

Grand Canyon National Park

Analysis of potential impacts/effects of bottle ban

1. Amount of waste eliminated and pros/cons to overall park operations

By volume, Grand Canyon National Park (GRCA) could eliminate up to 30% of what is currently recycled and up to 20% of the park's overall waste stream. GRCA custodial staff and Norton Environmental (the park's recycling contractor) agree that disposable plastic bottles (all bottles, not just water) comprise about 30% of the park's recyclables, **by volume**. In fiscal year 2010, the park recycled more than 900 tons.

Pros:

- Decreases in plastics going to the landfill (although about 35% of the park's waste stream is currently diverted to be recycled, it is estimated by the waste management staff that about 50% of what is taken to the landfill could also be recycled).
- Decreases in monetary costs to any visitor who would have purchased more than one bottle of water within the park; and if our education efforts are successful, visitors may save additional money as they continue to refill their reusable bottles after they leave the park.
- Savings of resources used and Green House Gases (GHCs) released during the transportation of waste and recyclables and during the recycling process.
- Decreases in litter associated with disposable bottles along both inner canyon and rim trails as well as below the rim. (Per NPS custodial/waste management staff, plastic bottles (and associated litter) are one of the top two sources of litter along rim trails).
- Decreases in risk to park staff and volunteers as below the rim litter removal can require technical skills and increased risk.
- Reduces risk of plastic bottle ingestion. Birds, rodents, and larger mammals are known to be attracted to plastic bottles. Thinking there is food/water inside, animals chew and inadvertently swallow plastic pieces. It is well documented that ingested plastic can become lodged in throats and choked on and/or accumulates and creates blockages in digestive tracks.
- Diminishes release of toxic chemicals such as bisphenol A (BPA). Toxins leached from plastics are known to have negative effects on wildlife.

Cons:

- Bottled water is a high profit margin item for the park concessioners and partners. If reusable bottle sales (lower profit margin) do not make up for this, concessioners and partners could incur some financial loss. (See #6 for additional analysis).
- Some people perceive a risk to visitors of dehydration. (Bottled water is a relatively recent retail innovation and this concern had been well addressed before its advent. Water filling stations have been placed at primary trailheads and reusable bottles starting at prices just a few cents above the cost of one bottle of water are being sold in retail outlets throughout the park. With these, water is now more readily available at the Hermit, Bright Angel and North/South Kaibab Trailheads, as well as along the most visited portions of the Rim Trail than it ever was before).
- As GRCA encourages visitors to use the park's water, the annual turbidity event (spring runoff) could pose perception issues regarding safety of water. (We are placing information on this in the spring Guide and have begun discussions on the need for informational signs at the filling stations during this event each year).

2. Infrastructure Costs and funding source(s) for filling stations

Grand Canyon National Park began construction of ten new water filling stations in FY 2010, and all were completed in FY 2011. Total construction cost was \$288,900. Funding sources included concessions franchise fees and base funding received from Intermountain Region Office (IMRO) at the end of FY 2010. Park concessioners have also installed three additional water bottle fillings stations and adapted various water fountains to allow for reusable water bottle filling.

3. Contractual implications on concessioners, including considerations of new leaseholder surrender interest or possessory interest

Sec 3(d) of the concessions contracts for Xanterra South Rim, LLC (Xanterra), DNC Parks and Resorts at Grand Canyon, Inc. (DNC) and Grand Canyon North Rim, LLC. (Forever Resorts) states: "The Director reserves the right to determine and control the nature, type and quality of the visitor services described in this Contract, including, but not limited to, the nature, type and quality of merchandise, if any, to be sold or provided by the concessioner within the Area."

Xanterra is the park's biggest seller of bottled water and their initial contract term was set to expire on December 31, 2011. The concessioner is under a one year amendment set to expire on December 31, 2012. DNC is under the final year of the current contract which is set to expire on December 31, 2012. Forever Resorts contract expires on December 31, 2017.

DNC has installed two water filling stations and has not requested leasehold surrender interest (LSI). Xanterra has installed one filling station in the Maswik Cafeteria remodel and did not request LSI for this installation.

All concessioners have been involved in the discussions of removal and are supportive of discontinuance of bottled water sales.

4. Operational costs of filling stations including utilities and regular public health testing

The park estimates that it will spend about \$85 a year on each filling station, which includes switching their operation from fall/winter to winter/spring and water quality sampling. With a total of 10 stations, that is a total of \$850 per year.

5. Cost and availability of BPA-free reusable containers:

The lowest priced reusable bottle is sold by DNC and it is \$1.99; and is BPA-free. All concessioners and cooperators sell a variety of BPA-free, reusable, souvenir bottles at a range of prices. Bottled water in the park starts at approximately \$1.49 per bottle.

