

FINDING OF NO SIGNIFICANT IMPACT

Upgrade of Wastewater Treatment System at Callville Bay Environmental Assessment

September 2011

Lake Mead National Recreation Area
Clark County, Nevada

PURPOSE AND NEED

The purpose of this project is to upgrade the wastewater treatment system at Callville Bay so that it can accommodate current and future demands and allow the park to meet all of its wastewater treatment requirements. Since the system was first placed into service, various operational difficulties have been encountered. Severe erosion, brought about by exposure of fragile desert soils disturbed during construction, has worsened each year, jeopardizing the structural stability of pond embankments and roads. In addition to the deepening rill erosion on the downhill slopes above and below the system, there has been an increase in wind and water-driven transport of sediment into all of the ponds, especially the infiltration pond. This relocation of material has resulted in premature sealing of the floor and sideslopes of the pond, thus hampering infiltrative capacity. This translocation of soils has also displaced volume, reducing the effective capacity of the pond.

Since there is no stand-by area available for treatment expansion, and no additional capacity was designed into the system, there is no means to transfer wastewater to an adjacent or alternate cell when periodic maintenance is needed, nor is there any capacity available to provide for hydraulic dampening to accommodate those years with higher than normal rainfall. This lack of available capacity has been compounded by the addition of various water-using facilities at Callville Bay. The existing treatment system is currently operating at greater than 85% of capacity which, by permit and state requirements, triggers the need to begin planning for expansion. Upgrade of the system will give the park the flexibility to accommodate increased wastewater loads resulting from increased visitation, changing treatment regulations, or both. The improvements will have a minimum life span of 20 years, although regular maintenance and upgrades could more than double the service life.

High levels of nitrate have been detected in groundwater near the treatment facility. It is unknown what contribution the pond system makes to nitrate in the groundwater. A groundwater monitoring well detected high levels of nitrate before the existing percolation pond was in place. That well has since gone dry, possibly as a result of the declining lake level, so the question has remained unresolved. However, the current pond system does not provide a means to adequately remove nitrate from the wastewater. NDEP, citing its anti-degradation policy, has stated that the National Park Service (NPS) should not exacerbate the poor condition of the

groundwater, and a denitrification step must be added to the treatment process if the NPS wants to continue to discharge to groundwater.

The environmental assessment (EA) analyzed the No Action alternative and four action alternatives.

SELECTED ACTION

The Selected Action is the Alternative B, which was identified and analyzed in the EA as the Management-preferred Alternative. No changes have been incorporated into the Selected Action as a result of public comment. Under the Selected Action, the existing ponds would be lined and equipped with a leak detection and collection system, and an additional lined pond with leak detection and collection system would be constructed west of the existing ponds. All wastewater would be disposed of through evaporation. The wastewater would not be treated for ammonia or nitrate removal, as there would be no discharge to surface or groundwater. Solids would need to be removed from the lagoon bottoms periodically, but the capacity added by a new lagoon would allow the park to empty one lagoon whenever maintenance was needed.

In order to evaporate all the wastewater generated from expected future conditions, the area needed for the new pond would be just over 7 acres in size. A new pump station would be constructed to pump excess water not evaporated by the existing ponds to the new pond. A new access road would be built to provide access to the new pond, bringing the total disturbance to approximately 7.7 acres. The existing perimeter fence would be expanded to include the new pond.

ALTERNATIVES ANALYZED BUT NOT SELECTED

In addition to the Selected Action (Alternative B: Construct New Lagoon West of Existing Lagoons), the EA analyzed four other alternatives:

- **Alternative A (No Action):** Under the No Action Alternative, no upgrades would be made to the existing wastewater treatment system. The existing ponds would not be lined, so the park would be unable to use complete containment as a wastewater management option. There would be no way to remove nitrate from the wastewater, which would continue to discharge to groundwater, and the park would be out of compliance with NDEP regulations. There would be no additional capacity that would allow the park to move water in and out of ponds so that repairs and periodic maintenance of individual ponds could take place on a controlled schedule. The No Action Alternative was rejected because it does not meet the Purpose and Need.
- **Alternative C (Construct New Lagoon on Adjacent Mesa):** Under this alternative, the new pond would be built on top of a mesa located south of the existing ponds. This in turn would require that a service road be constructed from the water treatment plant to the top of the mesa. In addition, a lift station and small diameter force main would be installed to connect the existing wastewater ponds to the new pond on top of the mesa.

