



DEPARTMENT OF NATURAL RESOURCES OVERSIGHT OF STATE PARKS

**From The Office Of State Auditor
Claire McCaskill**

**Report No. 2004-42
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PERFORMANCE AUDIT



Office of
Missouri State Auditor
Claire McCaskill

May 2004

State parks are exceptionally well maintained. However, better controls over testing of drinking water and better oversight of revenue generating operations are needed

Our office conducted an audit of the Division of State Parks Management within the Department of Natural Resources in order to determine if visitors were provided with quality service and facilities, and whether water and other resources provided met established safety standards. Our visits to twelve state parks showed all parks were exceptionally clean. We found, however, numerous incidents where the state parks had not complied with federal and state drinking water regulations or division water testing policies, and therefore could not be assured that park visitors were provided water safe for consumption. We also found lack of adequate oversight of park operations. The department agreed with all our recommendations.

Regulations relating to testing of water samples for contaminants were not being followed, resulting in inadequate oversight of water safety

Federal and state regulations dictate how often water samples must be taken from public water systems and tested to determine the levels of contaminants. Water systems which serve more than 1,000 persons per day during any month must submit samples more often than less frequently visited sites. Our review found eight of eleven parks, which served more than 1,000 visitors per day on busier months failed to submit the additional required samples. Periodic water testing is necessary to ensure water is safe to drink. Presence of contaminants may indicate conditions are favorable for the growth of dangerous bacteria and micro-organisms. (See page 5)

Public drinking water at state parks was not tested daily to make sure chlorine levels were adequate

The parks division has a policy which requires state parks to conduct daily tests to ensure chlorine levels are adequate to kill dangerous bacteria. In spite of this policy, none of the eleven state parks reviewed conducts all required tests. When the tests indicated the chlorine levels had fallen below the prescribed levels, only one of the parks retested within the required time to ensure the chlorine levels had returned to a safe level. Inadequate chlorine testing and disinfectant levels can allow harmful bacteria to flourish and multiply, resulting in unsafe drinking water. (See page 6)

The department has failed to audit the operations of state parks to ensure revenues are properly accounted for

State parks generated \$3.6 million in revenue for the state during fiscal year 2003.

(over)

YELLOW SHEET

However, 9 of the 12 top revenue generating parks have not been audited by the department since 1997. Regular, periodic audits of state park operations by the department would ensure all state revenues generated by the parks are properly accounted. (See page 8)

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CLAIRE C. McCASKILL
Missouri State Auditor

Honorable Bob Holden, Governor
and
Stephen Mahfood, Director
Department of Natural Resources
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The Missouri state park system includes 49 state parks and 34 historic sites totaling more than 139,000 acres, which attracted about 18 million visitors in fiscal year 2003. In fiscal year 2003, state parks received about \$36 million from the parks sales tax. This report focuses on the department's Division of State Parks management and oversight of the state parks system. Specifically, our objectives were to determine if visitors were provided with a quality service and facilities, and water and other resources provided met established safety standards.

Our visits to twelve state parks comprising almost 43,000 acres, 27 separate camping areas, with 1,532 campsites, showed all parks were exceptionally clean and free from litter and graffiti. Park officials and staff all expressed a great deal of pride in the appearance of their park. They stated unanimously that they wanted to ensure that a visit to their park would be a rewarding and memorable experience.

We found, however, numerous incidents where the department had not complied with federal and state drinking water regulations or division water testing policies, and therefore could not be assured parks' visitors were provided water safe for consumption. Our review showed the department had not implemented effective management controls to assure adherence to drinking water regulations and policies. We also found lack of adequate oversight of park operations to ensure all revenues are properly accounted for. We make recommendations to improve these weaknesses.

We conducted our work in accordance with applicable standards contained in *Government Auditing Standards*, issued by the Comptroller General of the United States, and included such tests of the procedures and records as were considered appropriate under the circumstances.

A handwritten signature in black ink that reads "Claire McCaskill". The signature is written in a cursive, flowing style.

