

**Addendum to the Combie Reservoir Sediment and Mercury  
Removal Project (SCH No. 2009072068)**

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# Addendum to the Combie Reservoir MND

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## Addendum to the Combie Reservoir MND

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## **1 INTRODUCTION**

### **1.1 Project Overview and Project Background**

This Addendum to the Combie Reservoir Dredge and Mercury Extraction Project (“Project”) Mitigated Negative Declaration (MND) evaluates modifying the approved sediment removal process in order to maintain storage capacity at Combie Reservoir. The approved sediment removal process consists of three components. The first involves the dredging of upper Combie Reservoir using a wet dredge. The second involves the mercury removal and separation process using a Knelson Concentrator and dewatering of the dredge material using on-shore equipment. The third involves the transport of sand and aggregate byproducts to a third party for further processing and/or sale. The maximum sediment removal would be 150,000 to 200,000 tons for the first three to five years, and would decrease thereafter to the amount needed to maintain storage capacity. The proposed Project change would affect only the first component, and would allow the Nevada Irrigation District (NID) to supplement the wet removal process with dry removal during the low water season, using earthmoving equipment, including tracked excavators, bulldozers, front loaders, and dump trucks. This would better allow NID to achieve the planned removal objectives of 150,000 to 200,000 tons.

The Project was approved and the MND was adopted in September 2009. The Notice of Determination filed on September 25, 2009.

### **1.2 California Environmental Quality Act Compliance**

The California Environmental Quality Act (CEQA) requires an environmental analysis of all projects that are not exempt from CEQA and that may have an effect on the environment. NID, acting as the lead agency, prepared an Initial Study and determined that a MND would be the appropriate CEQA document and the Project, with implementation of mitigation measures, would not result in a significant effect on the environment. The MND was completed in June 2009 (SCH No. 2009072068) and the Project was approved and the MND adopted in September 2009.

To address the proposed changes to the approved Project, NID, acting as lead agency, determined that an Addendum was the appropriate environmental document under CEQA because the proposed changes would not be substantial requiring the preparation of a Subsequent MND or an EIR, per Section 15162 of the CEQA Guidelines. As required by Section 15164 of the CEQA Guidelines, the determination to not prepare a Subsequent EIR (per Section 15162) must be supported by substantial evidence. This evidence is contained within this document and in the administrative record for the Project (located at the NID office, 1036 W. Main Street, Grass Valley, California 95945).

## 1.3 Project Approvals

Subsequent to the approval of the MND, the Project received the necessary regulatory permits, including a Section 401 Clean Water Act certification (WDID#5A29CR00068) and Waste Discharge Requirements (Order R5-2016-0076-01, NPDES No. CAG9950002) from the Central Valley Regional Water Quality Control Board, and a Streambed Alteration Agreement (Notification No. 1600-2010-0180-R2) from the California Department of Fish and Wildlife North Central Region.

The State Mining and Geology Board staff has determined that the proposed dredging and mercury removal Project at Combie Reservoir is exempt from the Surface Mining and Reclamation Act (SMARA). This determination was made because the dredging operation is primarily for the purpose of maintaining capacity in an existing water supply reservoir and the extraction of accumulated materials would not extend beyond the original contours of the reservoir (per 14 CCR 3505[a][2]).

## 2. PROJECT REVISIONS

### 2.1 Project Location

The Project is located at the Upper Combie Reservoir on the Bear River, just northeast of the City of Auburn, approximately 30 miles from Sacramento, California. Combie Reservoir straddles the Nevada-Placer County line east of the Lake of the Pines community in Nevada County and west of the Meadow Vista community in Placer County.

Combie Reservoir is one of three impoundments on the Bear River. The Bear River flows west from the Sierra Nevada Mountains toward the Feather River and into the California Bay Delta.

### 2.2 Approved Project

The approved sediment removal process consists of three components. The first involves the dredging of upper Combie Reservoir using a wet dredge. The second involves the mercury removal and separation process and dewatering of the dredge material using mobile on-shore equipment. The third involves the transport of sand and aggregate byproducts to a third party for further processing and/or sale. The maximum sediment removal would be 150,000 to 200,000 tons for the first three to five years, with a typical maximum of 50,000 tons per year. After meeting the initial goal, the removal volume would decrease to the amount needed to maintain storage capacity. Removal activities would be confined to 7:00 a.m. to 7:00 p.m., Monday through Saturday.

The first stage uses a wet dredge to remove sediment materials at the confluence of the Upper Combie Reservoir and the Bear River. Materials are transported from the dredge to the processing area through a discharge pipeline.

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The processing area is located on land north of Combie Reservoir and east of the Bear River. The mercury extraction and dewatering process includes scalping of oversize material, mercury extraction using a Knelson concentrator and Pegasus extraction system, desilting of concentrator effluent using a hydro cyclone desilting/dewatering circuit, and effluent treatment by flocculent injection, settling basins and/or filtration.

Elemental mercury will be disposed at a licensed off-site facility. Saleable aggregate products will be transported to a local aggregate plant, and non-saleable sediment will be placed on land as engineered fill under a grading permit issued by the County of Placer.