6. Effect on concessioner and cooperating association sales revenue

Sales information for our South Rim concessioners and our cooperating association are provided below. Our belief, which is supported by the following GCA data, is that concessioners will not have a substantial loss in gross sales revenue as the individual plastic water bottle sales will be replaced by reusable water bottle sales.

DNC

DNC has two outlets within the park (Market Plaza and Desert View) and they have installed water filling stations within these facilities. They continue to sell bottled water and in addition have sold 9765 refillable water bottles year to date (YTD). They do not know how many people have brought in their own bottles to be filled. They provide signage on the doors of the facilities directing guest to the filling stations. Currently DNC has two vending machines at the visitor center and bottled water is available from the machines.

Below is the 5-year trend that DNC has seen in bottled water sales:

<i>Water Sales 2007-2011</i>					
	2007	2008	2009	2010	2011 YTD
<i>Gross Dollars (Retail)</i>	\$226,666.00	\$351,577.00	\$202,807.00	\$181,825.00	\$208,492
<i>Units</i>	112,546	168,495	83,332	72,366	88,450

2008 = Record Sales

2009 = Economy down trend

2011 YTD = 12-06-11

Xanterra

Xanterra is the largest provider of bottled water in the park. According to their records, Xanterra has seen sales for bottled water flatten out in the last three years. Within the last year, they have also seen an increase in the number of reusable water bottles being filled and a decrease in the sales of bottled water. This trend was noticeable prior to construction of the water filling stations. Xanterra does have twenty-eight vending machines around the facilities; and bottled water is available from four of these machines.

Below is the 3-year trend that Xanterra has seen in the sale of bottled water and water bottles:

GCSR - Bottled Water and Refillable Water Bottle Sales by Units Sold

Retail 2009		Retail 2010		Retail 2011		% Up/Down from 09
Bottled Water	62,000	Bottled Water	58,000	Bottled Water	29,000	
Water Bottles	2,250	Water Bottles	5,100	Water Bottles	10,500	366.67%
F&B 2009		F&B 2010		F&B 2011		
Bottled Water	95,400	Bottled Water	90,600	Bottled Water	80,550	-15.57%
Total 2009		Total 2010		Total 2011		
Bottled Water	157,400	Bottled Water	148,600	Bottled Water	109,550	-30.40%
Water Bottles	2,250	Water Bottles	5,100	Water Bottles	10,500	366.67%

Grand Canyon Association

GCA has seven retail outlets within GRCA. All of the retail outlets began selling bottled water in April 2007. The association, with the approval of their Board of Directors, voluntarily discontinued the sale of bottled water in June 2011. The following is a summary of their **bottled water sales**:

Qty Sold	Total Sales	
33,628	\$ 50,154.91	2007 Total
41,012	\$ 60,529.04	2008 Total
35,941	\$ 53,823.47	2009 Total
39,734	\$ 77,580.64	2010 Total
9,898	\$ 19,406.15	2011 Total
160,213	\$ 261,494.21	Grand Total

The following is a summary of the **water bottle sales** by GCA for 2010 and 2011 (May 1st to November 7th)

Description	2010		2011	
	Qty Sold	Total Sales	Qty Sold	Total Sales
Bottle Stainless Steel 20 oz Total	35	\$ 554.85	362	\$ 3,938.78
Bottle Stainless Steel 25 oz Total	2,774	\$ 46,278.57	4,118	\$ 61,609.64
Flip Top Stainless Bottle Total	0	\$ -	13	\$ 201.92
Bottle Recycle Refill 18 oz Total	0	\$ -	2,984	\$ 11,815.57
Bottle Recycle Refill 27 oz Total	0	\$ -	2,986	\$ 17,746.43
Bottle Geologic Cross Section Total	0	\$ -	863	\$ 12,623.73
Celebration of Art Bottle Total	93	\$ 1,184.30	39	\$ 499.88
Membership Bottle Total	124	\$ 1,483.94	142	\$ 1,696.96
Grand Total Refillable bottles	3,026	\$ 49,501.66	11,507	\$ 110,132.91

7. Availability of water within concessioner food service operations

All restaurants within the park provide (non-bottled) water at the table on request. All cafeterias have water available at their beverage service stations. In addition, Xanterra has added a filling station at Maswik Lodge at their cafeteria and has converted an existing faucet to a bottle filling spigot at Yavapai Lodge along with many other drinking fountains.