Claire McCaskill
State Auditor

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RESULTS AND RECOMMENDATIONS

State Parks Were Well Maintained, but Improvements are Needed to Ensure Safe Drinking Water Supplies and Oversight

We found parks division staff at the 12 state parks we visited generally kept the parks' campgrounds and facilities clean and appeared in good repair. Park division staff, however, had not submitted all required water samples or performed all required tests to ensure drinking water provided to park visitors was safe for consumption. Federal law, state regulations and park division policy require various testing of drinking water, but the parks division had not implemented adequate controls to ensure compliance. Analysis also showed the water protection division had not required (due to incomplete data) state parks to submit the minimum number of monthly water samples for bacteria testing as required by federal and state regulations. We also found the department had ceased conducting periodic audits of parks' operation, which generate over \$3.6 million annually in revenues, due to staff shortages.

Background

The Department of Natural Resources (department), Division of State Parks (parks division) is responsible for acquiring, developing, and managing Missouri's state parks and historic sites. It also coordinates statewide programs in the areas of outdoor recreation and trails. The parks division is charged with preserving natural and historically significant resources, and is funded primarily through the parks-and-soils sales tax, which provided about \$36 million in revenue in fiscal year 2003.¹ State parks also realize substantial revenue from user fees, such as the sale of camping permits, which totaled about \$3.6 million during fiscal year 2003. The state park system includes 49 state parks and 34 historic sites totaling more than 139,000 acres and attracting about 18 million visitors in fiscal year 2003. The parks division relies on private contractors, called concessionaires, to operate various park facilities including marinas, riding stables, cabins, and stores. State park recreational opportunities include camping, picnicking, swimming, boating, fishing, and hiking.

Of Missouri's 49 state parks, 29 operate their own public water systems and produce, store, and distribute drinking water to park visitors. These 29 parks are required by federal and state regulations and park division policy to submit periodic water samples to the department's Water Protection and Soil Conservation Division (water protection division) for testing and to conduct periodic tests to ensure their water is safe for public consumption. The remaining 20 parks are connected to an external water supplier and are secondary water systems. The water protection division is responsible for ensuring public water systems comply with federal and state safe drinking water regulations.

¹ In 1984, the voters approved a sales tax of one-tenth of one percent for soil and water conservation and for state parks, which is split equally between the state parks and the soil and water programs administered by DNR. In 1996, the voters renewed this sales tax until 2008.

Methodology

To determine the extent to which state parks provided safe and quality services to its visitors, we visited 12 state parks throughout the state—Bennett Spring, Big Lake, Ha Ha Tonka, Knob Noster, Lake of the Ozarks, Lake Wappapello, Pomme de Terre, Roaring River, Stockton, Table Rock, Trail of Tears, and Harry S. Truman.² We selected these parks for review because they were geographically dispersed throughout the state, and 11 of the 12 parks operated their own public water supply systems. Our visits were made during October 2003 through January 2004, when the weather is typically becoming colder and visitation is down.

To determine whether quality services were provided to park visitors, we toured and inspected the campgrounds and facilities, such as showers, shelter houses and picnic areas, at each of the 12 parks we visited. Because 11 of the 12 parks we visited operated their own ground water systems, we reviewed their compliance with state regulations and parks division policies pertaining to public water supplies. We examined water testing records maintained at each park for the period July 2002 to October 2003, and we examined the licenses of the parks' water operators. We also obtained and reviewed all of the inspection reports prepared by the water protection division from 1999 through 2003 related to state parks water and sewer systems.

To determine how well the parks were managed, we reviewed internal control procedures. This included reviewing employee duties, check acceptance policies, receipt sequence for a test month, deposits, and internal audits completed during the 2 fiscal years ended June 30, 2003. We also reviewed other management oversight controls regarding periodic audits of the state parks, but did not test the adequacy of the internal control procedures.

We obtained comments on a draft of this report during a meeting with responsible department officials on April 1, 2004, and in a written response on April 28, 2004. We incorporated their comments as appropriate. We conducted our work from October 2003 to January 2004.

Buildings and public use areas were generally clean and in good appearance

Our inspections of 12 state parks, which comprised about 43,000 acres, with the smallest being Table Rock State Park (356 acres) and the largest being Lake of the Ozarks State Park (17,441 acres), found the parks' grounds were generally well groomed and free from litter. We also found the parks' 1,532 campsites³ and facilities—shelter houses, bathrooms, cabins, and laundry facilities—were free from graffiti and in good appearance. This included numerous cabin and general use buildings which were constructed in the 1930's by the Civilian Conservation Corps. Park officials and staff all expressed a great deal of pride in the appearance of their parks and stated they wanted to ensure a visit to Missouri state parks would be a rewarding and memorable experience.

² See Appendix I for a map showing the locations of Missouri state parks.