### **2.3 Project Revisions**

The revisions to the approved Project would affect the first phase of the operation described above – removal of sediment and moving it to the processing area. The on-site processing of material and transportation to an off-site sale point would not be changed. The overall volume of material removed and processed, 150,000 to 250,000 tons over a three to five year period, and a subsequently lower amount to maintain reservoir capacity thereafter, would not change.

NID has determined that the use of the wet dredge may not meet the necessary production level (approximately 50,000 tons per year) to meet a project objective of restoring the storage capacity in the Combie Reservoir. NID intends to evaluate the effectiveness and efficiency of conventional sediment removal techniques in combination with the mercury extraction technology by supplementing the dredging of sediments from the reservoir using earthmoving equipment, including tracked excavators, bulldozers, front loaders, and dump trucks to remove material above the water line and haul it to the processing area. A typical work flow would be, during the low water season, an excavator or front loader would remove dry sediment at the dredge site. The material would be loaded into a dump truck that would move the material to the processing area. The material removal area would not change from the approved Project, and the off-road equipment would use the existing levee road to move material from the dredge site to the processing area. As with the dredging operation, supplemental removal activities would be confined to 7:00 a.m. to 7:00 p.m., Monday through Saturday.

### **3. ENVIRONMENTAL EVALUATION**

The potential environmental effects of the proposed revisions to the approved Project are described below. As discussed below, the Project revisions would not result in a new potentially significant impact, and would not substantially increase the severity of a previously identified impact such that new mitigation measures would be required.

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### **Aesthetics**

The MND found aesthetic impacts to be less than significant. The Bear River is a scenic resource, but it is also noted that sediment removal projects have occurred in the area since 1946. Aside from a limited number of residents who reside on five (5) acre lots and larger, the upper Combie Reservoir is not visible to the public. The addition of a small number of off-road (typically less than 5) vehicles in the Project area, in addition to the dredge and the existing processing area would not substantially change the visual impact of the Project.

### **Agricultural Resources**

The MND determined there would be no impact, as there are no agricultural resources located within the Project area. The Project revisions would not change the Project area and no new or increased impacts would occur.

### **Air Quality**

The MND found air quality impacts, which included an on-site generator to operate the dredge, to be less than significant. The addition of an excavator, front loader, and haul truck to the operation would not substantially increase air emissions. For comparison, NID prepared an Environmental Impact Report (EIR) for a larger sediment removal project at Rollins Reservoir (SCH no. 2013112006). The Bear River project consisted of dewatering and dry removal of material with off-road equipment, and hauling the material off-site for processing. The air quality analysis found that the off-road equipment at Bear River would not result in a significant air quality impact, for a much higher level of activity (250,000 tons annually compared to 50,000 tons at Combie Reservoir).<sup>1</sup>

### **Biological Resources**

The MND found potentially significant impacts to northwestern pond turtle, California red-legged frog, bald eagle, and Brandegees's clarkia. These impacts would be less than significant with implementation of mitigation measures. The Project revisions would not increase the area of impact, or extend the operating hours or season. The existing levee road used to haul material from the removal area to the processing area has already been analyzed as part of the Project. The approved mitigation measures would adequately address potential impacts related to dry removal of sediment. Therefore, no new or increased biological impacts would occur.

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<sup>1</sup> The Bear River Sediment Removal at Rollins Reservoir EIR did find a significant impact for on-road truck hauling, but only if production exceeded 206,000 tons per year, which is four times the amount proposed at Combie Reservoir.

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### **Cultural Resources**

The MND found potentially significant impacts to archaeological resources and possible disturbance of previously undiscovered human remains. These impacts would be less than significant with implementation of mitigation measures. The Project revisions would not change the area of potential effect, and the approved mitigation measures would apply to revised Project. Therefore, no new or increased cultural resource impacts would occur.

### **Geology and Soils**

The MND found no impacts related to geology or soils. As the Project revisions would not change the location or intensity of activity previously analyzed, the Project revisions would not result in new or increased impacts.

### **Hazards and Hazardous Materials**

The MND found impacts related to hazardous conditions and materials to be less than significant. The Project revisions would increase the amount of equipment that routinely use petroleum products (a hazardous material). However, the use and on-site storage of diesel fuels and wet dredging (which can introduce petroleum and other products to surface waters) was analyzed and found to be less than significant. The required Hazardous Materials Business Plan (HMBP) may need to be revised to reflect the additional off-road earthmoving equipment. However, compliance with existing regulatory plans and standards would adequately address the Project revisions and would not result in new or increased impacts.

### **Hydrology and Water Quality**

The MND found potentially significant impacts to water quality that would be reduced to less than significant with the implementation of mitigation measures. Dudek analyzed the Project revisions in light of the MND analysis, the anti-degradation analysis prepared for the project, and approved permit conditions. This analysis is included as Appendix A to this Addendum the results are described below.

The approved Project mitigation consists of progressive measures to reduce water quality impacts:

VIII-1 Reduce the quantity and rate of materials processed to a level such that water quality standards are met in the discharge.

VIII-2 Reduce mesh size in turbidity curtain within the first containment chamber to trap more fine sediments.

III-3 Add additional turbidity curtains to create additional containment chambers

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VIII-4 Re-process all turbid effluent water through the dewatering equipment and concentrator for further mercury recovery until waste discharge requirements are met.