8. Visitor Education in the park and on line so that visitors may come prepared with their own water bottles

Within the park, information about the filling stations and reusable water bottle promotion is currently available in the park newspaper – *The Guide* and on all new filling stations. Placards with abbreviated information are almost completed for the park’s shuttle fleet. A site bulletin is being completed on the water filling stations and will be made available on-line and throughout the park. The NPS and concessioner staff within the park have been provided with information about the program (via e-mail) and encouraged to share this information with park visitors.

Externally, information on the voluntary program was put out to the media in a news release in March 2011 and is posted on the park’s News Release page. If the park implements a ban on individual disposable container water sales, a news release would again be sent to local and national media

outlets, posted on the park's news release page, and would be tweeted. In addition, the park has a web page dedicated to the filling stations and the reusable water bottle program. This site would be updated to reflect that water in individual disposable containers is no longer sold within the park; and a link to the filling station/ ban page would be featured on the park's home page to ensure easy access to information about the change.

9. Results of consultation with NPS Public Health Office

The park has incorporated numerous consultation meetings with the NPS Public Health Office. The Public Health Office reviewed the design of the water filling stations, commented on placement of the stations to meet public needs and all aspects were found to be satisfactory. The NPS Public Health Office is fully supportive of this ban, as any concerns about public safety have been addressed.

10. A sign plan so that visitors can easily find filling stations

There is currently signage in place at all of the water filling stations within the park. The NPS has standardized signs on all NPS operated filling stations (attached photo). In addition, placards will soon be displayed in all of the park's free shuttle buses (draft attached), the water filling stations are clearly marked on the park map in *The Guide*, and a site bulletin is in final review.

DNC has well designed informational signs at their water filling stations that educate the public about where our water comes from and the environmental benefits of refilling water bottles. In addition, DNC has signs on each entrance door directing visitors to the filling stations (attached photos). Xanterra has signage in place, as well (attached photo).

GCA has signage in their stores which provides educational information on the environmental benefits of refilling water bottles (attached photos).

11. Safety considerations for visitors who may resort to not carrying enough water or drinking from surface water sources with potential exposure to disease

Filling station locations were chosen specifically to provide immediate water access to the largest number of people who might have an immediate need. Due to the difficult terrain and desert nature of Grand Canyon's backcountry, very few inexperienced hikers (or others likely to hike with bottled water rather than hydration packs and/or "Nalgene" bottles and water filters) venture onto non-corridor trails. All corridor trailheads now have a filling station. The trail with the largest probability of inexperienced and under-prepared hikers venturing onto it now has a filling station at the trailhead in addition to the spigots that had already been available about every 1.5 miles for the first 4.5 miles of the trail. In addition, the park's Preventative Search And Rescue (PSAR) staff focuses a great deal of their efforts on this trail.

12. A system for annual evaluation of the program, including public response, visitor satisfaction, buying behavior, public safety, and plastic collection rates

On an annual basis the park would monitor and collect the following data:

- Visitor satisfaction/public response by using the visitor comment forms – log in complaints/compliments (Public Response and Visitor Satisfaction).
- PSAR/Canyon District – staff will continue to track incidents/contacts related to water availability and dehydration (Public Safety).

- Safety Officer/NPS Public Health Representative will keep a log of any safety issue related to water availability. (Public Safety).
- Concessions will track sales with Xanterra, DNC and Forever (Buying Behavior).
- Interpretation will track sales with GCA (Buying Behavior).
- Maintenance will track collection rates with input from our contracted carrier (Collection Rates).

A position in the park will be designated as the "project manager" to collect all of the data and evaluate the data on an annual basis.

13. Results of consultation with concessioners and cooperating associations

Consultation with the three concessioners located in the park and the cooperating association began on an informal scale in January 2010. These discussions included the development of alternative products that are both sustainable and affordable (various price points) in order to allow the organizations an opportunity to recoup revenue currently associated with bottled water sales.

On May 12, 2010, letters were sent to the three concessioners and GCA stating that water filling stations were being constructed and that the NPS would no longer allow the sale of water in plastic bottles within park boundaries after December 31, 2010 (See attached letter).

On December 22, 2010, letters again were sent to the concessioners informing them that the park's planned initiative for discontinuing the sale of water in plastic bottles had been temporarily delayed. This letter also stated that they could continue to sell bottled water, however they were advised that sales would likely be discontinued in the near future (See attached letter).

GCA voluntary decided to sell out the bottled water they had in stock and not restock it. They carry a variety of reusable water bottles and their staff verbally promotes the program. Their sales of reusable water bottles have jumped dramatically this year.

DNC installed filling stations in both of their markets and designed well-done informational signs to go with them. They stock a variety of reusable bottles including the park's lowest priced bottle at \$1.99.