³ See Appendix II for a sample campground map and pictures of three camping sites. These pictures are representative of how well maintained and clean we found the campsites at the 12 state parks we visited.

Water samples not required in accordance with state regulations

Our review showed the water protection division required some state parks to submit only one water sample a month for total coliform testing, whereas park division data showed 11 of the state parks we visited should have submitted two or more samples per month. Federal and state regulations⁴ require non-community water systems (11 of the state parks we visited are classified as transient, non-community water systems) serving more than 1,000 persons per day during any month to submit 2 or more water samples per month for maximum contaminate level testing.⁵ However, our analysis showed 8 of the 11 state parks only submitted one water sample per month between April and October 2002, although each park served an average of more than 1,000 visitors per day in each of these months. Accordingly, each park should have submitted 2 or more samples for those months. Table 1 shows the average daily attendance for the 11 parks we visited classified as non-community water systems.

Table 1: Average Daily Attendance By Month for the 11 Parks We Visited

Park	April	May	June	July	August	September	October
Lake of the Ozarks	3,469	4,655	7,338	7,814	5,474	3,717	2,591
Bennett Spring	2,899	3,209	4,931	5,348	4,408	3,464	3,039
Table Rock	2,152	3,405	5,630	6,140	4,241	2,771	2,188
Roaring River	2,232	2,616	3,681	3,808	2,850	2,461	2,057
Harry S. Truman	2,017	1,123	3,473	3,229	2,533	1,811	1,220
Stockton	1,295	2,203	2,436	2,745	1,990	1,887	1,097
Ha Ha Tonka	1,274	1,805	2,182	2,049	2,273	1,590	1,891
Pomme de Terre	1,023	1,523	1,436	2,986	2,584	1,347	1,158
Knob Noster	1,166	1,333	1,211	1,139	816	1,043	770
Lake Wappapello ¹	1,188	1,871	2,057	1,846	173	121	119
Trail of Tears	694	781	973	814	728	562	456

¹ Lake Wappapello was flooded in August, 2002 which caused a reduction in visitation.

Source: SAO analysis of park records.

According to federal and state regulations,⁶ Lake of the Ozarks State Park should have been required to submit from 3 to 9 samples per month, and Bennett Spring State Park should have been required to submit from 3 to 6 samples per month, but each park only was required to submit one sample per month.⁷ Table 1 also shows Knob Noster and Lake Wappapello State Parks had a daily average over 1,000 visitors five and four months, respectively, during the period tested and should have been required to provide two water samples during each of these months. State regulation⁸ provides non-community systems may submit less than two samples a

⁴ 40 CFR 141.21(a)(3)(ii) and 10 CSR 60-4.020(1)(C)2.

⁵ A transient, non-community water system is a public water system that serves the public, but not the same individuals for more than six months, for example, highway rest areas and public campgrounds.

⁶ 40 CFR 141.21(a)(2) and 10 CSR 60-4.020(1)(B). The regulations provided that additional samples are required as the population served increases.

⁷ Federal Regulations (40 CFR 141) establish primary drinking water regulations pursuant to section 1412 of the Public Health Service Act, as amended by the Safe Drinking Water Act (Pub. L. 93-523); and related regulations applicable to public water systems.

⁸ 10 CSR 60-4.020(1)(C)2.

month for any month their systems serve less than 1,000 persons per day, if authorized by the water protection division in writing.

The water protection division classified 23 of the 29 state parks operating their own water systems as serving less than 1,000 persons per day, and, therefore, these parks were not required to submit more than one sample per month.⁹ Water protection division staff said state parks were classified as serving only 25 to 1000 persons per day because they are non-community water systems serving a transient population and experience has shown most such systems never serve more than 1,000 persons. Water protection division staff said they were unaware of state parks' attendance data, but will consider using this data in the future to determine the minimum number of monthly water samples each park is required to submit.

Periodic water testing is necessary to ensure water is safe to drink

State regulations¹⁰ require public water systems to submit periodic water samples for maximum microbiological contaminate level testing such as coliform levels. The presence of coliform bacteria in itself is not necessarily dangerous, but does indicate whether conditions are favorable for dangerous bacteria and micro-organisms to flourish in public drinking water, and, therefore, are critical in order to determine whether that water is safe to drink. These organisms can be bacterial, viral or parasitic, and can cause symptoms such as diarrhea, stomach cramps, nausea, and dehydration.

