



## **FINDING OF NO SIGNIFICANT IMPACT (FONSI)**

### **A Water Intake Project for the Navajo Generating Station Glen Canyon National Recreation Area**

#### **BACKGROUND**

The Navajo Generating Station (NGS) is a 2,250 megawatt coal-fired, steam-electric power plant located approximately 3 miles northeast of Page, Coconino County, Arizona. The plant was constructed in the early 1970s to provide electrical energy for the Central Arizona Project, a series of canals, pumping plants, dams, and holding reservoirs that deliver Colorado River water from Lake Havasu to Central Arizona, including metropolitan Phoenix and Tucson. The NGS, which is operated by the Salt River Project (SRP), also serves electric customers in Arizona, Nevada, and California. Other participants in the NGS include the U.S. Bureau of Reclamation (Reclamation), the Los Angeles Department of Water and Power, Arizona Public Service, Nevada Power, and Tucson Electric Power.

The NGS was constructed near Lake Powell to ensure it had a dependable supply of cooling water for its three generators. When the NGS was constructed, it received an annual allotment of 34,100 acre-feet of water, and the intakes that pump water from the lake to the plant were installed at an approximate elevation<sup>1</sup> of 3,470 feet, or 230 feet below the lake's full pool level of 3,700 feet.

Since the start of a persistent drought, inflows to Lake Powell have been below average, leading to a drawdown of the lake that continues to the present. Over the past 7 years, from 2000 through 2006, inflow to Lake Powell has been below average in all but one year (2005), and it is likely that inflow will again be below average in 2007 (Reclamation 2007). As a result, the lake has dropped from nearly full in 1999 to approximately 40 percent of capacity in mid-March 2007, with the current lake elevation at 3,598 feet, only about 100 feet higher than the minimum level necessary for the NGS water intake pumps to remain operational. Current projections using Reclamation methods indicate the lake surface elevation could fall below 3,498 feet, the minimum level necessary for the NGS water intake pumps to remain operational, by April 2010. If severe drought conditions persist, these reduced lake levels could be reached as early as April 2009. The SRP and the other operators of the NGS propose to modify the water intake system of the NGS by installing new intake structures below the current intakes to ensure that cooling water will be available for the continued operation of the NGS.

An Environmental Assessment/Assessment of Effect has been prepared and distributed for agency and public comment, pursuant to the requirements of the National Environmental Policy Act of 1969 (NEPA), to address the potential impacts associated

<sup>1</sup> Elevations in this document are referenced to mean sea level.

with the construction and operation of new NGS water intakes. Because construction of the new intake structures has required the SRP to obtain a new easement within the boundary of the Glen Canyon National Recreation Area (GCNRA), the National Park Service (NPS) is the lead federal agency responsible for assuring NEPA compliance. The NPS granted the SRP an expanded easement in the summer of 2006, after following the NPS NEPA process that concluded with a FONSI in 2005. Reclamation has again worked cooperatively with the NPS and the SRP in developing this new Environmental Assessment/Assessment of Effect, which clarifies the previous NEPA process because as work began on the intake shaft, technical conditions, new information, and having the NPS expanded easement made it advisable to change shaft design and drilling techniques. The current NEPA document assesses the potential social, economic, and environmental impacts associated with two Action Alternatives (construction of the new water intakes) and a No Action Alternative. In addition, this document summarizes the alternatives development process, explains the rationale for eliminating specific alternatives, and summarizes the public participation process.

## **SELECTION OF PREFERRED ALTERNATIVE C**

The preferred alternative for installing the new NGS water intake system will be to utilize conventional inclined drilling techniques to drill a large-diameter borehole along a constant declination to the lake cliff face. Five 44-inch-diameter shafts will be drilled. Directional drilling technology will be used to first drill a small-diameter pilot borehole (typically 8 to 12 inches) within an alignment tolerance of 1 percent. The pilot borehole will be drilled to the target elevation to within a few feet of the cliff face, without penetrating the cliff face. The pilot borehole will be reamed to the final diameter into the lake using conventional inclined drilling, and then 36-inch outside-diameter steel casings will be installed to house the submersible pumps. The tops of the inclined shafts will be located inside the limits of the existing pump station building. The shafts will be oriented to break out at the cliff face east of the pump station within the expanded NPS easement, where the cliff face is nearly vertical well below the dead pool level of 3,374 feet.