Xanterra installed a new filling station in the Maswik Lodge cafeteria during a rehab project and has been converting existing water fountains and cafeteria water sources to include bottle friendly spigots. Xanterra carries a variety of reusable water bottles and say that they have seen marked increases in their sale this year as shown in the data above.

14. Timeline of phase in period

By January 2011, all concessioners and the park's cooperating association had broadened their lines of reusable bottles to include a variety of choices at a variety of price points. Also early in 2011, information about the park's voluntary reusable water bottle program was distributed to media outlets and park staff, as well as posted on the park's web site, so that visitors could be informed of their options and the environmental benefits of their choices. By mid-summer 2011, all but one of the new filling stations in the park was on-line. (One fillings station was added to the original plan at a later date. Most of the filling stations have experienced heavy use since they were installed.)

In December of 2011, NPS Director Jarvis issued a service wide policy on management of disposable plastic water bottles in parks. This new policy allowed for elimination of the sale of water packaged in disposable plastic bottles with the approval of the appropriate Regional Director. After performing the required assessment of the potential impacts and effects of a disposable water bottle ban, GRCA submitted a request for approval in January 2012.

If approved, the park would immediately inform concessioners and cooperators of the forthcoming ban on the sale of water in individual disposable containers, and would coordinate with concessioners and cooperators to ensure they could sell, transfer or return any product they already have in stock. Ideally, the ban would take effect 30 days from approval.



United States Department of the Interior

NATIONAL PARK SERVICE
Mount Rushmore National Memorial
13000 Highway 244
Keystone, South Dakota 57751

IN REPLY REFER TO:

C5(MORU)

March 29, 2012

Memorandum

To: Michael T. Reynolds, Regional Director, Midwest Region

From: Cheryl A. Schreier, Superintendent, Mount Rushmore National Memorial

Subject: Reduction of disposable plastic water bottles in the park

In response to Director Jarvis' Policy Memorandum 11-03 regarding Disposable Plastic Water Bottle Recycling and Reduction, we are pleased to report that through our concessioner, Xanterra Parks and Resorts, a program will be implemented here at Mount Rushmore National Memorial where non-enhanced bottled water will no longer be sold and a hydration station installed for the filling of reusable water bottles. The hydration station is scheduled to be placed into service this spring with a target implementation date of May 1, 2012. Visitors will have an opportunity to purchase reusable containers in a variety of styles, BPA-free, from the more affordable models in the \$5.00 to \$8.00 range upwards to a more deluxe stainless steel model for approximately \$15.00. Additionally, visitors will continue to have an opportunity to purchase bottles of Smart Water or Vitamin Water, which are the enhanced water options.

While this effort will not completely eliminate the sale of beverages in plastic bottles at the park, it will reduce the amount of plastic bottles in the solid waste stream by more than 30,000 plastic bottles per year. The park and concessioner will continue their aggressive recycling program in order to manage the balance generated through the sale of enhanced water products, juices, soda, etc.

In terms of analyzing the impact of this new reduction program, the concessioner estimates that their revenue stream will be impacted by approximately 20% based on the loss of non-enhanced bottled water; however, the concessioner will realize an off-set in revenue by the sale of reusable containers, and the continued sale of enhanced water options. The offset is not something the concessioner is able to forecast or measure at this time, but will be monitoring that impact for annual evaluation purposes. The infrastructure costs for the hydration station are minimal – estimated at approximately \$3,000 for its installation. Operational costs will depend on usage, but are estimated by the concessioner to also be negligible.

The park and our concession partner will work in concert to proactively educate visitors on the importance of the park and partner's recycling and other "green" program efforts currently in place or being developed. Additionally, promotional efforts will also focus on the benefits of the reusable containers and the use of the hydration station, the environmental impacts of their purchasing decisions, and the rationale behind the reduction of the sale of non-enhanced water in plastic bottles.

In order to measure and evaluate the perception of the water station program by our visitors to Mount Rushmore, in addition to their current visitor comment cards, the concessioner will produce a comment card specific to the hydration station service and will position it near the station for ease and convenience. All responses will be shared with the NPS.

As Director Jarvis noted in his memo, "sustainability is a signature of the National Park Service". Mount Rushmore National Memorial is committed, now more than ever, to being an example in this area and fulfilling its Green Parks Plan, which is currently in the process of being developed. Mount Rushmore is also working toward accomplishing the "Go Green" goal as called out in the *Call to Action*, and, we are completing the needed steps to become a Climate Friendly Park. The NPS team at Mount Rushmore is proud to have this particular opportunity to partner with Xanterra, one of the leading concession partners in terms of sustainability and protecting the environment.