VIII-5 Terminate the project until it can be modified to eliminate water discharge that exceeds NPDES permit thresholds.

Similar to dredging, proposed removal of sediment by earthmoving equipment, such as tracked excavators, front loaders, and bulldozers, would result in suspension of mercury with sand and finer particulates. Impacts associated with sediment removal by earthmoving equipment would therefore be similar to dredging related impacts. The mitigation measures listed above would reduce potentially significant water quality impacts associated with suspension of mercury-laden sediments to less-than-significant levels.

The primary difference between the sediment removal methods would be that the dredge would be floating, with an attached sediment dredge discharge pipe, whereas the earthmoving equipment would disturb sediments along the water's edge and require an equipment staging area and loading area for loading trucks with sediment/slurry to be transported to the material separation and dewatering system, via Levee Road. Because earthmoving equipment would only be used during periods of low reservoir levels, the staging area and truck loading area could be located within the Project area, and likely within the approximate area to be dredged, to minimize clearing and grubbing of previously undisturbed areas. Regardless of the exact location, earthmoving equipment could potentially result in incidental spills of petroleum products and hazardous materials, during fueling, maintenance, and temporary storage of equipment. In addition, loading of trucks with saturated sediments/slurry could result in slurry spills that could migrate into reservoir waters and further increase already turbid water quality conditions.

In the absence of proper containment, these incidental spills could adversely impact the water quality of Combie Reservoir. However, Amending Order R5-2018-0002 requires implementation of a BMP Plan, including site-specific plans and procedures to be implemented to prevent potential release of pollutants from the discharge facility to the waters of Combie Reservoir. BMPs typical of earthmoving staging areas include drip pans beneath equipment when not in use; creation of a temporary berm or containment boom around the area to contain potential spills; and maintaining emergency spill equipment such as absorbent pads, shovels, containment booms, and contaminated soil temporary disposal bins. The staging area would preferably be located at least 50 feet from the reservoir water's edge. In addition, BMPs typical of sediment truck loading areas would include installation of straw wattles and silt fencing around the perimeter of the loading area to contain runoff of sediments/slurry to the reservoir.

Therefore, supplemental use of earthmoving equipment to remove sediments from Combie Reservoir would not result in potentially significant impacts not addressed by the MND or provisions of the WDR permits. No new or increased impacts would occur.

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### **Land Use**

Both the Placer County and Nevada County general plans identify the Project area as “Water” to reflect its status as a resource area. The MND found that the Project would not have an impact on applicable land use plans, would not divide an existing community, and would not conflict with an approved habitat or conservation plan. The Project revisions would not change the location or intensity of Project activities and would not change the conclusions of the land use analysis.

### **Noise**

The MND analyzed the potential noise impacts of the Project, based on a technical study prepared by Bollard Acoustical Consultants, Inc. (BAC). Dudek examined the potential effects of introducing additional off-road equipment into the Project area. This analysis is included as Appendix B of this Addendum. The analysis concludes that the Project revisions would result in potential noise levels of 55 to 58 dBA Leq and 68 dBA Lmax at the nearest receptor (residential land use). These expected levels are within the 55-60 dBA Leq and 75 dBA Lmax noise standards established for Project in the BAC noise study and the MND. Therefore, there would be no new or increased impact.

The established noise standards from the 2009 Noise Assessment are 55-60 dBA Leq during daytime periods (7:00 a.m. to 10 p.m.) and 40 dBA Leq during nighttime periods (10:00 p.m. to 7:00 a.m.). Lmax levels are 75 dBA for daytime and 65 dBA for nighttime periods at the nearest residences.

The same study identifies that at the closest position, the dredging equipment would be located 160 feet from the nearest existing residential uses. The nearest residences to the proposed mercury removal equipment would be approximately 500 feet away.

Assuming the typical dry excavation operations would occur near the center of the Project area, the typical distance from the proposed Project alternative would be about 500 feet from most residential dwelling buildings. At this distance, expected noise levels would be reduced by 12 to 15 dB. Using the reference levels of 70 dB Leq and 80 dB Lmax at a distance of 100 feet, the calculated Leq is expected to be about 55 to 58 dBA and the Lmax about 68 dBA. These expected levels are within the 55-60 dBA Leq and 75 dBA Lmax noise standards established for the Project. Since the expected noise levels from the Project revisions are within the established noise standards for the Project, the Project revisions are expected to produce a less-than-significant impact.

### **Population and Housing**

The approved Project would not construct, demolish, or require relocation of any housing units. The MND found no impacts would result from the Project. The Project revisions would not change the location or intensity of the approved Project. The additional equipment would require

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additional construction employees (no more than 5 at any given time). However, it is anticipated that the Project would be served by NID or its contractors, using their existing work force. No new or increased impacts to population and housing would occur.

### **Public Services**

The MND found that the Project would not result in significant impacts to public services, including fire, law enforcement, schools, parks, or other public facilities. The Project revisions would not change the location or intensity of Project activities previously analyzed. Therefore no new or increased impacts would occur.