This alternative was rejected because it would result in greater impacts than the Selected Action to geology and soils, visual resources, and park operations.

- **Alternative D (Re-open Abandoned Lagoon):** Under this alternative, the new wastewater pond would be constructed at the site of an old wastewater pond which was filled in and abandoned after the existing ponds were constructed in 1992. This previously disturbed site is not large enough to completely accommodate the new pond, so additional cuts in the hillside to the north and west would be required. An existing access road would be stabilized and improved to provide access. This site lies on the side of the Callville Bay access road opposite of the existing ponds, so an underground pipeline would need to be constructed to provide connectivity between ponds. The pipeline would follow existing disturbed corridors, but a new pump station would be needed to transfer wastewater between ponds. This alternative was rejected because it would result in greater visual impacts than the Selected Action and would negatively affect visitors, who would see and potentially smell the lagoon from the Callville Bay access road.
- **Alternative E (Provide Additional Treatment Within Footprint of Existing Lagoon Area):** Under this alternative, a new lagoon would not be constructed. A portion of one of the existing ponds would be converted to an Integrated Fixed Film Activated Sludge (IFAS) System, in which either fixed or suspended media would provide a substrate for biological breakdown of ammonia and nitrate. The other portion would accumulate solids, which would be periodically removed. A new building housing electrical equipment and blowers would be constructed at the site to provide the aeration needed for the system, but this would be located within the footprint of the existing wastewater treatment system. Under this alternative, with adequate nitrate removal, the park could continue to discharge effluent to groundwater. This alternative was identified in the EA as the environmentally preferred alternative due to its lower impact on natural, cultural, and visual resources. However, it was not selected because the IFAS system has multiple components, and a full-time employee would be needed to maintain it. Since the park is unable to increase its base staff at this time, such a position could only be filled if another position was eliminated, which would result in unacceptable impacts to park operations.

ALTERNATIVES CONSIDERED BUT DISMISSED

Several alternatives were considered initially but not carried forward for additional impact analysis. These alternatives involved different approaches to water treatment and were rejected because they were less advantageous than the water treatment option carried forward in the EA as Alternative E. Conversion of Pond 3 to a wetland to provide increased polishing prior to infiltration was rejected because such a system does not provide the consistency necessary to ensure adequate removal of inorganic nitrogen. Also, the build-up of biomass can reduce infiltration capacity and requires periodic removal. Conversion of a portion of Pond 2 to a Sequencing Batch Reactor was rejected because it includes numerous operational components and requires a greater amount of maintenance without offering improved effluent water quality or decreased capital cost. Installation of a denitrification filter between Ponds 2 and 3 and the replacement of the pond system with an oxidation ditch were rejected because both are operationally intensive and have higher construction and operational costs.

ENVIRONMENTALLY PREFERRED ALTERNATIVE

The environmentally preferred alternative is the alternative that will promote the National Environmental Policy Act (NEPA), as expressed in Section 101 of NEPA. This alternative will satisfy the following requirements:

- 1) Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations;
- 2) Assure for all generations safe, healthful, productive, and esthetically and culturally pleasing surroundings;
- 3) Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable or unintended consequences;
- 4) Preserve important historic, cultural, and natural aspects of our national heritage and maintain, wherever possible, an environment that supports diversity and variety of individual choice;
- 5) Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities; and,
- 6) Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources.

The Council on Environmental Quality states that the environmentally preferable alternative is “the alternative that causes the least damage to the biological and physical environment; it also means the alternative which best protects, preserves, and enhances historic, cultural, and natural resources (46 FR 18026 – 46 FR 18038).” According to the NPS NEPA Handbook (*Director's Order #12*), through identification of the environmentally preferred alternative, the NPS decision-makers and the public are clearly faced with the relative merits of choices and must clearly state through the decision-making process the values and policies used in reaching final decisions.

Alternative E is the environmentally preferable alternative because overall it would best meet the requirements in Section 101 of NEPA. By obviating the need to construct another lagoon, Alternative E prevents impacts to vegetation, wildlife (including special status species), and cultural resources, and greatly reduces impacts to geology and visual resources relative to the other action alternatives. Alternative E, therefore, best satisfies criteria 1 through 4 above. The additional treatment processes of Alternative E ensure that the park can meet its wastewater treatment requirements and not contribute to the already high level of nitrate in the groundwater (fulfilling criteria 3 and 6). Alternatives B, C, and D are more desirable in terms of park operations but result in greater impacts to geology, soils, vegetation, wildlife, special status species, cultural resources, and visual resources than Alternative E. The No Action alternative does not meet the purpose and need and fails to satisfy criteria 1, 2, 3, and 6.