Chlorine disinfectant levels were not checked as required

Our review showed none of the 11 parks we visited, which operated their own public drinking water supply systems and added chlorine to their water as a disinfectant, conducted all daily chlorine disinfectant tests as required by parks division policy. Federal and state regulations do not require public ground water systems, which add chlorine to their water, to conduct daily testing unless ordered to do so. Parks division policy, however, requires state parks to conduct daily tests of their water systems to ensure chlorine levels are adequate to kill dangerous bacteria and micro-organisms to help provide safe drinking water for park visitors. Compliance chlorine testing by the 11 parks over a 16-month period July 2002 through October 2003 ranged from a low of 0 to a high of 76 percent in conducting required daily chlorine tests. Staff at Roaring River State Park, which showed zero percent compliance, said they performed the required tests, but did not retain their testing records. Park division policy requires state parks to retain testing data for 1 year. Park division policy also requires the 11 state parks to conduct daily tests of their water systems to ensure chlorine levels are adequate to kill dangerous bacteria and micro-organisms, and thereby help ensure the water is safe for public consumption. Table 2 shows each park's compliance with the park division's chlorine testing requirements.

⁹ Our analysis of park attendance data shows that of the 29 state parks operating their own water systems, 20 (including 10 shown in Table 1) served more than an average of 1,000 persons per day in two or more months in 2002.

¹⁰ 10 CSR 60-4.

Table 2: State Park Compliance with Daily Chlorine Testing

Park	Number of Daily Tests:		
	Required ¹	Taken ²	Passed ³
Knob Noster	1,735	1,225	1,014
Lake of the Ozarks	1,171	499	321
Trail of Tears	608	23	20
Lake Wappapello	762	22	15
Big Lake (municipal water)	N/A	N/A	N/A
Ha Ha Tonka	488	16	14
Bennett Spring	1,372	1,042	73
Stockton	867	37	33
Harry S. Truman	1,220	43	32
Table Rock	273	147	118
Roaring River	488	0	0
Pomme de Terre	976	92	83

¹Number of Daily Tests Required was calculated by counting the number of days that each water system in the park was open during our test period (7/1/2002 to 10/31/2003) and the number of test records provided. For example, Knob Noster had 3 wells which were open year round (488 days each, or 1,464 days) and one which was opened intermittently (271 days). Thus, the required number of tests corresponds to the 1,735 total days the four wells were open.

²Number of Daily Tests Taken was calculated by counting the number of chlorine tests performed within the test period.

³Number of Daily Tests Passed was calculated by counting the number of tests results which equaled or exceeded 0.5 at the well head or 0.2 in the distribution system.

Source: SAO analysis of park water testing records.

Park staff from the 11 state parks provided the following reasons why they did not conduct daily chlorine tests:

- staff for seven parks told us they did not perform the daily tests, because they were unaware of the park division's chlorine testing requirements,
- the superintendent of another state park said he was aware of the testing requirement, but said he lacked sufficient staff to conduct daily tests,
- staff from two parks said they were confused between the state regulations and the park division policy, and
- one park superintendent said she decided not to test because she believed the monthly coliform testing was adequate.

A park division official said he has not monitored state parks to ensure they have conducted the required daily chlorine test, but said he has relied on the "honor system" to ensure state park staff followed park division policy and conducted the daily required chlorine tests.

Chlorine levels were not retested to ensure problems were corrected

Our analysis showed the state parks did not conduct retests when chlorine levels fell below prescribed levels. Our review also did not find documentation to show the state parks always took corrective action when chlorine levels fell below prescribed levels to ensure the water supply was safe. Park division policy requires chlorine levels to be at a specific level to ensure the water supply is adequately disinfected, and requires state parks to retest chlorine contents

within four hours after initial tests showed the chlorine levels were below prescribed levels. Four hours provides time for park staff to add chlorine or to otherwise correct the problem in the water distribution system. Our review of the parks' data shows 10 of the 11 parks required to test for chlorine levels conducted one or more tests, which showed the chlorine levels were below prescribed levels. Our analysis, however, showed only one park took actions to bring chlorine levels back to prescribed levels, and none of the parks retested within four hours, as required by parks division policy, to ensure chlorine levels were adequate to disinfect their water supplies. Several park staff told us they were not aware of the need to retest within four hours.

