

# RECLAMATION

## *Managing Water in the West*

### Categorical Exclusion Checklist

## Lahontan Penstock Puddled Backfill Investigation

MP-CEC-14-01

Prepared by:

*Alexandra Aviles* Date: 7-31-2014  
Alexandra Aviles  
Natural Resources Specialist  
Mid Pacific Regional Office  
Environmental Affairs Division

Concurred by:

See Attachment A Date: See Attachment A  
Architectural Historian  
Mid Pacific Regional Office  
Environmental Affairs Division

Concurred by:

See Attachment B Date: See Attachment B  
Native American Affairs Program Manager  
Mid Pacific Regional Office  
Division of Resources Management

Recommended by:

*Robert Edwards* Date: 7/31/2014  
Robert Edwards  
Resource Division Manager  
Mid-Pacific Region  
Lahontan Basin Area Office

Approved by:

*Terri A. Edwards* Date: 8/6/14  
Terri A. Edwards  
Area Manager  
Mid Pacific Region  
Lahontan Basin Area Office



U.S. Department of the Interior  
Bureau of Reclamation  
Mid Pacific Region

July 2014

## Proposed Action

The U.S. Bureau of Reclamation's (Reclamation) Technical Service Center (TSC) Geotechnical engineers have raised concerns as to the erodibility of the puddled silt backfill that was placed without compaction in the narrow gap between the concrete penstock structure and the steep left abutment cutslope during construction of Lahontan Dam in 1912. Lahontan Dam is located in west-central Nevada's Basin and Range geomorphic province, 56 road miles southeast of Reno, 45 miles east of Carson City and 17 miles west of Fallon.

TSC proposes to perform geologic field investigations to determine the gradation of the backfill and to assess its potential for piping erosion (Project). The geologic field investigations are divided into Phase 1: Outer Water Pressure Investigation, and Phase 2: Backfill Sample Drilling, and would be scheduled during the non-irrigation season when no water is released from Lahontan Dam and when the power plants are not in operation. All Phase 1 and Phase 2 work is anticipated to be accomplished between as early as August 2014 and as late as mid-March 2015. The pickup trucks holding the equipment will be staged within an approximately 20' x 20' area on existing work pads at 39° 27'48.89" N, -119° 03'57.88" W, and the drilling equipment will be parked onsite overnight (see Figures 1 and 2). All drilling activities and accompanying sample collections would be performed by Reclamation employees during daylight hours (7 a.m. to 7 p.m.) and will be in compliance with pertinent federal and state regulations and standards.

### Phase 1: Outer Water Pressure Investigation

Four, 3/8 – 1-inch diameter pilot holes spaced approximately 100 feet apart would be drilled through the right wall of the right River Outlet Works (ROW) conduit and equipped with piezometers, or pressure gauges, to measure external water pressure. Holes would be collared about one foot above the high water mark (approximately 1 foot above springline) and would be angled upward. All holes would be advanced approximately 3.5 feet through the right ROW wall using a standard, hand-held roto-hammer drill and masonry bit. Drill holes would extend through the ROW wall; they will not extend into the surrounding Zone 2 (gravelly sand) dam embankment. Phase 1 would be completed and the water pressure data evaluated before continuing to Phase 2.

No water will be used in the drilling process and no water will be discharged. Dry sand- and silt-size cuttings will be drawn into a "shop vac" for disposal at an offsite dump or landfill. A hole will be immediately plugged if a steady or pressurized flow of turbid water discharges from the hole.

Pressure measurements (gauge readings) and flow measurements (timed flow into a bucket of known volume) would begin as each hole is completed and would continue on a weekly or monthly frequency through at least one reservoir filling and emptying cycle.

### Phase 2: Backfill Sample Drilling

Four, 4-inch diameter by 4.5-foot-deep core holes would be drilled through the left side of the 3/8-inch thick steel penstock, 1-foot-thick grout backfill, and 3.5-foot-thick reinforced concrete of the original penstock structure (left ROW conduit), into the suspect backfill. Core holes would be located 45, 90, 140, and 190 feet upstream of the

penstock bifurcation near the Howell-Bunger valve. Drilling would be accomplished with the portable electric Hilti core drill shown in Figures 3 – 5.