Although Alternative E is the environmentally preferred alternative, its impact on park operations is unacceptable at this time, and Alternative B is therefore the Selected Action.

MITIGATION AND MONITORING

Mitigation measures are specific actions designed to minimize, reduce, or eliminate impacts of alternatives and to protect Lake Mead NRA resources and visitors. The following table outlines mitigation measures that will be implemented under the Selected Action.

Resource Area	Mitigation Measure	Responsible Party
Geology and Soils	Dust abatement measures will be implemented during construction.	Contractor, with oversight by NPS Monitor
	A stormwater pollution prevention plan will be developed and implemented to prevent erosion impacts during construction activities.	Contractor, with oversight by NPS Monitor
	Heavy equipment will be parked in previously disturbed areas designated by NPS; no new staging areas will be created. All project materials will be stored in these areas as well.	Contractor, with oversight by NPS Monitor
	Heavy equipment will be inspected daily to ensure there are no leaks of petroleum products or other hazardous materials. Use of absorbent pads and containment materials will be required.	Contractor, with oversight by NPS Monitor
	Best management practices will be in place during refueling and other activities that may release hazardous materials into the environment. A hazardous spill plan will be developed prior to beginning the project, and any spills will be reported immediately.	Contractor, with oversight by NPS Monitor
Vegetation	To facilitate site restorations, topsoil will be collected and stockpiled prior to any construction. Upon completion of the project, topsoil will be placed in disturbed areas to enhance the recovery of native vegetation and reduce erosion.	Contractor, with oversight by NPS Monitor
	Vegetation salvage will occur within project boundaries prior to construction. Salvaged plants will be stored at the park's native plant nursery and used for re-vegetation at the project site.	NPS Vegetation Manager
	To prevent the introduction and spread of non-native plant species, construction equipment will be pressure-washed prior to entering the park to ensure it is free of foreign soils and exotic plant material. Equipment brought to the project site from other locations within the park will be subject to this same requirement.	Contractor, with inspection by NPS Monitor
Special Status Species	All areas proposed for disturbance will be clearly delineated and enclosed with tortoise-proof fencing. All project personnel will be instructed that their activities must be confined to locations within the fenced area. Disturbance beyond this zone will be prohibited.	Contractor and NPS Monitor

	Prior to construction, the project site will be surveyed for desert tortoises. Tortoises inside the construction limits will be re-located outside the project area. Tortoise burrows that cannot be avoided will be confirmed to be unoccupied before being destroyed.	NPS Biologist
	Prior to construction, the project area will be surveyed for burrowing owls. Any identified burrows will be avoided or collapsed while unoccupied.	NPS Biologist
	If initial ground disturbance occurs during the breeding season of March 1 to July 31, the area will be surveyed for nesting birds, and protective buffers will be established around active nests.	NPS Biologist
	Prior to construction, on-site training will be provided to workers which will include information on desert tortoise biology, legal protection of the species, and all required mitigation and reporting requirements.	NPS Biologist
	Prior to construction, project personnel will be informed of how to identify Gila monsters, how to distinguish them from other native lizards, and how to properly report a sighting should an encounter occur.	NPS Biologist
	All trash will be disposed of in appropriate containers and removed from the project site daily to avoid attracting opportunistic predators, which may feed on juvenile desert tortoises and other wildlife.	Contractor, with oversight by NPS Monitor
	The NPS will comply with all terms and conditions of the U.S. Fish and Wildlife Service's Biological Opinion, including reporting requirements and payment of remuneration fees for habitat disturbance.	NPS Compliance Specialist
	Drawing of construction water from the lake will not occur until it is confirmed that razorback larvae are not present in the area.	NPS Biologist

WHY THE SELECTED ACTION WILL NOT HAVE A SIGNIFICANT IMPACT ON THE HUMAN ENVIRONMENT

The NPS used the NEPA criteria to evaluate whether the selected action will have a significant impact on the environment. As defined by 40 CFR 1508.27, significance is determined by examining the following criteria:

1. Impacts that may have both beneficial and adverse aspects and which on balance may be beneficial, but that may still have significant adverse impacts which require analysis in an environmental impact statement: While the Selected Action results in adverse impacts to geology and soils, vegetation, wildlife, cultural resources, and visual resources, none of these are significant enough to warrant analysis in an environmental impact statement.