### **Recreation**

The MND found the Project would not impact recreational facilities. Combie Reservoir is used for recreational purposes including fishing and boating. The proposed Project would enhance these activities by restoring and maintaining the capacity of the Reservoir. The project area does not currently serve a recreational purpose to the accumulation of sediment. Therefore, Project activities would not substantially impact recreational activities, but may enhance recreation in the future.

### **Transportation**

A traffic study by KD Anderson & Associates, incorporated into the MND, found that the Project impacts on transportation would be less than significant. The analysis examined additional truck traffic resulting from sediment being processed and sent to Chevreux Aggregates or another aggregate supplier for sale. The Project revisions would not increase the amount of sediment removed and processed, but instead would allow NID to reach the removal levels analyzed in the MND and traffic study. There would be no increase in the number of off-site trips compared to those modelled in the KD Anderson study. Some additional on-site trips would occur, moving excavated material from the dredge site to the processing area via Levee Road. Only Project vehicles would utilize this road segment and no traffic conflicts would be created. Therefore, the Project revisions would not result in a new or increased transportation impact.

### **Public Utilities**

The MND found impacts to public utilities to be less than significant. The Project would not be served by public utilities or require construction of utilities. Portable water and toilets would be provided on-site. Drainage of the site would not be significantly altered. The Project revisions may require additional employees, but they would be adequately served by the portable water and toilet facilities analyzed in the MND. No new or increased impact would occur.

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### 4. REFERENCES

14 CCR 3500 – 4000. Mines and Geology

14 CCR 15000–15387 and Appendices A through L. Guidelines for Implementation of the California Environmental Quality Act, as amended.

California Public Resources Code, Section 21000–21177. California Environmental Quality Act, as amended.

California Department of Fish and Game. 2011. Final Lake or Streambed Alteration Agreement Notification No. 1600-2010-0180-R2. Combie Reservoir Sediment Removal and Mercury Recovery Project.

Central Valley RWQCB (Regional Water Quality Control Board). 2018a. Waste Discharge Requirements for Limited Threat Discharges to Surface Water, Order R5-2018-0002, Amending Order R5-2016-0076, NPDES No. CAG995002.

Central Valley RWQCB (Regional Water Quality Control Board). 2018b. Notice of Adoption, Order R5-2018-0002, Amending Waste Discharge Requirements Order R5-2016-0076 (NPDES Permit No. CAG995002) for Waste Discharge Requirements, Limited Threat Discharges to Surface Water.

Central Valley RWQCB (Regional Water Quality Control Board). 2016. Waste Discharge Requirements, Limited Threat Discharges to Surface Water, Order R5-2016-0076-01, NPDES No. CAG995002. Adopted October 14, 2016; Effective February 1, 2017; Expires January 30, 2022.

Nevada Irrigation District (NID). 2008. *Combie Reservoir Sediment and Mercury Removal Mitigation Monitoring and Reporting Program*. August 2008.

NID. 2009a. *Combie Reservoir Dredge and Mercury Extraction Project Initial Study and Checklist*. July 13, 2009.

NID. 2009b. *Resolution No. 2009-52 of the Board of Directors of the Nevada Irrigation District Adopting a Mitigated Negative Declaration*.

NID. 2009c. *Combie Reservoir Sediment and Mercury Removal Project Notice of Determination*. SCH No. 2009072068. September 25, 2009.

NID. 2012. *Antidegradation Analysis for the Combie Reservoir Sediment and Mercury Removal Project*. August 1, 2012.

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NID. 2015. *Bear River Sediment Removal at Rollins Reservoir Environmental Impact Report*. SCH No. 2013112006. May 2015.

APPENDIX A  
*Hydrology/Water Quality Addendum*



## **Hydrology/Water Quality Addendum to Combie Reservoir IS/MND**

**March 24, 2018**

### ***Understanding of the Project***

As indicated in the project description of the 2009 IS/MND, the project involves three major features, including: 1) dredging of upper Combie Reservoir to maintain water storage capacity, 2) a mercury removal and separation process using mobile on-shore equipment, and 3) transport of sand and aggregate byproducts to a processing plant. On-going regular maintenance dredging of Combie Reservoir would proceed if the initial project was found to be successful in removing elemental mercury, such that the Central Valley RWQCB standard for mercury is met.

Although the project has received all necessary permits and the sediment removal process has been tested, it has been determined that dredging alone would not be adequate to remove and process the anticipated target of 150,000 to 200,000 tons of sediment over the initial three to five year period. As a result, this addendum analysis has been completed with respect to proposed supplemental removal of sediments from the reservoir using earthmoving equipment, including tracked excavators, bulldozers, front loaders, and dump trucks. The upland mercury removal process and off-site transport of aggregate byproducts would be unchanged from the existing project.

The primary focus of the 2009 IS/MND was for the purpose of obtaining new waste discharge permits from the Central Valley Regional Water Quality Control Board (RWQCB), stream alteration permits from the California Department of Fish and Game, and 404 permits or jurisdictional exemption from the U.S. Army Corps of Engineers for dredging operations in waters of the United States. All other land use related project features are exempt from local county land use permits and Surface Mining and Reclamation Act (SMARA) regulations because State Mining and Geology Board staff has determined that the proposed dredging and mercury removal project at Combie Reservoir is exempt from SMARA. This determination was made because the dredging operation is primarily for the purpose of maintaining capacity in an existing water supply reservoir and the extraction of accumulated materials would not extend beyond the original contours of the reservoir. Should the Nevada Irrigation District be unable to regularly maintain its reservoir capacity, in time, the reservoir would fill up with sediments, gravels, and sands from upstream sources, thereby reducing water storage capacity, power production opportunities, and recreational use, including fishing and hunting.