Drill cuttings from the pilot borehole and reaming operations will be recovered using separation equipment at the surface, and the drilling fluid will be recirculated. Conventional inclined drilling utilizes drilling fluids commonly used in the water well and environmental industry. For conventional drilling, the borehole will be kept full of drilling fluid and is "over-pressured" with respect to the groundwater level in the formation to help stabilize the borehole during drilling. The over-pressured drilling fluid constitutes a risk of transferring drilling fluids into Lake Powell. The over-pressure will result in drilling fluid being driven into the formation. To minimize this risk, the drilling contractor will use water and air as the only ingredients in the drilling fluid. If this mixture is not sufficient to circulate the cuttings up and out of the drilled shaft, inert additives (e.g., bentonite) will be added to the water-air drilling fluid. If that occurs, the drilling will stop near the end of each shaft and the drillers will switch to the water-only drilling fluid for the last 40 feet of drilling to where the shaft penetrates the cliff wall into the lake. Commonly used drilling fluids appropriate for this project are water-based or air-based. The water- or air-based drilling fluids used in conventional inclined drilling are inert and do not contain organic matter that could decompose and produce gases or inhibit bacterial activity. In addition, appropriate spill

prevention plans will be instituted to make sure surface materials will not flow into nearby washes or the lake.

After reaming, the drilling fluid will be flushed from the drill hole, and clean water will be used to drill the remaining approximately 40 feet of the hole to penetrate the cliff face. A steel casing will be installed to the full depth of the completed bore hole and will protrude approximately 8 to 12 feet into the lake. The casing will be cement-grouted into place using two packers or grout baskets to seal the annular space between the casing and borehole wall to prevent grout from reaching the lake. The cement grout-filled annular space will be fitted with  $\frac{3}{4}$ - and 1-inch-diameter CPVC pipes for cathodic protection, water quality sampling/monitoring, and potential future quagga mussel control measures. A protective grill will be attached to the assembly for the submersible pump in each shaft, and the entire assembly will be lowered into place from the surface. An additional detachable grill may also be installed on the mouth of each shaft, where it ends in the lake.

A total of five boreholes will be drilled, with a maximum diameter of 44 inches and an estimated length of 490 to 530 feet each. Based on these assumptions and a swell factor of 50 percent, it is estimated that a total of approximately 1,500 cubic yards of drilled cuttings will be produced and disposed of at the NGS ash disposal pit. Less than 3 cubic yards of Navajo sandstone cuttings per shaft, or a total of 15 cubic yards, will enter Lake Powell during breakout of the inclined shafts, and the drilling fluid entering the lake with this sandstone will be water only.

## **ENVIRONMENTALLY PREFERRED ALTERNATIVE**

The environmentally preferred alternative is determined by applying the criteria suggested in NEPA, which is guided by the Council on Environmental Quality (CEQ). The CEQ directs that the environmentally preferred alternative is the alternative that will promote national environmental policy as expressed in Section 101 of NEPA:

- Fulfill the responsibilities of each generation as trustee of the environment for succeeding generations
- Assure for all generations safe, healthful, productive, and aesthetically and culturally pleasing surroundings
- Attain the widest range of beneficial uses of the environment without degradation, risk of health or safety, or other undesirable or unintended consequences
- 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
- Achieve a balance between population and resource use that will permit high standards of living and a wide sharing of life's amenities
- Enhance the quality of renewable resources and approach the maximum attainable recycling of depletable resources (42 USC 4321-4370d)

The environmentally preferred alternative is Alternative C, the construction of five inclined shafts using directional and conventional inclined drilling methods. The inclined shaft concept is the preferred alternative because of the difficulties associated with the

construction of a vertical shaft. In addition, the inclined shafts will be constructed to minimize impacts of drilling fluids and drill cuttings on Lake Powell and, therefore, will have a minimal environmental impact.

