certificate participants receive a certificate signed by the President!

Durham Fair Recycling Project ECO & Boy Scout Troop 27 Durham, Connecticut (EPA Region 1)

The Coginchaug High School's Environmental Coginchaug Organization (ECO) Club removed more than 19,000 bottles — one-third of the 20-fluid-ounce beverage bottles sold during the Durham Fair — by initiating a recycling program. The ECO Club also educated fair participants about recycling. During the 3-day fair, which attracts hundreds of thousands of visitors, ECO Club volunteers walked around and collected recyclables in the containers. The ECO Club also maintained a sorting station on the fairgrounds. Recyclable containers were delivered to recycling organizations that converted the recyclable goods into packaging for the company's products. The ECO Club marketed the recycling effort to visitors at the fair and informed newspapers about the project. The community and press supported this program and helped make this first-time recycling effort a big success.

No More Trash Talk: Let's Cleanup Our Act EcoLogical Homer, Alaska (EPA Region 10)

A group of junior high students in Homer, Alaska formed EcoLogical to reduce local waste when they learned that their local landfill would be full by 2013. The group has helped reduce the use of the non-recyclable trays by switching to reusable plastic trays and has set up a recycling area in the lunchroom. After the first week, the school reduced the amount of trash disposed in the landfill from eight bags of trash per week to only four, cutting waste by 50 percent. In 3 weeks, the average recycling went from 36 pounds per week to 120 pounds per week. After a year, EcoLogical estimated that it prevented 2,000 polystyrene trays from being tossed in the local landfill.

"We'll Bring It to You" Curbside Electronics Recycling HB Woodlawn 6th Grade Science Class Group Arlington, Virginia (EPA Region 3)

The inspiration for the "We'll Bring It to You" Curbside Electronics Recycling project came after the HB Woodlawn 6th grade science class participated in a watershed inventory of a local stream. The students found discarded electronic equipment such as hard drives and cell phones in the stream. They started researching local recycling programs and learned that Arlington County, Virginia provided drop-off sites for recycling of electronics, but did not offer curbside recycling for these items. They suspected that few residents knew how to recycle these items. As a result, the students were compelled to create a civic action project to address this need.

The students collected more than 450 pieces of "e-waste" (used electronic equipment such as computer and stereo equipment) from Arlington County homes through an electronics recycling event. With the help of their parents, school faculty, and high school students, the students properly disposed of the items at Arlington County drop-off sites.

Game Time!

All sorts of garbage can end up in open dumps. In this issue of the Tribal Waste Journal, we explored the different types of garbage that can be collected using special collection programs.

Instructions

Find the words in the word search puzzle below!

R	T	S	S	T	J	G	A	R	A	Y	O
Q	I	J	H	L	C	N	S	R	P	X	N
U	R	R	E	T	U	P	M	O	C	T	B
T	E	L	E	V	I	S	I	O	N	S	A
M	O	I	S	N	A	B	E	L	B	F	T
C	A	R	A	E	C	W	V	N	L	A	T
N	U	P	C	A	W	N	O	S	R	I	E
R	O	T	A	R	E	G	I	R	F	E	R
L	V	J	N	I	O	N	T	F	C	E	Y
F	Y	H	S	G	N	E	G	E	N	I	T
H	T	N	L	N	M	T	L	D	D	L	M
K	E	B	O	T	T	L	E	S	P	R	S

Word Key

Tire	Microwave
Car	Battery
Computer	Paint
Television	Bottles
Refrigerator	Cans

ANSWER KEY

R	T	S	S	T	J	G	A	R	A	Y	O
Q	I	J	H	L	C	N	S	R	P	X	N
U	R	R	E	T	U	P	M	O	C	T	B
T	E	L	E	V	I	S	I	O	N	S	A
M	O	I	S	N	A	B	E	L	B	F	T
C	A	R	A	E	C	W	V	N	L	A	T
N	U	P	C	A	W	N	O	S	R	I	E
R	O	T	A	R	E	G	I	R	F	E	R
L	V	J	N	I	O	N	T	F	C	E	Y
F	Y	H	S	G	N	E	G	E	N	I	T
H	T	N	L	N	M	T	L	D	D	L	M
K	E	B	O	T	T	L	E	S	P	R	S

Alleviating Open Dumping on Tribal Lands: Key Elements of Success

In this issue, five tribal waste management programs were highlighted. The wide array of success stories highlight how creativity and determination can help alleviate open dumping. Though each tribe has a different story to tell, the stories all share the following six common elements that have led to success in addressing open dumps on tribal lands.

1 Collaboration can assist a tribe in addressing the issue of limited available resources. It can also create economies of scale that can enable program success. For instance, when the Saginaw Chippewa Tribe determined that an independent waste collection service was too expensive, a creative arrangement with the neighboring county service was created to fill the gap. Similarly, the Yurok Tribe reached out to two neighboring tribes to pool Indian General Assistance Program funds and state grants to implement a vehicle round-up program. This program not only resulted in the successful cleanup of 400 vehicles, but also the establishment of a lasting relationship among the three neighboring tribes. In addition, several of the program managers now hold seats on a specialty task force to continue their collaborative efforts.

2 Support from the Tribal Council or Board of Trustees is key to each program's success. Whether it is a mandate from the Tribal Council to deliver a high quality environmental program or the recognition that illegal dumping laws are needed to enable police enforcement actions, each program has had a commitment from the tribal government to succeed. The champions of each project found a way to convince

their community leaders to embrace the needed change and endorse its mission.

3 Education of both environmental staff and the community is a critical element of all waste management efforts. For example, the Kickapoo Tribe started in the schools, by making recycling a part of the children's curriculum. In another example, the Umatilla Tribe focused on educating the elders on what items can be placed in the curbside recycling bins. These examples showcase how education is key to developing a viable plan, establishing participation in the effort, and ensuring success.

4 Sustainability is defined as "meeting the needs of the present without compromising the ability of future generations to meet their own needs," by the Commission on Environment and Development. An example of a sustainable tribal waste management program is that of the Yakama Nation. With the combined goals of economic efficiency and environmental safety, as well as incorporating ancestral ecological knowledge into its practices, the Yakama Nation mirrors the "three E's" of sustainability: economics, environment, and equity.

5 Perseverance is an important step in ensuring the success of a program. For example, funding for the Saginaw Chippewa's former recycling program was discontinued by the Tribal Council because it was thought to be economically inefficient. However, the recycling coordinator convinced the Council to reinstate the program after conducting a waste audit and calculating that the tribe could save more than \$100,000 annually without hiring additional staff.

6 Respect is also extremely vital to a successful waste management program. Respect for the land, for tribal ancestry, and for other community members, including waste haulers and transfer station staff, has led to cleaner tribal lands and more respectful treatment of resources.

As you move forward and face the continued challenges of open dumping, consider these six key elements and how they can help you implement a successful tribal environmental program.



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