Inadequate chlorine testing and disinfectant levels can allow harmful bacteria to flourish and multiply resulting in unsafe drinking water. A department document dated September 5, 2003 showed the Lake of the Ozarks State Park failed to meet microbiological contaminant levels during September and October 2001, and June, July, and August 2002 at 9 of its 10 wells, and failed to meet acute (*E. coli*-positive) microbiological contaminant levels at 1 of its 10 wells for September 2003. For July and August 2002 and September 2003, we calculated the park should have performed 554 daily chlorine tests, but only 163 tests were documented of which 80 tests showed chlorine disinfectant levels were insufficient. Our review also showed the Lake of the Ozarks State Park failed to submit microbiological samples during May and June of 2003, during which time no chlorine testing was performed.

Because the Lake of the Ozarks State Park failed four coliform tests within a 12-month period, the water protection division required the park to enter into a bilateral compliance agreement to ensure safe water supply and to avoid federal regulatory action. The bilateral agreement, which is for the period October 2003 through September 2004, requires the state park to (1) submit additional monthly water samples for maximum contaminate level testing, and (2) submit the results of its daily chlorine test results to the water protection division.

Department has not provided adequate oversight of park operations

Our review showed the department has not systematically performed audits of state parks' revenue collections, which totaled about \$3.6 million in revenue during fiscal year 2003. Although concessionaire revenues and expenses at state parks were audited biannually by private firms, our analysis showed the department's internal auditor has not conducted audits of 9 of the top 12 revenue generating state parks since 1997. For example, the department has not audited the operations of the Bennett Spring State Trout Park, which had revenues of about \$389,000 in 2003, in the last seven years. Table 3 shows the park division's top 12 revenue parks and the last date each park was audited by the department's internal auditor.

Table 3: Comparison Of State Park Fiscal Year 2003 Revenue To Dates Of Most Recent Audits

State Park	Revenue	Last audit date	Period audited
Bennett Spring	\$389,133	¹	Unknown
Roaring River	345,403	1/8/1999	Fiscal year 1996
Lake of the Ozarks	278,501	10/21/1998	Calendar year 1997
Montauk	258,288	¹	Unknown
Table Rock	237,331	8/25/1998	Calendar year 1995
Meramec	214,906	¹	Unknown
St. Joe	202,442	¹	Unknown
Cuivre River	171,727	¹	Unknown
Sam A. Baker	140,897	7/9/1996	Calendar year 1995
Pomme de Terre	128,973	¹	Unknown
Onondaga Cave	109,116	6/28/1996	Calendar year 1995
Harry S. Truman	101,552	¹	Unknown
Total Revenue	\$2,578,269		

¹ No internal audit conducted since 1997.

Source: SAO analysis of state park data and internal audit records.

Department officials said staffing shortages due to state budget cuts caused reduced number of audits and oversight of state park operations. According to department officials, the department at one time had one auditor responsible for auditing every state park. However, the department eliminated the position due to budget reductions and the department's three remaining internal auditors, who were responsible to audit the entire department, audited state parks when problems were reported. Beginning in fiscal year 2004, the department eliminated two of those positions, leaving one internal auditor to review all departmental operations, including the operation of 49 state parks.

Conclusions

State park staff have generally provided visitors to Missouri state parks clean, and well kept campgrounds and facilities. Due to lack of effective management controls, however, park division staff have not ensured state park water was safe for visitors' consumption. The water protection division has not used available data for the number of persons the state parks' public water systems served to determine the number of water samples per month each state park should have submitted to ensure adequate testing for contaminants in the water. The department also has not ensured periodic audits of state parks' operations, which generate several million dollars in revenue on an annual basis.

Recommendations

We recommend the Director, Department of Natural Resources:

1. Use state parks' attendance data to determine the number of water samples that should be submitted on a monthly basis.

2. Establish procedures to ensure state parks perform chlorine tests as required by park policy and take corrective actions as needed.
3. Implement a systematic process to ensure state park operations are audited on a periodic basis.

Agency Comments

The department provided us the following written response on April 28, 2004 to our recommendations.