Alternative C was identified after logistical difficulties with water disposal made Alternative B unfeasible, but Alternative C is also an environmentally benign alternative. The size of the drilled shafts and the amount of Navajo sandstone to be removed and disposed of will be much less under Alternative C. With the use of water as a drilling fluid for the last few feet of shaft construction and the resulting pressure differences between the drilled shaft and the lake, only very small amounts of drilling fluids or drill cuttings will be released into the lake. No explosives will be used, reducing the possibility of damaging the Navajo sandstone underlying the water intake site and reducing noise impacts to recreationists and wildlife. The implementation of Alternative C will avoid the major socioeconomic impacts that could result from the shutdown of the NGS under the No Action Alternative. Therefore, Alternative C will best accomplish the project purpose and need with the least possible environmental impact.

### **ALTERNATIVES CONSIDERED BUT NOT SELECTED**

Under the No Action Alternative (Alternative A), current operations of the NGS water intake system would continue until the reservoir level reaches the elevation below the existing intakes (elevation 3,470 feet) where water can no longer be pumped. The existing water pipeline to the NGS would be retained and continue to operate, but the existing transformers would be moved away from the pump station building to reduce fire risk as part of this alternative. Although this alternative serves as a baseline for alternative comparison, it does not fulfill the NGS operating objectives and does not meet the project's purpose and need to ensure continued electrical generation at the NGS. If the water level of Lake Powell falls below the existing intakes, the NGS would no longer be able to generate electricity due to the lack of cooling water resulting in major adverse social and economic impacts to the immediate project area and the southwest region of the United States. As a result, Alternative A was not selected.

Alternative B would involve the construction of a large-diameter vertical shaft that would be connected to Lake Powell with two lateral tunnels. Blind shaft drilling would involve drilling a pilot hole followed by reaming to create the full (approximately 18-foot) diameter. Site preparation prior to drilling would include construction of a reinforced concrete shaft collar and grouting for groundwater control to the full depth of the shaft. The resulting vertical shaft would function as a large-diameter well operated in a flooded condition with all pumping equipment accessible from the surface. Lateral microtunnels would then be constructed using a Microtunnel Boring Machine to make the connection between the vertical shaft and Lake Powell.

Alternative B was the previously preferred alternative, as documented in the 2005 NEPA documents. Construction began on the vertical shaft in 2006, when a series of holes were drilled through highly porous sandstone to form the perimeter of the vertical shaft. At approximately 365 feet below the surface of the cliff, a fault in the sandstone was encountered. Attempts to pump grout into the perimeter holes to support the shaft were unsuccessful due to the fault and the porous character of the rock formation. It was determined that the newly detected fault might be connected to the lake. In

addition, the fault could present problems in drilling the lateral tunnels that were planned to intersect the vertical shaft at approximately 380 feet below the cliff surface. The use of ground-freezing techniques might permit the grouting and shaft drilling to proceed as originally planned but would create significant project delays and extraordinary costs. At this point, construction on Alternative B was abandoned, and efforts were focused on finding a new alternative.

Another construction approach would involve conventional vertical shaft excavation that would be performed by the repetition of a cycle of construction activities. The construction cycle would include drilling a pattern of vertical or near-vertical small-diameter holes 8 to 13 feet deep, loading the holes with explosives, detonating the explosives, excavating and hauling out the blasted rock (muck), and installing rock support. The drill and blast method would create a shaft with a rough excavated surface that typically requires rock bolts, structural steel rings, and/or shotcrete for ground support. Drill and blast shafts are excavated by small crews of miners working in a confined space. Consequently, daily advance rates of 3 feet to 6 feet for drill and blast shaft excavation are relatively slow in comparison to blind shaft drilling advance rates. The vertical shaft would be dewatered and then permanently supported with a cast-in-place concrete liner placed after the excavation reached full depth.