Please feel free to contact me if you have questions or would like additional information.



United States Department of Interior

NATIONAL PARK SERVICE

Petrified Forest National Park

P.O. Box 2217

1 Park Road

Petrified Forest, Arizona 86028




A7217

Memorandum

August 27, 2012

To: Director, Intermountain Region

From: Superintendent, Petrified Forest National Park 

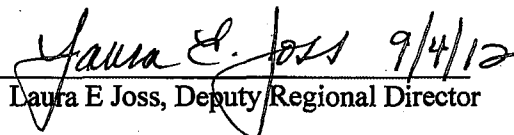
Subject: Request for Approval to Eliminate the Sale of Water in Disposable Plastic Bottles

Petrified Forest National Park proposes to eliminate the sale of single-use water bottles, experiment with the sale of water in cans and gallon jugs instead, and create water bottle filling stations at each of the three main points of visitor contact in the park. Attached is the required analysis of the situation. We seek your concurrence with the proposal.

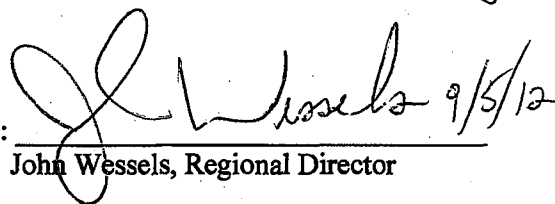
Thank you

Attachment

Recommend Concurrence:

 9/4/12
Laura E Joss, Deputy Regional Director

Concur:

 9/5/12
John Wessels, Regional Director

Petrified Forest National Park

Analysis of potential impacts/effects of plastic bottle replacement program – substituting water in aluminum cans and gallon jugs for single-use plastic bottles

1. Amount of waste eliminated and pros/cons to overall park operations

In calendar year 2010, Xanterra sold approximately 9000 single use bottles of water. It is unclear what percentage of these made their way to the park's waste stream but approximately 30% of the park's recycling volume that year was single use plastic bottles. Eliminating the sale of single use water bottles will not reduce the recycle volume to nothing because visitors and residents will bring them from elsewhere but it will eliminate an estimated 9000 bottles per year from the at-large waste stream.

Pros:

- Decreases in plastics going into circulation, whether to be recycled or land-filled, or into the environment another way.
- Decreases in monetary costs to any visitor who would have purchased more than one bottle of water within the park; and if our education efforts are successful, visitors may save additional money as they continue to refill their reusable bottles after they leave the park.
- Savings of resources used and Green House Gases (GHCs) released during the transportation of waste and recyclables and during the recycling process.
- Decreases in litter associated with disposable bottles.
- Reduces risk of plastic bottle ingestion. Birds, rodents, and larger mammals are known to be attracted to plastic bottles. Thinking there is food/water inside, animals chew and inadvertently swallow plastic pieces. It is well documented that ingested plastic can become lodged in throats and choked on and/or accumulates and creates blockages in digestive tracks.
- Diminishes release of toxic chemicals such as bisphenol A (BPA). Toxins leached from plastics are known to have negative effects on wildlife.

Cons:

- Bottled water is a high profit margin item for the park concessioners and partners. If reusable bottle sales (lower profit margin) do not make up for this, concessioners and partners could incur some financial loss. (See #6 for additional analysis).
- Some people perceive a risk to visitors of dehydration as visitors have become accustomed to relying on single use water bottles for hydration.

2. Infrastructure Costs and funding source(s) for filling stations

Petrified Forest National Park already has water fountains in public places at all three primary visitor contact areas. The cost to convert these to water bottle filling stations (gooseneck spouts and signing) is miniscule and will be absorbed in base operating funds.

3. Contractual implications on concessioners, including considerations of new leaseholder surrender interest or possessory interest

Xanterra is the long-time concessioner at Petrified Forest and is on the 17th one-year extension of their expired contract. The proposed adjustment here is the substitution of 12 ounce aluminum water cans and 1 gallon water jugs for single use water bottles in their two stores. No financial interest is involved.

4. Operational costs of filling stations including utilities and regular public health testing

The three water fountains to be used as water bottle filling stations already exist – no new operating costs are anticipated.

5. Cost and availability of BPA-free reusable containers:

Xanterra sells 5 different types of BPA-free water bottles from \$6.99 to \$11.95. The Petrified Forest Museum Association sells one aluminum water bottle, with several different designs, for \$19.95.