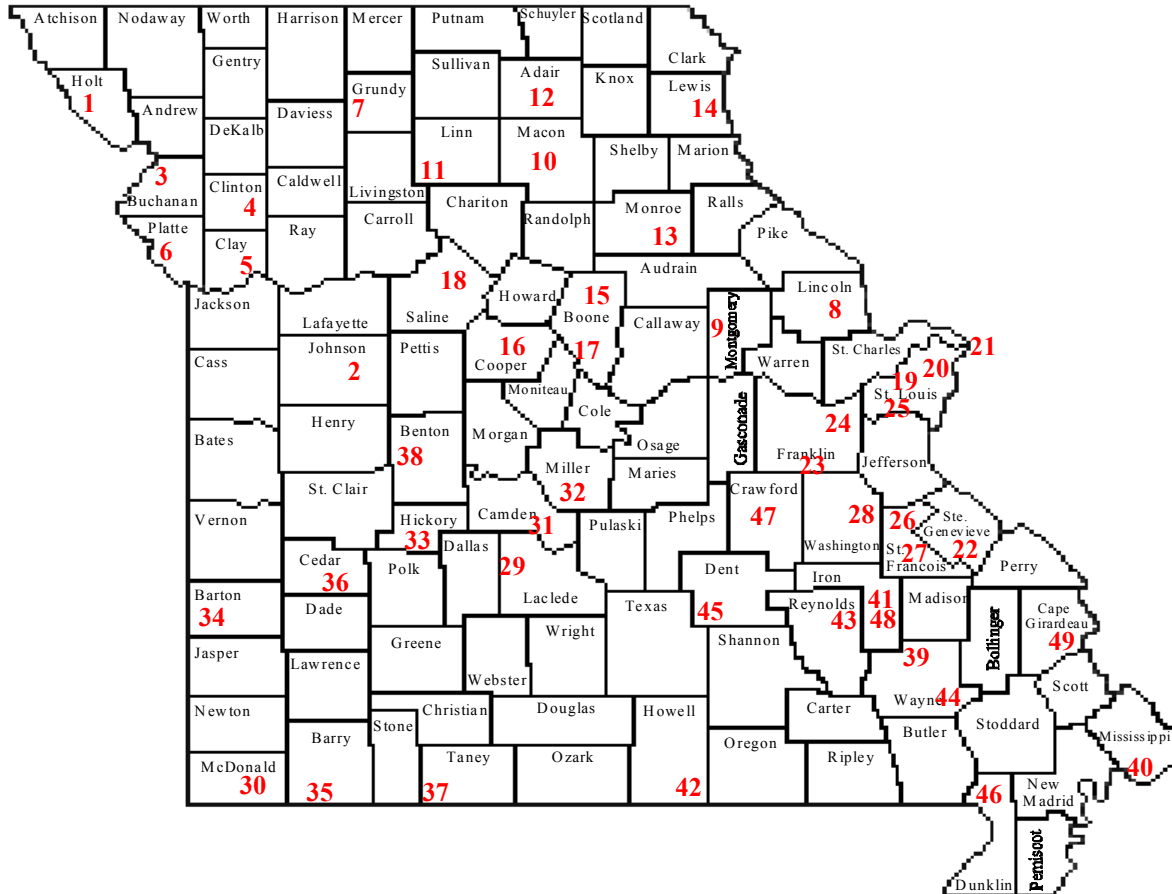
1. *We agree with this recommendation and have begun discussions with the Drinking Water Branch to revise sampling plans for each of our public drinking water systems. That process will involve separation of each water systems within a given state park so that each system will be a stand-alone public water supply with its own identification number. This should allow greater accuracy in establishing sampling requirements and compliance tracking. Staff will work with the Drinking Water Branch to establish a more realistic and accurate method to determine the number of potential public users of our drinking water systems. Attendance collection, calculation methods and formulas will be reviewed annually. Any adjustment to the monthly sampling requirement will be in accordance with regulatory requirements. This goal should be achieved by July 1, 2004.*
2. *We agree with this recommendation and have taken steps to correct the deficiencies. Chlorine levels are now being monitored more closely in those parks with chlorination capability. Divisional staff are in the process of revising our policies regarding water system operation, reviewing our compliance and oversight process, and are purchasing additional chlorine analysis instruments.*
3. *We agree with this recommendation, however, recent budget reductions have eliminated the audit staff resources necessary to comply with the recommendation. Discussion will be held to determine if there are alternative means to address this issue.*

It should be noted that the audit is inaccurate when it states that the department eliminated two auditing positions in FY04. Those positions were kept from the budget by the legislature. During the time frame of the audit the Internal Audit staff completed or oversaw the contract audits of eleven park facilities. This was in addition to other audits and/or special reviews conducted for the other divisions within the department.