This drill and blast method of construction is not feasible because the shaft formed would be less stable than a shaft constructed by the blind shaft method. Because explosives generate substantial transient high-frequency ground vibrations, these vibrations would adversely impact the sensitive equipment, controls, and computer equipment and require replacement of damaged equipment. This excavation technique could also result in the inflow of groundwater into the vertical shaft during excavation of the shaft above the groundwater level. Below the water table, a greater volume of groundwater would likely seep into the shaft until it could be sealed by installing the concrete liner. Therefore, the drill and blast method of construction was not selected.

#### **WHY THE PREFERRED ALTERNATIVE WILL NOT HAVE A SIGNIFICANT IMPACT ON THE HUMAN ENVIRONMENT**

The beneficial and adverse impacts, both short- and long-term, of Preferred Alternative C are presented in detail in the Environmental Consequences chapter of the June 2007 Environmental Assessment/Assessment of Effect for the Navajo Generating Station Water Intake Project. As defined in 40 Code of Federal Regulations Section 1508.27, significance is determined by examining the following criteria:

##### *Impacts that may be beneficial and adverse*

Beneficial, long-term socioeconomic impacts will result from implementation of the preferred alternative because the NGS will continue to employ local residents and continue to provide electricity to serve the southwestern U.S. power grid. Preferred Alternative C will have no effect on cultural resources listed on or eligible for listing on the National Register of Historic Places, floodplains, geological stability of the project site, hazardous materials, local groundwater levels, natural vegetation, recreational resources on Lake Powell, terrestrial wildlife, threatened or endangered species, or wetlands.

Short-term, negligible to minor impacts attributable to construction of the preferred alternative will include:

- Temporary restrictions to navigation on Lake Powell from the use of a houseboat on the lake to support remotely operated vehicle–mounted cameras used for inspection of operations as each hole is drilled into the lake and during the initial grouting operations of each shaft.
- Visual intrusion of the houseboat into the foreground viewshed and construction of lighting at the pump station drill site.
- Elevated noise levels during drilling operations associated with construction of the five new shafts at the existing pump station site above Lake Powell.
- Fugitive dust associated with heavy truck traffic on the gravel pump station access road in order to remove excavated materials from the drilling site.
- Water quality impacts associated with the discharge of fill material into Lake Powell as a result of drilling the shaft connections to Lake Powell.

Negligible, long-term adverse impacts associated with the preferred alternative will include:

- Increased salinity downstream of the NGS pump station because of the removal of water from the dead pool in Lake Powell.
- Possible fish entrainment at the new intakes if lake levels remain low.
- A land use change associated with the expanded easement from the GCNRA.
- A foreground visual impact if the capped existing water intakes become visible as a result of declining lake levels.

#### *Degree of effect on public health and safety*

Short-term impacts to public health and safety will occur during construction. A houseboat will be used on Lake Powell during the anticipated 5-month drilling operations, requiring partial restrictions to navigation in the area along the cliff face immediately below the NGS pump station. Construction boundaries and barriers, traffic controls, and informational signage and fliers to alert the public of these temporary activities will mitigate these short-term impacts.

#### *Unique characteristics of geographic area, such as proximity to historic or cultural resources, prime and unique farmlands, wetlands, wild and scenic rivers, or ecologically critical areas*

As described in the Environmental Assessment/Assessment of Effect, no effects to cultural or natural resources were identified for the preferred alternative. In addition, Preferred Alternative C will not affect prime and unique farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.

#### *Degree to which effects on the quality of the human environment are likely to be controversial*

The overall effect of the preferred alternative on the human environment will be beneficial as a result of uninterrupted generation of electricity at the NGS. None of the issues or concerns raised during the NEPA process was identified as a controversial issue.

*Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risks*

Risks identified in the preferred alternative relate to public safety during construction periods. Mitigation measures to define construction zones, control boat traffic on Lake Powell, and distribute visitor information during construction activities will reduce potential adverse impacts to public safety. Therefore, there will be no highly uncertain, unique, or unknown risks associated with the preferred alternative.

*Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration*

The preferred alternative will best achieve the objectives of NEPA and NPS policy (NPS Management Policies 2001) requiring the analysis of potential impacts to determine whether the proposed action will impair GCNRA resources. The preferred alternative neither establishes a NPS precedent for future actions with significant effects nor represents a decision in principle about a future consideration.

*Whether the action is related to other actions with individually insignificant but cumulatively significant impacts*

The preferred alternative, which is a separate and distinct project unrelated to the proposed water supply project for the city of Page, Arizona, will be consistent with the objectives of the management plans and policies of the GCNRA. The project will not have a significant cumulative impact on the resources or values of the GCNRA nor is it related to other actions with individually insignificant but cumulatively significant impacts.

*Degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on the National Register of Historic Places or may cause the loss or destruction of significant scientific, cultural, or historical resources*

The preferred alternative will not affect districts, sites, highways, structures, or objects listed on or eligible for listing on the National Register of Historic Places, nor will it cause the loss or destruction of significant scientific, cultural, or historical resources.

*Degree to which the action may adversely affect an endangered or threatened species or its critical habitat*

The preferred alternative will have no effect on any endangered, threatened, or sensitive species or its critical habitat.

*Whether the action threatens a violation of federal, state, or local environmental protection law*

The preferred alternative will not violate any federal, state, or local environmental protection law.

#### *Impairment*

The NPS has determined that implementation of the preferred alternative (Alternative C) will not constitute an impairment to GCNRA's resources and values. This conclusion is based on a thorough analysis of the environmental impacts described in the June 2007 Environmental Assessment/Assessment of Effect, the public comments received, relevant scientific studies, and the professional judgment of a decision maker guided by

the direction in the NPS Management Policies (2001) and the GCNRA General Management Plan. Overall, the proposed action will have no effect on park resources and values, including opportunities for their enjoyment.

### **MITIGATION MEASURES FOR THE PREFERRED ALTERNATIVE**

The following mitigation measures apply to the implementation of Preferred Alternative C.

- To prevent the potential spread of the quagga mussel, the hulls, engines, and other submersible parts of any boats that are used during project construction and any other equipment that will be used in Lake Powell must be pressure-washed with hot water before entering the lake.
- Prior to the start of construction, personnel monitoring California condor locations and movement will be contacted to determine the locations and status of condors in the project vicinity.
- If a condor occurs at the construction site, construction will cease until the condor leaves on its own or until techniques are employed by permitted personnel that result in it leaving the area.
- Construction workers and supervisors will be instructed to avoid interaction with condors and to immediately contact the appropriate GCNRA personnel if or when condors occur at the construction site.
- The construction site will be cleaned up (e.g., trash removed) at the end of each day that work is being conducted to minimize the likelihood of condors visiting the area. Site visits will ensure that adequate cleanup measures are taken.
- To prevent water contamination and potential poisoning of condors, a vehicle fluid leakage and spill plan will be developed and implemented. The plan will include provisions for immediate cleanup of any hazardous substance and define how each hazardous substance will be treated in case of leakage or spill.
- If previously unidentified cultural resources are discovered during maintenance-related activities, the NPS will be notified to make arrangements for the appropriate assessment and treatment of those resources.
- During construction, diesel fuel and hydraulic fluids will be stored in sealed containers within an isolated area on the project site.
- To reduce the visual impacts of lights used during nighttime drilling, light shields will be used at the construction site.
- To control the dust associated with increased vehicle traffic on the unpaved access road to the pump station, water or an environmentally approved dust palliative will be applied to the road regularly during construction of the vertical shaft.
- To lessen noise impacts to recreational users on Lake Powell, sound barricades of sufficient height will be erected to direct noise away from Lake Powell to the south of the pump station site during construction.
- Best management practices will be implemented to ensure drilling fluid or other contaminants do not enter any waters of the United States.
- A compliance certification, along with post-construction photographs, will be submitted to the US Army Corps of Engineers within 30 days of completion of the work.