All drilling water will be obtained from reservoir water (gate leakage) flowing through the penstock. Return water carrying suspended sand- and silt-size cuttings will be contained in barrels. Introduction of EPA-approved drilling fluid additive Gelmaxx into the barreled return water will cause approximately 90 percent of the reservoir water to completely separate from the cuttings. Clear water will be pumped from the barrel and disposed of on an uplands area away from a body of water to either evaporate or seep into the ground. The remaining cuttings slurry will be contained for offsite disposal.

Backfill samples would be collected and stored in plastic bags by a Reclamation geologist. All samples would be transported to the MPCO Materials Lab in Willows, California for laboratory testing (gradation, plasticity and moisture content).

All holes would be fully backfilled with a cement grout mixture approved by TSC engineers. Reservoir water would be used for mixing backfill grout. Grout would be pumped into each hole via a hose and valve system. Grout will not be discharged into the stilling basin. Care will be taken to minimize grout spillage during mixing and pumping operations. Turbidity barriers will be deployed in the penstock while drilling and grouting operations are in progress.

## Exclusion Category

516 DM 14.5 B (3): Data collection studies that involve test excavations for cultural resources investigations or test pitting, drilling, or seismic investigations for geologic exploration purposes where the impacts will be localized.

## Extraordinary Circumstances

Below is an evaluation of the extraordinary circumstances as required in 43 CFR 46.215.

1. This action would have a significant effect on the quality of the human environment (40 CFR 1502.3). No ☒ Uncertain ☐ Yes ☐
2. This action would have highly controversial environmental effects or involve unresolved conflicts concerning alternative uses of available resources (NEPA Section 102(2)(E) and 43 CFR 46.215(c)). No ☒ Uncertain ☐ Yes ☐
3. This action would have significant impacts on public health or safety (43 CFR 46.215(a)). No ☒ Uncertain ☐ Yes ☐

- |   |  |
|---|--|
| 4. This action would have significant impacts on such natural resources and unique geographical characteristics as historic or cultural resources; parks, recreation, and refuge lands; wilderness areas; wild or scenic rivers; national natural landmarks; sole or principal drinking water aquifers; prime farmlands; wetlands (EO 11990); flood plains (EO 11988); national monuments; migratory birds; and other ecologically significant or critical areas (43 CFR 46.215 (b)). | No <input checked="" type="checkbox"/> Uncertain <input type="checkbox"/> Yes <input type="checkbox"/> |
| 5. This action would have highly uncertain and potentially significant environmental effects or involve unique or unknown environmental risks (43 CFR 46.215(d)).   | No <input checked="" type="checkbox"/> Uncertain <input type="checkbox"/> Yes <input type="checkbox"/> |
| 6. This action would establish a precedent for future action or represent a decision in principle about future actions with potentially significant environmental effects (43 CFR 46.215 (e)).  | No <input checked="" type="checkbox"/> Uncertain <input type="checkbox"/> Yes <input type="checkbox"/> |
| 7. This action would have a direct relationship to other actions with individually insignificant but cumulatively significant environmental effects (43 CFR 46.215 (f)).  | No <input checked="" type="checkbox"/> Uncertain <input type="checkbox"/> Yes <input type="checkbox"/> |
| 8. This action would have significant impacts on properties listed, or eligible for listing, on the National Register of Historic Places as determined by Reclamation (LND 02-01) (43 CFR 46.215 (g)).  | No <input checked="" type="checkbox"/> Uncertain <input type="checkbox"/> Yes <input type="checkbox"/> |
| 9. This action would have significant impacts on species listed, or proposed to be listed, on the List of Endangered or Threatened Species, or have significant impacts on designated critical habitat for these species (43 CFR 46.215 (h)).   | No <input checked="" type="checkbox"/> Uncertain <input type="checkbox"/> Yes <input type="checkbox"/> |
| 10. This action would violate a Federal, tribal, State, or local law or requirement imposed for protection of the environment (43 CFR 46.215 (i)).  | No <input checked="" type="checkbox"/> Uncertain <input type="checkbox"/> Yes <input type="checkbox"/> |
| 11. This action would affect Indian Trust Assets (ITA) (512 DM 2, Policy Memorandum dated December 15, 1993).   | No <input checked="" type="checkbox"/> Uncertain <input type="checkbox"/> Yes <input type="checkbox"/> |
| 12. This action would have a disproportionately high and adverse effect on low income or minority populations (EO 12898) (43 CFR 46.215 (j)).   | No <input checked="" type="checkbox"/> Uncertain <input type="checkbox"/> Yes <input type="checkbox"/> |
| 13. This action would limit access to, and ceremonial use of, Indian sacred sites on Federal lands by Indian religious  | No <input checked="" type="checkbox"/> Uncertain <input type="checkbox"/> Yes <input type="checkbox"/> |