### ***Hydrology/Water Quality Analysis***

The following summarizes the 2009 Initial Study Checklist discussions, followed by an analysis of the proposed supplemental project component, which includes removal of sediments from the reservoir using earthmoving equipment. However, only those environmental thresholds with potentially significant water quality impacts (Items VIII-a, -c, and -f) are addressed. Items VIII-b, -d, -e, and -g through -j do not relate to water quality and would have no impacts related to use of earthmoving equipment.

## Item VIII-a: Would the project violate any potable water quality standards?

### *Summary of 2009 IS/MND*

In 2003, elevated total mercury concentrations were detected in the dredge effluent during routine sampling required by the Central Valley RWQCB, as a result of dredging operations suspending mercury with sand and finer particulates. As a result, dredging operations were halted pending implementation of a mercury removal process (i.e., the project). The 2009 IS/MND indicated that the project would be required to meet Central Valley RWQCB waste discharge requirements (WDRs) for a new point discharge with a U.S. EPA National Pollutant Discharge Elimination System (NPDES) permit. The waste discharge permit would be based on information derived from a year-long antidegradation study, which would set standards for all constituents of concern, including turbidity and mercury. The IS/MND concluded that while the project is designed to meet drinking water standards with the discharge of effluent from the dredging operation, there could be a potential significant impact that would require operational adjustments. As a result, a progressive adaptive management approach was mandated through incorporation of the following mitigation measures, which reduced impacts to less than significant:

- MM VIII-1      Reduce the quantity and rate of materials processed to a level such that water quality standards are met in the discharge.
- MM VIII-2      Reduce mesh size in the turbidity curtain within the first containment chamber to trap more fine sediments.
- MM VIII-3      Add additional turbidity curtains to create additional containment chambers.
- MM VIII-4      Re-process all turbid effluent water through the dewatering equipment and concentrator for further mercury recovery until waste discharge requirements are met.

### *Waste Discharge Permit, Order R5-2016-0076-01*

Effective February 1, 2017, the Central Valley RWQCB issued a WDR permit (Order R5-2016-0076-01, NPDES No. CAG995002) for the project (Central Valley RWQCB 2016). This permit is a Limited Threat General Order that includes all requirements that the discharger is subject to during project operations. It is the responsibility of the discharger to obtain coverage, via a Notice of Intent, under the Limited Threat General Order prior to commencement of any discharge to surface waters. Among the comprehensive list of requirements, the permit includes requirements for discharges where treatment is required to reduce pollutants to levels that will meet the effluent limitations prior to discharging to surface waters. In addition, the waste discharge permit requires periodic monitoring and reporting during operations to verify that the water quality standards are continually met.

### *Antidegradation Study*

As previously discussed, the waste discharge permit was developed using the results of a year-long antidegradation study (NID 2012). The purpose of the antidegradation study was to determine pre-project receiving water quality conditions, to be used as baseline conditions during project operations. Pre-project water quality data collection included monthly water quality monitoring at locations above, below, and at the project site. Equipment tests were also completed to calculate the efficiency of the

mercury extraction equipment. Based on the equipment tests, it is apparent that most of the heavy metals, including mercury, can be removed by the extraction equipment. However, a final clarification step is required to remove suspended solids prior to discharge of effluent to Combie Reservoir. The information contained in the analysis was provided to the Central Valley RWQCB in order to certify that the proposed project is consistent with state and federal antidegradation policies, which require that the proposed sediment and mercury removal “will be consistent with maximum benefit to the people of the State”, “will not unreasonably affect present and anticipated beneficial use”, and “will not result in water quality less than that prescribed in the policies”. The antidegradation analysis report was used in support of the NPDES permit application for the project.

Operating conditions have been designed to avoid any and all water quality impacts through use of dewatering equipment, containment berms, and a series of containment chambers in the pond, separated by turbidity curtains. The primary finding of the antidegradation analysis is that the loading of constituents in the proposed project discharge produce minor effects that are not considered significant. The assessment considers dissolved constituents in effluent, acknowledging that a final clarification step is required to remove suspended solids prior to discharge of effluent to Combie Reservoir (NID 2012).

#### *Waste Discharge Permit, Amending Order R5-2018-0002*

The Limited Threat General Order WDR permit was amended on February 1, 2018, by Amending Order R5-2018-0002 (Central Valley RWQCB 2018a), and adopted by the Central Valley RWQCB on February 23, 2018 (Central Valley RWQCB 2018b). The Amending Order includes effluent receiving water requirements that must be adhered to by the project. In addition, the Amending Order requires completion of a Best Management Practices (BMPs) Plan. Each discharger with a treatment system authorized to discharge under the Limited Threat General Order is required to develop and implement BMPs that include site-specific plans and procedures implemented and/or to be implemented to prevent the generation and potential release of pollutants from the discharge facility to waters of the State.