## **PUBLIC INVOLVEMENT**

Public involvement was an integral component of the project development process. Project scoping letters were distributed to interested and/or affected agencies and the public in August and September 2004 to identify issues and concerns to be addressed in the NEPA process. News releases were also posted on the NPS website to ensure public awareness of the project. The comments that were received have been addressed in the Environmental Assessment/Assessment of Effect. Project team representatives attended three public meetings on the Navajo Nation in July and September 2004, at which time the need for relocating the water intakes, the project description, and the proposed implementation schedule were discussed. Tribal representatives generally expressed support for the project.

The current Environmental Assessment/Assessment of Effect was made available for a 30-day review and comment period ending on July 25, 2007. Copies of the document were sent to certain agencies, and the document was posted on the internet at the National Park Service Planning, Environment, and Public Comment website (<http://parkplanning.nps.gov/>). No comments were received during the 30-day period; i.e., June 25 to July 25, 2007.

Subsequent to the 30-day comment period, the GCNRA received the Arizona State Historic Preservation Office's concurrence (dated July 26, 2007) with the NPS determination that the preferred alternative will have "no effect" on known historic properties. The U.S. Fish and Wildlife Service stated, in its August 16, 2007 letter, it concurred that the project will have no effect on endangered or threatened species or critical habitat. In addition, the US Army Corps of Engineers (Corps) indicated on August 21, 2007 that the proposed action is authorized by Nationwide Permit Number 12, pursuant to Section 404 of the Clean Water Act. The Corps also stated the project must comply with the general terms and conditions associated with NWP 12 and two special conditions that have been added to the mitigation measures specified previously. This correspondence has been attached to the Environmental Assessment/Assessment of Effect by the use of an errata sheet because it was received after the document was completed.

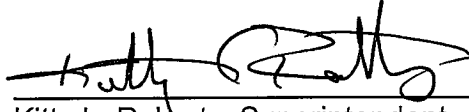
## **CONCLUSION**

Preferred Alternative C does not constitute an action that normally requires the preparation of an Environmental Impact Statement (EIS) because it will not have a significant impact on the human environment. Negative environmental impacts that could occur are negligible to minor in intensity. There will be no significant impacts on public health, public safety, threatened or endangered species, sites or districts listed on or eligible for listing on the National Register of Historic Places, or other unique characteristics of the region. No highly uncertain or controversial impacts, unique or unknown risks, known cumulative effects, or elements of precedence were identified. Implementation of the action will not violate any federal, state, or local environmental protection law.

This FONSI is based on the June 2007 Environmental Assessment/Assessment of Effect, which has been independently reviewed by the NPS and determined to

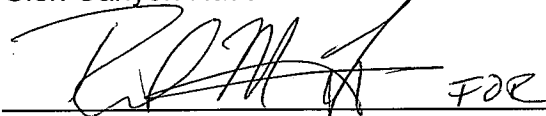
adequately discuss the environmental issues and impacts of the proposed project. The NPS takes full responsibility for the accuracy, scope, and content of the 2007 NEPA document. Based on the foregoing, it has been determined that an EIS is not required for this project and thus will not be prepared.

**Recommended:**

  
Kitty L. Roberts, Superintendent  
Glen Canyon National Recreation Area

9/25/07  
Date

**Approved:**

 FOR  
Michael D. Snyder  
Director, Intermountain Region  
National Park Service

9/02/07  
Date



September 2007

## **ERRATA SHEET**

### **Environmental Assessment/Assessment of Effect A Water Intake Project for the Navajo Generating Station Glen Canyon National Recreation Area**

Subsequent to the 30-day comment period, the GCNRA received the Arizona State Historic Preservation Office's concurrence (dated July 26, 2007) with the NPS determination that the preferred alternative will have "no effect" on known historic properties. The U.S. Fish and Wildlife Service stated, in its August 16, 2007 letter, it concurred that the project will have no effect on endangered or threatened species or critical habitat. In addition, the US Army Corps of Engineers (Corps) indicated on August 21, 2007 that the proposed action is authorized by Nationwide Permit Number 12, pursuant to Section 404 of the Clean Water Act. The Corps also stated the project must comply with the general terms and conditions associated with NWP 12 and two special conditions that have been added to the mitigation measures specified previously. This correspondence has been attached to the Environmental Assessment/Assessment of Effect by the use of an errata sheet because it was received after the document was completed.