6. Effect on concessioner and cooperating association sales revenue

Based on a voluntary trial run, Xanterra projects a loss in water sales of approximately 60% when cans and gallon jugs of water are sold in place of single-use water bottles. Sales of reusable water bottles may increase but are not expected to make a significant contribution to offsetting the loss. As a percentage of General Merchandise sales (grocery and film, primarily), the drop in water sales is expected to be approximately 7%. As a percentage of total retail sales, it is approximately 0.6%.

The cooperating association does not sell water but has recently begun selling aluminum water bottles.

7. Availability of water within concessioner food service operations

The restaurant at Petrified Forest includes water as a beverage option. New signing has identified the beverage dispenser as a place to fill water bottles.

8. Visitor Education in the park and on line so that visitors may come prepared with their own water bottles

Within the park, information about the filling stations and reusable water bottle promotion will be available in the park newspaper and on all filling stations. The primary site at the Painted Desert Visitor Center (located before visitors enter the park) will have an exhibit explaining the program at the water fountain. A site bulletin will be completed on the water filling stations and will be made available on-line and throughout the park. The NPS and concessioner staff within the park have been provided with information about the program and encouraged to share this information with park visitors. In addition, the park will add information to the website about the filling stations and the reusable water bottle program. This info would be updated to reflect that water in individual disposable containers is no longer sold within the park; and a link to the filling station/ ban page would be featured on the park's home page to ensure easy access to information about the change.

9. Results of consultation with NPS Public Health Office

The park has incorporated numerous consultation meetings with the NPS Public Health Office. The Public Health Office reviewed the design of the water filling stations, commented on placement of the stations to meet public needs and all aspects were found to be satisfactory. The NPS Public Health Office is fully supportive of this ban, as any concerns about public safety have been addressed.

10. A sign plan so that visitors can easily find filling stations

Filling stations are at all three visitor contact locations in the park, including the trailhead to the Painted Desert Wilderness. Each is in a prominent location and will be well marked.

11. Safety considerations for visitors who may resort to not carrying enough water or drinking from surface water sources with potential exposure to disease

There is virtually no surface water at Petrified Forest most of the year and, in part because of the lack of water, very little long-distance hiking or backpacking. The park's safety messages always include admonitions to carry sufficient water and snacks – future messages will include water availability.

12. A system for annual evaluation of the program, including public response, visitor satisfaction, buying behavior, public safety, and plastic collection rates

On an annual basis the park would monitor and collect the following data:

- Visitor satisfaction/public response by using the visitor comment forms – log in complaints/compliments (Public Response and Visitor Satisfaction).
- Visitor and Resource Protection staff will track incidents/contacts related to water availability and dehydration (Public Safety).
-
- We will track sales with Xanterra (Buying Behavior).
- Interpretation will track sales with PFMA (Buying Behavior).
- Administration will track collection rates with input from our contracted carrier (Collection Rates).

A position in the park will be designated as the “project manager” to collect all of the data and evaluate the data on an annual basis.

13. Results of consultation with concessioners and cooperating associations

Consultation with the concessioner and the cooperating association began informally in 2011. These discussions included the development of alternative products that are both sustainable and affordable (various price points) in order to allow the organizations an opportunity to recoup revenue currently associated with bottled water sales. The concessioner is supportive of the aims of the bottle replacement program and suggested aluminum cans and gallon jugs as alternatives, which the park has approved.

14. Timeline of phase in period

Xanterra has experimented with the aluminum cans and gallon jugs during the 2012 summer season. The water bottle sign is poised for installation in the fall of 2012 and alterations to existing water fountains will be ready for the summer of 2013.



United States Department of the Interior

NATIONAL PARK SERVICE
Timpanogos Cave National Monument
Rural Route 3, Box 200
American Fork, Utah 84003-9800

REPLY REFER TO:

A5623 (1550)

Memorandum

To: Regional Director, Intermountain Region
From: Superintendent, Timpanogos Cave National Monument

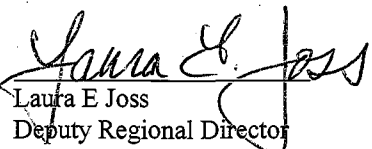
Subject: Request for Approval to Eliminate the Sale of Water in Disposable Plastic Bottles

In 2010, Timpanogos Cave National Monument installed a water bottle filling station and began to work cooperatively with our concessioner to reduce the number of disposable plastic beverage bottles in our waste stream through the gradual reduction and eventual elimination of the sale of such bottles by the concessioner.

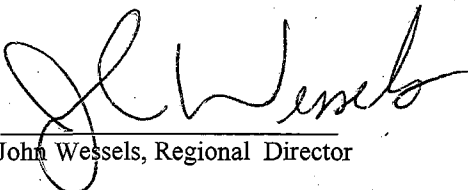
The recently renewed concession contract for the Monument requires the sale of refillable bottles, and we are now ready to formally eliminate disposable plastic bottles as a sales item when we open these facilities to the public in early May.