#### *Proposed Sediment Removal with Earthmoving Equipment*

Similar to dredging, proposed removal of sediment by earthmoving equipment, such as tracked excavators, front loaders, and bulldozers, would result in suspension of mercury with sand and finer particulates. Impacts associated with sediment removal by earthmoving equipment would therefore be similar to dredging related impacts. The mitigation measures listed above would reduce potentially significant water quality impacts associated with suspension of mercury-laden sediments to less than significant levels.

The primary difference between the sediment removal methods would be that the dredge would be floating, with an attached sediment dredge discharge pipe, whereas the earthmoving equipment would disturb sediments along the water’s edge and require an equipment staging area and loading area for loading trucks with sediment/slurry to be transported to the material separation and dewatering system, via Levee Road. Because earthmoving equipment would only be used during periods of low reservoir levels, the staging area and truck loading area could be located within the project area, and likely within the approximate area to be dredged, to minimize clearing and grubbing of previously undisturbed areas. Regardless of the exact location, earthmoving equipment could potentially result in

incidental spills of petroleum products and hazardous materials, during fueling, maintenance, and temporary storage of equipment. In addition, loading of trucks with saturated sediments/slurry could result in slurry spills that could migrate into reservoir waters and further increase already turbid water quality conditions.

In the absence of proper containment, these incidental spills could adversely impact the water quality of Combie Reservoir. However, Amending Order R5-2018-0002 requires implementation of a BMP Plan, including site-specific plans and procedures to be implemented to prevent potential release of pollutants from the discharge facility to the waters of Combie Reservoir. BMPs typical of earthmoving staging areas include drip pans beneath equipment when not in use; creation of a temporary berm or containment boom around the area to contain potential spills; and maintaining emergency spill equipment such as absorbent pads, shovels, containment booms, and contaminated soil temporary disposal bins. The staging area would preferably be located at least 50 feet from the reservoir water's edge. In addition, BMPs typical of sediment truck loading areas would include installation of straw wattles and silt fencing around the perimeter of the loading area to contain runoff of sediments/slurry to the reservoir.

Therefore, supplemental use of earthmoving equipment to remove sediments from Combie Reservoir would not result in potentially significant impacts not addressed by the 2009 IS/MND or provisions of the WDR permits. Impacts would be **less than significant**.

**Item VIII-c: Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?**

The 2009 IS/MND indicated that the project would not alter the course of the Bear River. However, the IS/MND indicated that dredging activities may cause water quality impacts that could be significant. As indicated for Item VIII-a, implementation of Mitigation Measures MM VIII-1 through -4 will be applied in a progressive adaptive management approach. These measures, in combination with the antidegradation analysis, water quality sampling, the water quality enhancing design of the separation and dewatering process, and requirements of the WDR permit, would reduce potentially significant impacts to less than significant.

Proposed use of earthmoving equipment for removal of sediments from the reservoir would similarly not alter the course of the Bear River. Potential surface water quality impacts would be reduced to **less than significant** levels for the same reasons described for Item VIII-a.

**Item VIII-f: Would the project otherwise substantially degrade surface water quality?**

The 2009 IS/MND describes: 1) the specifics of the proposed dredging operations and associated transport of slurry to the material separation and dewatering system; 2) how surface water quality and groundwater quality would be monitored at various locations throughout the project area; and 3) how the Central Valley RWQCB would use established state and federal water quality standards for the purposes of assuring that mercury, turbidity, and other water quality features would be maintained throughout the operations. However, the document indicates that while the project is designed to meet water quality standards with the discharge of effluent from the dredging/dewatering operation, there could be a potentially significant impact that would require operational adjustments. If at any time

water quality monitoring indicates that water quality thresholds have been exceeded, the following mitigation measure would be applied in a progressive adaptive management approach:

Measures MM VIII-1 through -4; and

MM VIII-5        Terminate the project until it can be modified to eliminate water discharge that exceeds NPDES permit thresholds.

With inclusion of these mitigation measures, potentially significant impacts will be mitigated to less than significant levels.

Surface water quality impacts associated with use of earthmoving equipment for removal of sediments would similarly be potentially significant, as described for Issue VIII-a. However, incorporation of Mitigation Measures MM VIII-1 through -5, in combination with the antidegradation analysis, water quality sampling, the water quality enhancing design of the separation and dewatering process, and requirements of the WDR permit, would reduce potentially significant impacts to **less than significant**.

**References:**

Central Valley RWQCB (Regional Water Quality Control Board). 2018a. *Waste Discharge Requirements for Limited Threat Discharges to Surface Water, Order R5-2018-0002, Amending Order R5-2016-0076, NPDES No. CAG995002.*

Central Valley RWQCB (Regional Water Quality Control Board). 2018b. *Notice of Adoption, Order R5-2018-0002, Amending Waste Discharge Requirements Order R5-2016-0076 (NPDES Permit No. CAG995002) for Waste Discharge Requirements, Limited Threat Discharges to Surface Water.*

Central Valley RWQCB (Regional Water Quality Control Board). 2016. *Waste Discharge Requirements, Limited Threat Discharges to Surface Water, Order R5-2016-0076-01, NPDES No. CAG995002.* Adopted October 14, 2016; Effective February 1, 2017; Expires January 30, 2022.