## United States Department of the Interior

NATIONAL PARK SERVICE  
Glen Canyon National Recreation Area  
P.O. Box 1507  
Page, Arizona 86040



IN REPLY REFER TO:  
L76

JUN 26 2007

Mr. James Garrison  
State Historic Preservation Office  
Arizona State Parks  
1300 West Washington Street  
Phoenix, Arizona 85007

**Subject: Navajo Generating Station Water Intake Project Re-design,  
Glen Canyon National Recreation Area**

Dear Mr. Garrison:

The Salt River Project (SRP) proposes to undertake a maintenance project on the water intake system for the Navajo Generating Station (NGS) approximately 3 miles northeast of Page, Coconino County, Arizona. The original version of the project was addressed in a March 2005 Environmental Assessment; SRP requested a new easement within the boundary of the Glen Canyon National Recreation Area from the National Park Service (NPS) to provide construction and operational access. The NPS issued a Finding of No Significant Impact on July 7, 2005 and granted SRP a new 3.76-acre easement in the summer of 2006.

On November 24, 2004, we transmitted a report entitled "*A Class I Cultural Resource Records Review for the Navajo Generating Station Water Intake Maintenance Project near Page, Coconino County, Arizona* (Strohmayer 2004) that indicated 13 cultural sites were present within one mile of the project area, but no historic properties were identified in the APE. Your office subsequently concurred with our "no effect" determination on December 6, 2004.

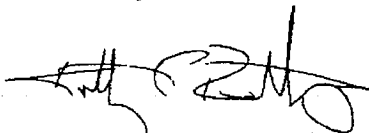
As work began on the intake shaft technical conditions made it advisable to change shaft design and drilling technique. The new proposal involves slant drilling through sandstone bedrock of five new 42-inch diameter holes that will exit the vertical cliff face below the surface of Lake Powell, within the NPS granted SRP easement northeast of its existing pump house. New 36-inch (inside diameter) water intake pipes and submersible pumps will

be installed in each of these holes to withdraw lake water at an approximate elevation of 3,350 feet above sea level. Redesign of the project created the need for a new Environmental Assessment, which is attached for your review.

The area of potential effect (APE) consists of the existing 1-acre pump station site and the access road (8.98 acres) that leads to the site from Antelope Point Road, which are all leased from the Navajo Nation and the 3.76 acres of the easement granted by the NPS. The APE for this project has not changed from the original EA.

Because the new project will occur within the same APE without affecting known historic properties, we request your confirmation that the December 2004 "no effect" determination remains valid for this project.

Sincerely,

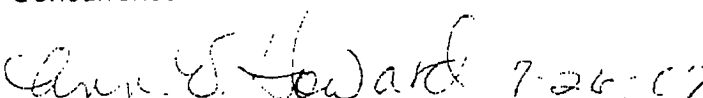


Kitty L. Roberts  
Superintendent

Enclosure

cc: John Keane, SRP  
Donald C. Smith, EcoPlan Associates, Inc.

Concurrence:

 7-26-07  
Arizona State Historic Preservation Officer      Date leased from the Navajo Nation



# United States Department of the Interior

U.S. Fish and Wildlife Service

Arizona Ecological Services Field Office

2321 West Royal Palm Road, Suite 103

Phoenix, Arizona 85021-4951

Telephone: (602) 242-0210 Fax: (602) 242-2513



In Reply Refer to:

AESO/SE

22410-2004-I-0476

August 16, 2007

Ms. Kitty Roberts, Superintendent  
National Park Service  
Glen Canyon National Recreation Area  
P. O. Box 1507  
Page, Arizona 86040