practitioners or significantly adversely affect the physical integrity of such sacred sites (EO 13007, 43 CFR 46.215 (k), and 512 DM 3)).

14. This action would contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area or actions that may promote the introduction, growth, or expansion of the range of such species (Federal Noxious Weed Control Act, EO 13112, and 43 CFR 46.215 (l)).
- No ☒ Uncertain ☐ Yes ☐

Architectural Historian concurred with Items 4 and 8 (memo attached).

ITA Designee concurred with Item 11 (email attached).

## Special Considerations

### *Clean Water Act Permits*

The ROW spills water from Lahontan Reservoir into a stilling basin that directly connects to the Carson River. The need for a Clean Water Act Section 404 dredge and fill permit and Section 401 water quality certification was investigated. Of primary concern was the disposal of Gelmaxx-treated drilling water; however, the installation of a turbidity barrier between the drilling locations and the outlet to the stilling basin, and disposal of clear return water on upland areas will prevent any discharges into the Carson River. Therefore, Clean Water Act permits are not necessary for this action.

### *Endangered Species Act*

Regional staff determined that the Project was in a location that could contain habitat for listed species, and requested a species list from the U.S. Fish and Wildlife Service, Nevada Fish and Wildlife Office on March 26, 2014. The species list contained the federally-threatened Lahontan cutthroat trout (*Oncorhynchus clarkia henshawi*) and proposed threatened (Bi-state population) greater sage-grouse (*Centrocercus urophasianus*).

No discharges of cuttings, drilling fluid, or debris would be discharged into the spilling basin that leads to the Carson River; thus there would be no impact to Lahontan cutthroat trout.

Greater sage-grouse may be present around the Project area; however, the Project is short term with all work occurring in the enclosed penstock and right ROW, which precludes any potential impacts to the greater sage-grouse.

### *NEPA Action Recommended*

☒ CEC – This action is covered by the exclusion category and no extraordinary circumstances exist. The action is excluded from further documentation in an EA or EIS.

☐ Further environmental review is required, and the following document should be prepared.