NID (Nevada Irrigation District). 2012. *Antidegradation Analysis for the Combie Reservoir Sediment and Mercury Removal Project*, August 1, 2012.



APPENDIX B  
*Noise Memorandum*



## MEMORANDUM

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**To:** Brian Grattidge, Environmental Planner  
**From:** Christopher Barnobi, Dudek  
**Subject:** Noise Analysis for Combie Reservoir Project Addendum  
**Date:** March 26, 2018  
**Attachment(s):** Attachment A – Acoustic Definitions and Discussion; Sound and Vibration

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This memo presents the results of a noise assessment for the proposed Combie Reservoir Project Change/Addendum.

We reviewed the Bollard Acoustical Consultants, Inc. Combie Dredge Project Environmental Noise Assessment dated July 9, 2009.

### 1 BACKGROUND

In order to maintain storage capacity at Combie Reservoir, Nevada Irrigation District (NID) has approved and tested a sediment removal process that consists of three components. The first involves the dredging of upper Combie Reservoir using a wet dredge. The second involves the mercury removal and separation process using a Model KCCD-12 MR [DS] Knelson Concentrator and dewatering of the dredge material using mobile on-shore equipment. The third involves the transport of sand and aggregate byproducts to a third party for further processing and/or sale. The maximum sediment removal would be 150,000 to 200,000 tons for the first three to five years, and would decrease thereafter to the amount needed to maintain storage capacity. The proposed project change would affect only the first component, and would allow NID to supplement the wet removal process with dry removal during the low water season. This would allow NID to achieve the planned removal objectives of 150,000 to 200,000 tons.

As noted in the 2009 Noise Assessment, work is expected to occur between 7:00 a.m. and 7:00 p.m. six days per week (no operations on Sunday or federal holidays), and is not expected to be altered by this change to the project. The mercury concentrator is still expected to operate up to 24 hours.

## **2 NOISE SENSITIVE RECEIVERS AND SIGNIFICANCE CRITERIA**

The same study identifies that at the closest position, the dredging equipment would be located 160 feet from the nearest existing residential uses. The nearest residences to the proposed mercury removal equipment would be approximately 500 feet away.

The established noise standards from the 2009 Noise Assessment are 55-60 dBA Leq during daytime periods (7:00 a.m. to 10 p.m.) and 40 dBA Leq during nighttime periods (10:00 p.m. to 7:00 a.m.). Lmax levels are 75 dBA for daytime and 65 dBA for nighttime periods at the nearest residences.

## **3 CHANGE IN PROJECT CONSTRUCTION NOISE ASSESSMENT**

To assess the noise impact from the change in the project scope to include dry removal of sediment during low water seasons, data from a previous similar NID project was used. The Bear River Aggregates Noise Simulation Test Results letter from Bollard Acoustical Consultants (Bollard 2014) provides data for noise measurement results from “a large front loader / excavator (John Deere 410E Loader) moving aggregate materials from an existing on-site stockpile into a heavy haul truck.” The measurements were conducted approximately 125 feet away. According to the letter, “[t]he results of the noise surveys indicate that the heavy earthmoving equipment generated average and maximum noise levels consistent with the reference levels of 70 dB Leq and 80 dB Lmax at a distance of 100 feet”.

This section discusses the noise levels expected from change in project scope, at nearby sensitive receptors using assumed details for the equipment. Noise generated by project activities would be a function of:

- the noise levels generated by individual pieces of equipment,
- the type and amount of equipment operating at any given time, the timing and duration of project activities,
- the proximity of nearby noise sensitive land uses,
- and the presence or lack of shielding at these sensitive land uses.

Project noise levels would vary on a day-to-day basis during each phase of construction, depending on the specific task being completed.

Construction noise is difficult to quantify because of the many variables involved, including the specific equipment types, size of equipment used, percentage of time, condition of each piece of equipment, and number of pieces of equipment that would actually operate on the site.

*Memorandum*

*Subject: Noise Analysis for Combie Reservoir Project Addendum*

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Noise levels generated by construction equipment (or by any point source outdoors) decrease at a rate of approximately 6 dBA per doubling of distance from the source.

Therefore, if a particular construction activity generated average noise levels of 88 dBA at 50 feet, the  $L_{eq}$  would be 82 dBA at 100 feet, 76 dBA at 200 feet, 70 dBA at 400 feet, and so on. Intervening structures that block the line of sight, such as buildings, would further decrease the resultant noise level by a minimum of 5 dBA.

Assuming the typical dry excavation operations would occur near the center of the project area, the typical distance from the proposed project alternative would be about 500 feet from most residential dwelling buildings. At this distance, expected noise levels would be reduced by 12 to 15 dB. Using the reference levels of 70 dB  $L_{eq}$  and 80 dB  $L_{max}$  at a distance of 100 feet, the calculated  $L_{eq}$  is expected to be about 55 to 58 dBA and the  $L_{max}$  about 68 dBA. These expected levels are within the 55-60 dBA  $L_{eq}$  and 75 dBA  $L_{max}$  noise standards established for the project. Since the expected noise levels from this project alternative are within the established noise standards for the project, the project alternative is expected to produce a less than significant impact.