The Division of State Parks has typically used the audit results of individual audits as a training tool throughout the Parks system to correct potential problems.

MAP OF MISSOURI STATE PARKS

This appendix shows the locations of Missouri's 49 state parks.



1 Big Lake	18 Van Meter	34 Prairie
2 Knob Noster	19 Dr. Edmund A. Babler	35 Roaring River
3 Lewis & Clark	20 Castlewood	36 Stockton
4 Wallace	21 Jones Confluence Point ¹	37 Table Rock
5 Watkins Mill	22 Hawn	38 Harry S. Truman
6 Weston Bend	23 Meramec	39 Sam A. Baker
7 Crowder	24 Robertsville	40 Big Oak Tree
8 Cuivre River	25 Route 66	41 Elephant Rocks
9 Graham Cave	26 St. Francois	42 Grand Gulf
10 Long Branch	27 St. Joe	43 Johnson's Shut-ins
11 Pershing	28 Washington	44 Lake Wappapello
12 Thousand Hills	29 Bennett Spring	45 Montauk
13 Mark Twain	30 Big Sugar Creek	46 Morris
14 Wakonda	31 Ha Ha Tonka	47 Onondaga Cave
15 Finger Lakes	32 Lake of the Ozarks	48 Taum Sauk Mountain
16 Katy Trail	33 Pomme De Terre	49 Trail of Tears
17 Rock Bridge		

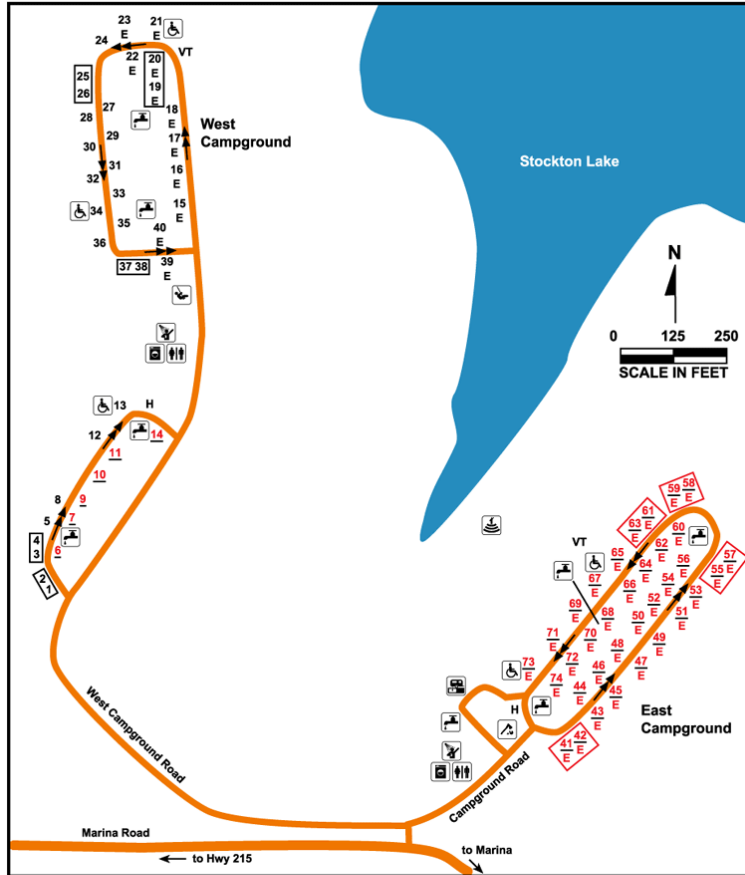
¹ Edward "Ted" & Pat Jones Confluence Point State Park is scheduled to open in 2004

Source: State Parks Division Internet site.

SAMPLE CAMPGROUND LAYOUT AND PICTURES

This appendix illustrates a typical campground layout at state parks and available campsites.

Stockton State Park



LEGEND

#	reservable site	# #	double site (may rent one or both; in very close proximity with common drive)	Ⓜ	water	♻️	dump station
#	basic site			♿	restroom	🌲	woodlot
E	electric site			🚿	showerhouse	🎡	playground
# #	double site (must rent both; share a common drive)	H	campground host	🧺	laundry	🎪	amphitheater
		♿	accessible	VT	vault toilet		

Campsite #12



Campsite #27



Campsite #73



Source: State Parks Division Internet site.