2. The degree to which public health and safety are affected: The Selected Action enhances the park's ability to effectively treat wastewater at Callville Bay, which has only beneficial effects to public health and safety.

3. Any unique characteristics of the area such as proximity to historic or cultural resources, wild and scenic rivers, ecologically critical areas, wetlands or floodplains: No wild and scenic rivers, ecologically critical areas, wetlands or floodplains are located within the project area. Impacts to cultural resources are discussed in No. 8 below.

4. The degree to which impacts are likely to be highly controversial: There were no highly controversial impacts identified during preparation of the EA or during the public review period.

5. The degree to which the potential impacts are highly uncertain or involve unique or unknown risks: No highly uncertain, unique, or unknown risks were identified during the preparation of the EA or during the public review period.

6. Whether the action may establish a precedent for future actions with significant effects, or represents a decision in principle about a future consideration: No significant adverse impacts were identified during preparation of the EA. Implementation of the Selected Action neither establishes a NPS precedent for future actions with significant effects, nor represents a decision in principle about a future consideration.

7. Whether the action is related to other actions that may have individual insignificant impacts but cumulatively significant effects: The EA analyzed impacts related to geology and soils, vegetation, wildlife, special status species, water resources, cultural resources, visual resources, park operations, and safety and visitor use and experience. As described in the EA, cumulative impacts were determined by combining the impacts of the Selected Action with identified impacts from other past, present, and reasonably foreseeable future projects and actions. Adverse impacts of the Selected Action are localized in one of the park's designated development zones and do not result in cumulatively significant impacts to any of the resource topics analyzed.

8. The degree to which the action may adversely affect historic properties in or eligible for listing in the National Register of Historic Places, or other significant scientific, archeological, or cultural resources: Only five isolated finds were located in the project area, none of which meet the NPS definition of a site or are eligible for the National Register of Historic Places. There will be no unacceptable impacts and no impairment to cultural resources.

9. The degree to which an action may adversely affect an endangered or threatened species or its habitat: The Selected Action is likely to adversely affect the federally threatened desert tortoise and approximately 8 acres of its habitat. However, the NPS has completed formal consultation with the U.S. Fish and Wildlife Service (USFWS) and developed measures to minimize these impacts. No designated critical habitat is impacted by the Selected Action.

10. Whether the action threatens a violation of federal, state, or local law or requirements imposed for the protection of the environment: The Selected Action violates no federal, state,

or local environmental protection laws. The EA for the Upgrade of the Wastewater Treatment System at Callville Bay was prepared using the guidelines detailed in *NPS Management Policies 2006* and *Director's Order #12*, and the Selected Action meets all NPS requirements.

PUBLIC INVOLVEMENT AND AGENCY CONSULTATION

Scoping

A 30-day public scoping period occurred from July 13 to August 14, 2009. A scoping press release was sent to area media and was also posted on the Lake Mead NRA internet website and on the NPS Planning, Environment, and Public Comment (PEPC) internet website. No comments were received.

Agency Consultation and Permitting Requirements

The NPS possesses a programmatic biological opinion (PBO) for projects impacting the federally threatened desert tortoise. On June 21, 2011, the NPS requested that the Callville Wastewater project be appended to the PBO. On August 5, 2011, the USFWS concluded that the project is within the scope of the PBO and is not likely to jeopardize the continued existence of the desert tortoise. The NPS has adopted the terms and conditions that the USFWS believes are necessary to minimize take of the desert tortoise.

Prior to construction, the contractor will obtain a County Dust Control Permit and a Construction Stormwater Permit from the Nevada Division of Environmental Protection.

Public Review and Comments

On August 8, 2011 a press release announcing a 30-day public review period for the environmental assessment was sent to television stations, newspapers, magazines, and radio stations in Las Vegas, Henderson, Boulder City, Pahrump, Overton, Logandale, Laughlin, Nevada; Meadview, Kingman, Phoenix, and Bullhead City, Arizona; and Needles and Los Angeles, CA. A local Las Vegas news station publicized the release on their website. The press release was also posted in three locations at Callville Bay: at the concessioner store, the RV village, and the campground. Additional notification was published on the Lake Mead NRA website and on the PEPC website.