## REFERENCES

Bollard, Paul. Environmental Noise Assessment: Combie Dredge Project. BAC Job # 2008-051. Prepared for Thomas A. Parilo & Associates. July 9, 2009.

Bollard, Paul. "Bear River Aggregates Noise Simulation Test Results." Letter to Brian Grattidge. September 23, 2014.

DOT. 2006. *FHWA Roadway Construction Noise Model: User's Guide*. Final Report. FHWA-HEP-06-015. DOT-VNTSC-FHWA-06-02. Cambridge, Massachusetts: DOT, Research and Innovative Technology Administration. Final Report. August 2006.  
[http://www.fhwa.dot.gov/environment/noise/construction\\_noise/rcnm/rcnm.pdf](http://www.fhwa.dot.gov/environment/noise/construction_noise/rcnm/rcnm.pdf)

FHWA, Roadway Construction Noise Model (RCNM) (2008).

# ATTACHMENT A

*Acoustical Terms and Definitions  
And  
Sound and Vibration Background*

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## ACOUSTIC TERMINOLOGY AND DEFINITIONS

<b>Term</b>	<b>Definition</b>
Ambient Noise Level	The normal or existing sounds pressure level of environmental noise at a given location. The composite of noise from all sources near and far.
Decibel	dB is the unit for measuring sound pressure level, equal to 10 times the logarithm to the base 10 of the ratio of the measured sound pressure squared to a reference pressure, which is 20 micro-Pascal.
A-Weighted Sound Level	dBA is the sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Community Noise Equivalent Level	CNEL is the A-weighted equivalent continuous sound exposure (CNEL) level for a 24-hour period with a ten dB adjustment added to sound levels occurring during nighttime hours (10 pm to 7 am) and a five dB adjustment added to the sound levels occurring during the evening hours (7 pm to 10 pm).
Day / Night Noise Equivalent Level	$L_{DN}$ (or DNL) is the A-weighted equivalent continuous sound exposure level for a 24-hour period with a ten dB adjustment added to sound levels occurring during nighttime hours (10 pm to 7 am).
Equivalent Sound Level	$L_{EQ}$ is the sound level corresponding to a steady state sound level and containing the same total energy as a time varying signal over a given sample period.
Acoustic Center	For a source, the position where the propagating waves can be traced back to a single point of origin.

## ATTACHMENT A (Continued)

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### SOUND AND VIBRATION BACKGROUND

Vibrations, traveling as waves through air from a source, exert pressure perceived by the human ear as sound. Sound pressure level (referred to as sound level) is measured on a logarithmic scale in decibels (dB) that represent the fluctuation of air pressure above and below atmospheric pressure. Frequency, or pitch, is a physical characteristic of sound and is expressed in units of cycles per second or hertz (Hz). The normal frequency range of hearing for most people extends from about 20 to 20,000 Hz. The human ear is more sensitive to middle and high frequencies (about 1,000 to 4,000 Hz), especially when background noise levels are lower. As noise levels get louder, the human ear starts to hear the frequency spectrum more evenly. To accommodate for this phenomenon, a weighting system to evaluate how loud a noise level is to a human was developed. The frequency weighting called “A” weighting is typically used for quieter noise levels which de-emphasizes the low frequency components of the sound in a manner similar to the response of a human ear. A-weighted sound level is referenced with units of dBA.

Since sound is measured on a logarithmic scale, a doubling of sound energy results in a 3 dBA increase in the noise level. Changes in a community noise level of less than 3 dBA are not typically noticed by the human ear (Caltrans 1980). Changes from 3 to 5 dBA may be noticed by some individuals who are extremely sensitive to changes in noise. A 5 dBA increase is readily noticeable. The human ear perceives a 10 dBA increase in sound level as a doubling of the sound level (i.e., 65 dBA sounds twice as loud as 55 dBA to a human ear).

An individual’s noise exposure occurs over a period of time; however, instantaneous noise level is a measure of noise at a given instant in time. The equivalent noise level  $L_{eq}$ , also referred to as the average sound level, is a single-number representing the fluctuating sound level in decibels (dB) over a specified period of time. It is a sound-energy average of the fluctuating level and is equal to a constant unchanging sound of that dB level. Community noise sources vary. Often a relatively stable background or ambient noise environment can still be assessed based on long term measurements.

Noise levels are generally higher during the daytime and early evening when traffic (including airplanes), commercial, and industrial activity is the greatest. However, noise sources experienced during nighttime hours when background levels are generally lower can be potentially more conspicuous and irritating to the receiver. In order to evaluate noise in a way that considers periodic fluctuations experienced throughout the day and night, a concept termed “community noise equivalent level” (CNEL) was developed. The CNEL scale represents a time-weighted 24-hour average noise level based on the A-weighted sound level. CNEL accounts for the increased noise sensitivity during the evening hours (7 p.m. to 10 p.m.) and nighttime hours (10 p.m. to 7 a.m.) by adding five dB to the average sound levels occurring during the evening hours and 10 dB to the sound levels occurring during nighttime hours.