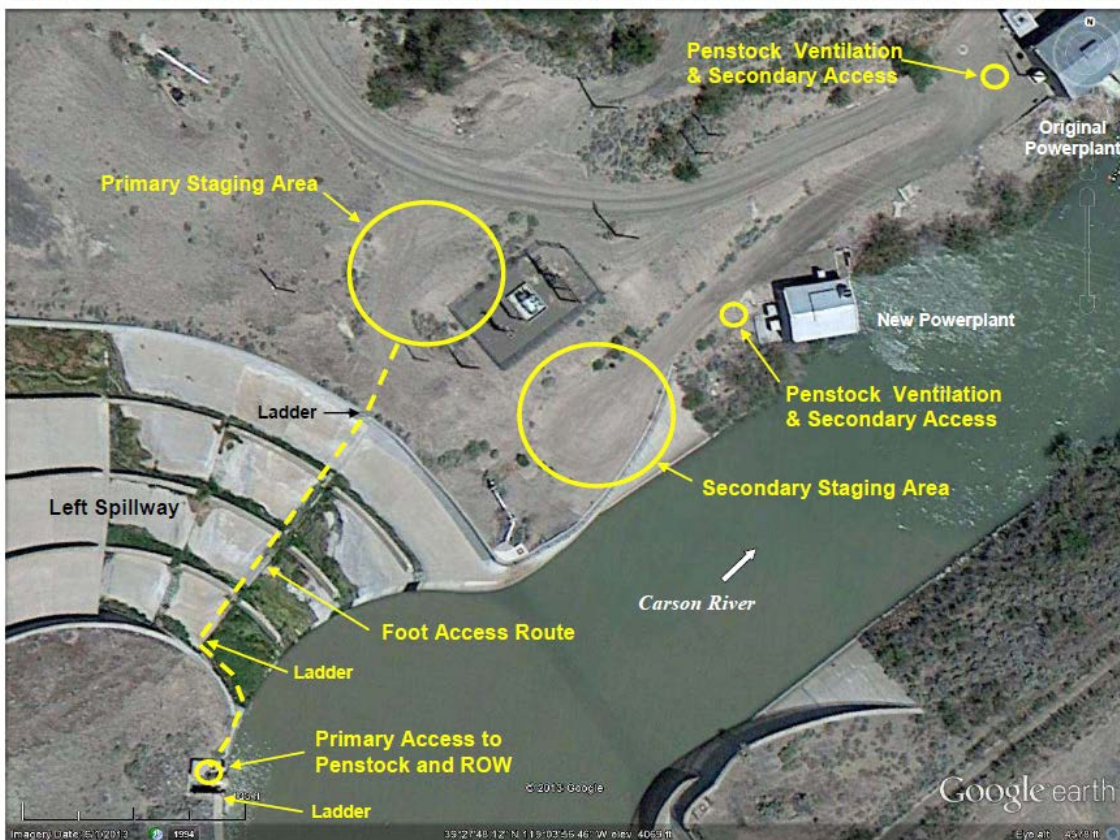
☐ EA

☐ EIS





**FIGURE 1. SITE ACCESS MAP - LAHONTAN DAM PENSTOCK AND ROW FIELD INVESTIGATIONS**



**FIGURE 2. LOCATION MAP - LAHONTAN DAM PENSTOCK AND ROW FIELD INVESTIGATIONS**





MP-CEC-14-01



IN REPLY  
REFER TO:  
MP-153  
ENV-3.00

## United States Department of the Interior

BUREAU OF RECLAMATION  
Mid-Pacific Regional Office  
2800 Cottage Way  
Sacramento, California 95825-1898

VIA ELECTRONIC MAIL ONLY

July 23 2014  
MEMORANDUM

To: Alex Aviles  
Natural Resources Specialist – Division of Environmental Affairs

From: BranDee Bruce  
Architectural Historian – Division of Environmental Affairs

Subject: National Historic Preservation Act (NHPA), Section 106 Coordination for Lahontan Dam Penstock  
Geotechnical Testing, Churchill County, Nevada (14-LBAO-050)

The Bureau of Reclamation proposes to conduct geotechnical testing at Lahontan Dam in Churchill County, Nevada. Lahontan Dam is owned and operated by Reclamation as a component of the Newlands Irrigation Project. These tests are in support of the Safety of Dams program, and are needed to investigate the composition of the backfill along the left side of the outlet works conduit. The modification of Federal property and expenditure of Federal funds constitutes an undertaking as defined by Section 301(7) of the NHPA (16 USC 470), as amended, which requires compliance with Section 106 of the NHPA.

In an effort to identify historic properties in the APE, Reclamation reviewed in-house documentation and past project data, and conducted an online search of the Nevada Cultural Resources Inventory System. Only one cultural resource, Lahontan Dam, was within the APE. Lahontan Dam was listed on the National Register of Historic Places in 1981 as part of the Newlands Project Thematic Resource.

Reclamation initiated consultation with the Nevada State Historic Officer (SHPO) on June 3, 2014 seeking concurrence with the finding that the undertaking results in no adverse effect to historic properties. On July 17, 2014, Reclamation received the SHPO response letter dated July 10, 2014, concurring with Reclamation's findings (see attached document).

This email memo is intended to convey the conclusion of the Section 106 process for this undertaking. Although the project may go forward with no additional review from Section 106, Reclamation shall continue to seek concurrence on our finding from the SHPO. If, at some point, the SHPO re-enters the consultation process and has comments or concerns regarding this action, Reclamation will seek to resolve these concerns while the project is being implemented. In addition, in the event of an inadvertent discovery, Reclamation may have additional Section 106 obligations pursuant to the Post Review Discovery portion of the regulations at §800.13.