In accordance with the policy memorandum issued by the Director on December 14, 2011, we have prepared the attached analysis of the impacts of such an effort, including consultation with the NPS Public Health Office, and I am requesting your approval to continue the implementation of this program.

Recommend Concurrence:

 3/19/12
Laura E Joss
Deputy Regional Director

Concur:


John Wessels, Regional Director

Timpanogos Cave National Monument

Analysis of the Elimination of the Sale of Water in Disposable Plastic Bottles

March 8, 2012

1. Amount of waste eliminated and pros/cons to overall park operation

Because of the relatively small scale of the park and its waste management operations, we have not performed the detailed analysis of the waste stream that would be required to accurately quantify the expected reduction. Since this proposal is already well underway and non-controversial, we don't believe that the cost of such an effort is justified at this point, but we will institute random sampling from this point forward as part of our program evaluation.

Approximately 80,000 – 90,000 visitors hike the cave trail annually. If we conservatively assume that even 10% of those hikers use and dispose of a water bottle in the park, this effort could reduce or eliminate 8,000 – 9,000 bottles from our waste stream annually.

Currently, we maintain a 14 trash cans and several recycling cans along the 1.5 mile cave trail and 20 in the Swinging Bridge picnic area. Disposable plastic water bottles make up the majority of the volume of trash collected from the cans along the cave trail, and a significant volume in the picnic area. Because the removal of trash from these cans requires the use of two employees (an operator and a safety spotter) using motorized wheelbarrows on the steep and narrow cave trail, maintenance of these cans represents a significant cost in time, labor, and equipment. Noise, emissions, and right-of-way issues impact hikers whenever a motorized wheelbarrow is used on the trail. Our long term goal is to eliminate most, if not all, of these trail trash cans, and the elimination of disposable water will contribute greatly to that effort.

Despite this relatively high saturation of trash and recycling receptacles along the trail, disposable water bottles are often inadvertently dropped by hikers and end up out of easy reach and caught in vegetation down steep slopes below the cave trail. Removal of this litter requires periodic off-trail travel by park staff in hazardous, high-angle terrain. While some trailside litter will still occur even after the implementation of this program, any reduction in the prevalence of disposable water bottles will reduce the primary source of this problem, which will reduce the risk for visitors and staff trying to retrieve or remove these bottles.

2. Infrastructure costs and funding source(s) for filling station

The bottle filling station, shown in figure 2 on page 2, was installed in 2010. Total project cost was approximately \$10,000 and was paid for with project funds received from the US Forest Service under the American Fork Canyon Recreation Fee Enhancement Partnership agreement.



Figure 1 - Filling station under construction. Note proximity of table in adjacent concession food area



Figure 2 - Completed filling station located in front of TICA visitor contact station at cave trailhead

3. Contractual implications on concessioners, including considerations of new leaseholder surrender interest or possessory interest

The park has a single concession contract, for food and beverage service, with Carl and Betsy Wagner. The Wagners have held this contract for over 50 years, and have been a supportive partner of the park's operations and sustainability efforts over time.

Since the filling station was installed in 2010, the park has worked with the Wagners to begin to sell down their inventory of disposable bottled drinks and to investigate options for refillable bottles from various vendors, with the understanding that this program would likely become mandatory in 2012. This two year, voluntary phased-in approach should alleviate most negative implications of this program implementation on the concessioner.

The Wagner's contract was renewed in January 2012 with a 10 year term. The new contract requires the sale of refillable bottles. During the annual review and approval of sales items, the park will work with the concessioner to ensure that they offer a range of BPA-free refillable bottles at reasonable price points. Because the filling station is immediately adjacent to the open-air concession sales area, visitors will be readily able to see both the bottles displayed for sale and the filling station at the same time.

4. Operational costs of filling stations including utilities and regular public health testing

TICA has a single gravity-fed domestic water supply system providing water to the bottle filling station as well as all other buildings in the monument. The system is operated by park staff certified by the state of Utah as water system operators and is regularly tested in accordance with applicable federal and state law. This filling station does not add any additional operational or public health testing costs to the system.

5. Cost and availability of BPA-free reusable containers

The concessioner, whose hours of operation match the primary visitation period in the Monument, will offer a range of reusable containers for sale immediately adjacent to the filling station and within a few yards of the cave trailhead. All containers will be BPA-free, and we expect them to range in price from approximately \$3.00 for smaller, plain bottles to approximately \$12.00 for larger bottles or those with commemorative or interpretive messaging etc.