Lake Mead NRA's mailing list is comprised of 246 entities including federal, state, and local agencies; tribes; individuals; businesses; libraries; and organizations. The environmental assessment was distributed 36 individuals, agencies, and organizations likely to have an interest in this project. Entities on the park mailing list that did not receive a copy of the environmental assessment received a letter notifying them of its availability and methods of accessing the document.

The environmental assessment was published on the Lake Mead NRA website at (<http://www.nps.gov/lake>) and on the NPS PEPC website at <http://parkplanning.nps.gov/>. Copies of the environmental assessment were available at area libraries, including: Boulder City Library, Clark County Community College (North Las Vegas), Clark County Library, Las Vegas Public Library, Green Valley Library (Henderson), James I. Gibson Library (Henderson), Sahara

West Library (Las Vegas), Mohave County Library (Kingman, AZ), Sunrise Public Library (Las Vegas), University of Arizona Library (Tucson, AZ), University of Nevada Las Vegas James R. Dickinson Library, Meadview Community Library, Moapa Valley Library (Overton, NV), Mesquite Library, Mohave County Library (Lake Havasu City, AZ), Laughlin Library, Searchlight Library, and Washington County Library (St. George, UT).

Public comments were accepted through September 9, 2011. Two comments were received. The Bureau of Reclamation recommended selecting an alternative that utilizes evaporation rather than discharge to groundwater to reduce potential for the accidental release of contaminants into Lake Mead. The Selected Action is an evaporation alternative. The Nevada Department of Wildlife supported the mitigation measures identified for the desert tortoise and the gila monster. They also recommended that initial ground-disturbing activities avoid the nesting season (March 1 to July 31) to protect birds protected under the Migratory Bird Treaty Act, further stating that if the seasonal avoidance is not practicable, then the project area should be surveyed prior to construction, and buffer areas should be set up around active nests. The Department also recommended that a biologist ensure that razorback sucker larvae are not present in areas where water may be drawn from the lake for construction purposes. The measures recommended by the Department have been incorporated into the mitigation table above.

IMPAIRMENT OF PARK RESOURCES OR VALUES

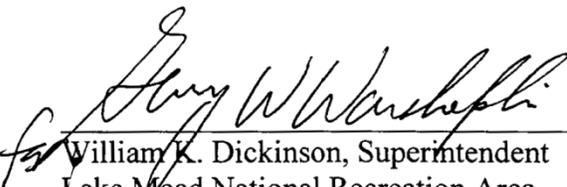
The implementation of the selected action will not constitute an impairment of Lake Mead NRA resources or values. Impacts documented in the EA and summarized above will not affect resources or values key to the natural and cultural integrity of the Lake Mead NRA, or alter opportunities for the enjoyment of the Lake Mead NRA. The Selected Action will not impair Lake Mead NRA resources and will not violate the National Park Service Organic Act. This conclusion is based on a thorough analysis of the impacts described in the EA, and the professional judgment of the decision maker, in accordance with *NPS Management Policies 2006*. As described in the EA, implementation of the selected action will not result in major adverse impacts to a resource or value whose conservation is (1) necessary to fulfill specific purposes identified in the establishing legislation or proclamation of Lake Mead NRA, (2) key to the natural or cultural integrity of Lake Mead NRA, or (3) identified as a goal in Lake Mead NRA's *General Management Plan* or other relevant NPS planning documents.

CONCLUSION

Based on the analysis completed in the EA, the capability of the mitigation measures to reduce, avoid, or eliminate impacts, and with due consideration of minimal public response and future agency coordination, the National Park Service has determined that the Selected Action does not constitute an action that normally requires the preparation of an environmental impact statement.

Negative environmental impacts that could occur are negligible to moderate in effect. There are no unmitigated adverse impacts on public health, public safety, threatened or endangered species, sites or districts listed in or eligible for listing in the National Register of Historic Places,

known ethnographic resources, or other unique characteristics of the region. There are no significant impacts to the affected environment. There are no highly uncertain or controversial impacts, unique or unknown risks, significant cumulative effects, or elements of precedence identified. Implementation of the Selected Action would not violate any federal, state, or local environmental protection law. Therefore, in accordance with the National Environmental Policy Act of 1969, and regulations of the Council on Environmental Quality (40 CFR 1508.9), an environmental impact statement will not be prepared for this project, and the Selected Action may be implemented as soon as practicable.

Recommended:  Date: 9/14/11
William K. Dickinson, Superintendent
Lake Mead National Recreation Area

Approved:  Date: 9/22/11
Christine Lehnertz, Regional Director
Pacific West Region