Please retain a copy of this memo with the administrative record for this project. This memo fulfills our obligations and commitments to Section 106 as discussed in the Finding of no historic properties affected for this action.



MP-CEC-14-01

3/27/14

DEPARTMENT OF THE INTERIOR Mail - ITA Request: Lahontan Penstock Puddled Backfill Investigation



Aviles, Alexandra &lt;aaviles@usbr.gov&gt;

## ITA Request: Lahontan Penstock Puddled Backfill Investigation

RIVERA, PATRICIA <privera@usbr.gov>  
To: Alexandra Aviles <aaviles@usbr.gov>

Thu, Mar 27, 2014 at 9:10 AM

Alex,

I reviewed the proposed action described below and determined there are no impacts to Indian Trust Assets. The nearest Indian Trust Asset is Pyramid Lake Reservation approximately 15 miles Northeast of the project location.

The U.S. Bureau of Reclamation's (Reclamation) Technical Service Center (TSC) Geotechnical engineers have raised concerns as to the erodibility of the puddled silt backfill that was placed without compaction in the narrow gap between the concrete River Outlet Works (ROW) structure and the steep left abutment cutslope during construction of Lahontan Dam in 1912.

Geotechnical proposes to perform geologic field investigations to determine the gradation of the backfill and to assess its potential for piping erosion. The geologic field investigations are divided into Phase 1: Outer Water Pressure Investigation, and Phase 2: Backfill Sample Drilling, and would be scheduled during the non-irrigation season when no water is released from Lahontan Dam and when the power plants are not in operation.

All Phase 1 and Phase 2 work is anticipated to be accomplished between as early as August 2014 and as late mid-March 2015.

Phase 1: Four, 3/8 - 1-inch diameter pilot holes spaced approximately 100 feet apart would be drilled through the right wall of the right ROW conduit and equipped with piezometers, or pressure gauges, to measure external water pressure. Holes would be collared about one foot above the high water mark (approximately 1 foot above springline) and would be angled upward. All holes would be advanced approximately 3.5 feet through the ROW wall using a standard, hand-held roto-hammer drill and masonry bit. Drill holes would extend through the ROW wall; they will not extend into the surrounding Zone 2 (gravelly sand) dam embankment. Phase 1 would be completed and the water pressure data evaluated before continuing to Phase 2.

Phase 2: Four, 4-inch diameter by 4.5-foot-deep core holes would be drilled through the left side of the 3/8-inch thick steel penstock, 1-foot-thick grout backfill, and 3.5-foot-thick reinforced concrete of the original ROW structure, into the suspect backfill. Core holes would be located 45, 90, 140, and 190 feet upstream of the penstock bifurcation near the Howell-Bunger valve. Drilling would be accomplished with the portable electric Hilti core drill. Backfill samples would be collected and stored in plastic bags by a

3/27/14

DEPARTMENT OF THE INTERIOR Mail - ITA Request: Lahontan Penstock Puddled Backfill Investigation

Reclamation geologist. All samples would be transported to the MPCO Materials Lab in Willows, California for laboratory testing (gradation, plasticity and moisture content). All holes would be fully backfilled with a cement grout mixture approved by TSC engineers. Reservoir water would be used for mixing backfill grout. Grout would be pumped into each hole via a hose and valve system. Grout will not be discharged into the stilling basin. Care will be taken to minimize grout spillage during mixing and pumping operations. Turbidity barriers will be deployed in the penstock while drilling and grouting operations are in progress.

Phase 1 would require a standard hand-held roto-hammer drill, masonry bit, and a shop vac to drill. Phase 2 would require a portable electric Hilti core drill, shop vac, hose and valve system for grouting, and appropriate support vehicles (pickup trucks) to complete the geologic investigations. The pickup trucks holding the equipment will be staged within an approximately 20' x 20' area at 39° 27'48.89" N, -119° 03'57.88" W, and the drilling equipment will be parked onsite overnight.

Patricia Rivera  
Native American Affairs Program Manager  
US Bureau of Reclamation  
Mid-Pacific Region  
2800 Sacramento, California 95825  
(916) 978-5194