6. Effect on concessioner and cooperating association sales revenue

We expect no impact to cooperating association sales revenue, since the concessioner will handle all container sales. It is difficult to predict effects on concessioner revenue over time, but our expectation is that net profit from sales of reusable containers will match or exceed that of disposable containers, at least in the short term. The current concessioner just accepted a 10-year contract with the requirement for the sale of refillable bottles, and we believe that they have accounted for any potential revenue increases or decreases in their current business plan.

7. Availability of water within concession food service operations

The only concession food service operation is located immediately adjacent to the water filling station (see figure 1 on page 2) and the trailhead used by almost all visitors. Cold drinks (water, soda, etc.) will be available in cups from the concessioner, and visitors can fill / refill cups with water at the filling station.

8. Visitor education in the park and online so that visitors may come prepared with their own water bottles

We will prominently include this information in electronic and paper “plan your visit” sources, utilize social media (Facebook and Twitter) to improve information dissemination to local returning visitors, and utilize our personal contacts with visitors reserving cave tour tickets to remind them of the need for water bottles.

9. Results of consultation with the NPS Public Health Office

The park shared this document with LCDR Adam Kramer, USPHS, IMR Regional Public Health Consultant on March 7, 2012. His comments were:

Our biggest concern is that people would be hiking without sufficient water. Based on the analysis you've provided you have thought that through and there are provisions for people to get a container at a reasonable cost if necessary.

One thing I would like to mention is based on the photo of the filling station, there does not appear to be a drain under it or at the base. This may lead to pooling water and create it's own safety hazard. I would recommend ensuring that water is not ponding in the area, if it is additional drainage would be warranted.

Park response to NPS Public Health Office comments: Though it is not evident in the photo above, the filling station incorporates a French drain. A perforated metal screen at the base of the unit, below the taps, covers a gravel filter approximately 5 feet deep, which allows the excess water to drain below the concrete sidewalk and adjacent building foundation to the soil below. No ponding has been observed despite daily summer use since the unit was installed in 2010, so no additional drainage appears necessary at this time.

10. A sign plan so that visitors can easily find filling stations

The filling station is prominently located adjacent to the park's primary trailhead, and readily visible without additional signage. We currently post a “safety stop” ranger at the trailhead throughout the day, every day, to advise hikers of potential hazards, check for cave tour tickets, remind them of the need for water, etc. The safety stop ranger can and will readily direct visitors to the filling station, located just yards away.

11. Safety considerations for visitors who may resort to not carrying enough water or drinking from surface water sources with potential exposure to disease

There are generally no surface water sources along the cave trail, so that risk is very low to non-existent, however high elevation, summer heat, and exertion required to climb the steep trail are all significant potential contributors to dehydration and heat related emergencies.

The primary visitor activity in the park is a hike to and from the cave system for a ranger guided tour or simply for exercise. The trail climbs 1,092 feet (325 meters) over 1.5 miles, starting at an elevation of 5,638 feet above sea level and entering the caves at an elevation of 6,730 feet. Summer high temperatures are typically in the 80s or 90s.

Again, this is part of our justification for personally contacting every hiker at the cave trailhead and – among other things – advising them of the need for adequate hydration. Further, the park maintains a volunteer (VIP) trail patrol program on busy summer days. Volunteers and staff patrolling the trail carry extra water and assist visitors as needed.

12. A system for annual evaluation of the program, including public response, visitor satisfaction, buying behavior, public safety, and plastic collection rates

We will periodically randomly sample trash collected throughout the park to evaluate our efforts in reducing disposable plastic bottles specifically and other recyclable materials generally and adjust our educational and recycling collection efforts accordingly.

Visitor comment cards will be monitored for feedback, along with periodic informal discussions with front-line concessions and visitor services staff. If possible, we will include appropriate questions about these efforts on annual visitor survey cards.

Medical incident reports will be tracked for changes in heat and dehydration related incident trends.

Trail patrol rangers and Volunteers will be asked to track cases where visitors are encountered with insufficient water supplies as part of their routine activity logs.

Here again, the small scale of our operation should make it relatively easy to monitor each of these indicators with a small investment of management time.

13. Results of consultation with concessioners and cooperating associations

The cooperating association, WNPA, will not be directly involved in this effort, but we have engaged them in hopes that they might assist the concessioner with procurement of reusable bottles similar to those WNPA is developing as a sales item.

As noted above, the concessioner has been engaged for over 2 years and has been voluntarily working to implement this program over that time.

14. Timeline of phase-in period

We plan to announce this effort publically as soon as approval is secured, and would implement the program immediately upon opening our facilities to the public for the summer, tentatively scheduled for May 12, 2012.