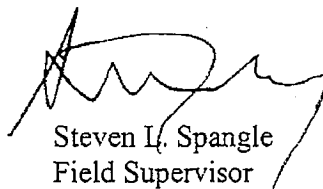
Dear Ms. Roberts:

Thank you for your correspondence of June 26, 2007, received in our office on June 28. This letter documents our recommendations regarding the Navajo Generating Station Water Intake Project Re-design, in compliance with section 7 of the Endangered Species Act of 1973 (ESA) as amended (16 U.S.C. 1531 et seq.). Based on the information that you have provided, we believe that no endangered or threatened species or critical habitat will be affected by this project; nor is this project likely to jeopardize the continued existence of any proposed species or adversely modify any proposed critical habitat. Our review is based on the June 2007 environmental assessment for this project as well as an August 14, 2007, conversation about the project design between Donald Smith, EcoPlan Associates, Inc., and John Nystedt of my staff. No further review is required for this project at this time. Should project plans change or if additional information on the distribution of listed or proposed species becomes available, this determination may need to be reconsidered.

In keeping with our trust responsibilities to American Indian Tribes, by copy of this letter we will notify the Navajo Nation, which may be affected by the proposed action, and we encourage you to invite the Bureau of Indian Affairs to participate in the review of your proposed action. We also encourage you to coordinate review of this project with the Arizona Game and Fish Department.

Should you require further assistance or if you have any questions, please contact John Nystedt (x104) or Brenda Smith (x101) of our Flagstaff Suboffice at (928) 226-0614. Thank you for your continued efforts to conserve endangered species.

Sincerely,



Steven L. Spangle  
Field Supervisor



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO  
CORPS OF ENGINEERS  
1325 J STREET  
SACRAMENTO, CALIFORNIA 95814-2922

August 21, 2007

Regulatory Branch (SPK-2007-1369-DC)

Ray Hedrick  
Salt River Project  
Mail Station PAB352  
PO Box 52925  
Phoenix, Arizona 85072

Subject: Nationwide Permit Verification for the Navajo Generating Station Water Intake Project,  
Lake Powell, Page, Coconino County, Arizona

Dear Mr. Hedrick:

We are responding to your request for a Department of the Army permit for the subject project. This project involves activities, including discharges of dredged or fill material, in waters of the United States to construct a water intake line located below Lake Powell's dead pool elevation. The purpose of the intake is to provide a dependable source of water during drought conditions for steam in power generation and to cool the power plant. This approximately 2-acre site is located within Lake Powell in Section 15, Township 41 North, Range 9 East, Coconino County, Arizona.

Based on the information you provided, the proposed activity is authorized by Nationwide Permit (NWP) Number 12. Your work must comply with the general terms and conditions listed on the enclosed NWP information sheets and the following special conditions:

- 1) You shall implement appropriate best management practices to insure that drilling fluid or other contaminants do not enter any waters of the US.
- 2) You must sign and return the enclosed Compliance Certification, along with post-construction photographs, to this office within 30 days after completion of the work.

This verification is valid for two years from the date of this letter or until the NWP is modified, reissued, or revoked.

Please refer to identification number SPK-2007-1369-DC in correspondence concerning this project. If you have any questions, please contact me at our Durango Regulatory Office, 799 E 3<sup>rd</sup> Street, #2, Durango, Colorado 81301, email [kara.a.hellige@usace.army.mil](mailto:kara.a.hellige@usace.army.mil), or telephone 970-375-9452. You may also visit our website at [www.spk.usace.army.mil/regulatory.html](http://www.spk.usace.army.mil/regulatory.html).

Sincerely,

ORIGINAL SIGNED

Kara A. Hellige  
Chief, Durango Regulatory Office  
Sacramento District

Enclosures

- 1) NWP 12
- 2) Map and Plans

Copy furnished with Map and Plans:

Ms. Michele Waltz, EcoPlan Associates, Inc, 701 West Southern Avenue, Suite 203, Mesa, Arizona 85210

Ms. Kitty Roberts, Glen Canyon National Recreation Area, P.O. Box 1507, Page, Arizona 86040