

RESOLUTION R-35-2002**RESOLUTION APPROVING A COOPERATIVE AGREEMENT WHICH PROVIDES FOR THE SHARING OF COSTS IN CONNECTION WITH THE IMPLEMENTATION OF THE SYSTEMS OF CONVEYANCE AND OPERATIONS PROGRAM, PHASE IIIA-EIS**

WHEREAS, pursuant to the provisions of NRS 277.045, two or more political subdivisions may enter into cooperative agreements for the performance of any governmental functions; and

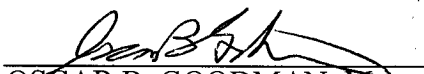
WHEREAS, the cities of Henderson and Las Vegas, Clark County Sanitation District and the Southern Nevada Water Authority desire to enter into the Cooperative Agreement attached hereto which provides for the sharing of costs for the implementation of Phase IIIA-EIS of the System Conveyance and Operation Program, more fully described in the document attached hereto; and

WHEREAS, pursuant to NRS 277.045, every such Cooperative Agreement must be adopted by a formal resolution and must either be spread at large upon the minutes, or attached in full thereto as an exhibit.

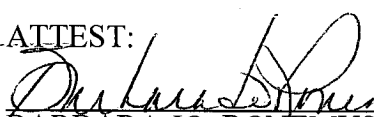
NOW, THEREFORE, BE IT RESOLVED by the City Council of the City of Las Vegas, Nevada that the Cooperative Agreement attached hereto as Exhibit A is hereby adopted and approved and that the Mayor of the City of Las Vegas is hereby authorized to execute the Agreement.

THE FOREGOING RESOLUTION was passed, adopted and approved this 5 day of June, 2002.

CITY OF LAS VEGAS

By:   
OSCAR B. GOODMAN, Mayor

ATTEST:

  
BARBARA JO RONEMUS, City Clerk

APPROVED AS TO FORM:

Robert S. Sylvain 5-16-02  
Date

COOPERATIVE AGREEMENT

ACTION TAKEN

Nat. E. Smil

Date 10/4/2002 PAB

THIS AGREEMENT is effective immediately upon approval by the CITY OF HENDERSON ("HENDERSON"), the CITY OF LAS VEGAS ("LAS VEGAS"), the CLARK COUNTY SANITATION DISTRICT ("DISTRICT"), and the SOUTHERN NEVADA WATER AUTHORITY ("SNWA"), all political subdivisions of the State of Nevada, located within Clark County, Nevada.

WHEREAS, the Las Vegas Valley watershed consists of 1,600 square miles which drains into Lake Mead via the Las Vegas Wash; and

WHEREAS, responsibility for treatment of wastewater generated within the watershed rests with three public agencies - the City of Henderson, the City of Las Vegas, and Clark County Sanitation District collectively known as the "Clean Water Coalition"; and

WHEREAS, responsibility for protecting potable water sources and providing wholesale delivery of drinking water rests with the Southern Nevada Water Authority; and

WHEREAS, the protection of water quality and the environment of the Las Vegas Wash and Las Vegas Bay, as well as the enhancement of Southern Nevada's water resources, are of continued importance to the Clean Water Coalition and SNWA; and

WHEREAS, the Clean Water Coalition has previously entered into a Cooperative Agreement and completed Phases I, II and IIIA of the Alternate Discharge Study, and is prepared to begin environmental services, water quality studies, and modeling as part of the recommended Implementation Plan now known as the Systems Conveyance and Operations Program Phase IIIA-EIS; and

WHEREAS, there is a benefit for the Clean Water Coalition and the Southern Nevada Water Authority to perform an Environmental Impact Statement and various water quality studies and modeling; and

WHEREAS, the parties hereby desire to enter into an agreement to share the cost of

the System Conveyance and Operation Program Phase IIIA-EIS; and

WHEREAS, NRS 277.045 provides that two or more political subdivisions may enter into cooperative agreements for the performance of any governmental functions;

NOW THEREFORE, it is mutually agreed by and between the parties hereto as follows:

WITNESSETH:

1. HENDERSON, LAS VEGAS, DISTRICT, and SNWA shall each appoint one representative and designate an alternate representative to the steering committee. The steering committee shall be advised of, and consult on the administration of the System Conveyance and Operation Program, Phase III A - EIS as attached as Exhibit "A".
2. HENDERSON, LAS VEGAS, DISTRICT, and SNWA hereby agree upon the scope and budget of the System Conveyance and Operation Program, Phase III A -EIS attached as Exhibit "A" and Exhibit "B".
3. The total cost to develop the tasks for the System Conveyance and Operation Program, Phase III A -EIS in an amount not to exceed \$7,462,340 as described in the attached Exhibit "B" shall be shared as follows: The SNWA shall pay up to \$200,000 of the total cost of Task D. In no event shall SNWA be obligated to expend more that \$200,000 under this Agreement. Additionally, SNWA will make available such studies and resources in the medium in which such data is kept by SNWA, related to tasks in Phase III A -EIS as it may have available by reason of other work that SNWA is performing outside of this Agreement. HENDERSON, LAS VEGAS, and the DISTRICT shall share all remaining costs of Phase III A-EIS as follows: HENDERSON, 15%, LAS VEGAS, 38%, and DISTRICT 47%. The shared cost will only apply to the fees of the selected engineering consultant. Any other costs outside of this project shall be borne by the party which incurs those costs.
4. DISTRICT shall act as the lead agency for the project for the purposes of entering into a contract and making payments to the engineering consultant. DISTRICT shall act as the lead agency for the project for the purposes of entering into a reimbursement contract and making payments to the Federal Co-Lead Agencies, Bureau of Reclamation and National Park Service. DISTRICT shall provide copies of the engineering consultants monthly billings and progress reports and the Federal Co-Lead Agencies billings and progress reports to the

other parties and invoice HENDERSON , LAS VEGAS, and SNWA according to the allocations listed in paragraph 3 of this Agreement. HENDERSON, LAS VEGAS and SNWA agree to reimburse DISTRICT as invoiced according to the allocations listed in paragraph 3 of this Agreement.

5. This Agreement shall terminate upon completion of the System Conveyance and Operation Program, Phase III A -EIS as outlined in Exhibit "A" or at the mutual consent of the parties to this Agreement.
6. This Agreement shall not be deemed to be for the benefit of any entity or person who is not a party hereto, and neither this Agreement, nor any interest therein, may be assigned without the prior written consent of the non-assigning parties.
7. All notices under this Agreement shall be in writing and shall be deemed to be delivered on the earlier to occur of (i) the date of actual receipt of the notice (regardless of how it is delivered), and (ii) whether or not actually received, two days after the notice has been deposited in the United States Mail, postage paid, registered or certified mail, return receipt requested, addressed to the Cities, District, or SNWA, as the case may be, at the addresses set forth below.

TO CITIES:

City Manager,  
City of Las Vegas  
400 E. Stewart Avenue  
Las Vegas, NV 89101

City Manager,  
City of Henderson  
240 Water Street  
Henderson, NV 89015

TO DISTRICT:

Director,  
Clark County Sanitation District  
5857 E. Flamingo Road  
Las Vegas, NV 89122

TO SNWA:

General Manager  
Southern Nevada Water Authority  
1001 S. Valley View Blvd.  
Las Vegas, NV 89153

The parties may change the name and address set forth above provided the parties give written notice of such change to the other party in the manner provided in this Agreement.

8. The laws of the State of Nevada will govern as to the interpretation, validity, and effect of this Agreement.
9. If any term, provision, covenant or condition of this Agreement, or any application thereof, should be held by a court of competent jurisdiction to be invalid, void or unenforceable by the laws applicable thereto, such provision shall be deemed severable from, and shall in no way affect the enforceability and validity of the remaining provisions of this Agreement, and all provisions, covenants and conditions of this agreement, and all applications thereof, not held to be invalid, void or unenforceable shall continue in full force and effect.

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IN WITNESS WHEREOF, the parties hereto have entered into this Agreement on the first day set forth above.

ATTEST

CITY OF LAS VEGAS

\_\_\_\_\_  
City ClerkBy \_\_\_\_\_  
Mayor Date

APPROVED AS TO FORM:

Robert S. Elyan 5-16-02  
City Attorney

ATTEST

CLARK COUNTY SANITATION DISTRICT

\_\_\_\_\_  
ClerkBy \_\_\_\_\_  
Director Date

APPROVED AS TO FORM:

\_\_\_\_\_  
Deputy District Attorney

ATTEST

CITY OF HENDERSON

\_\_\_\_\_  
City ClerkBy \_\_\_\_\_  
Mayor Date

APPROVED AS TO FORM:

\_\_\_\_\_  
City Attorney

ATTEST

SOUTHERN NEVADA WATER AUTHORITY

\_\_\_\_\_  
SecretaryBy \_\_\_\_\_  
Chairman Date

APPROVED AS TO FORM:

\_\_\_\_\_  
Attorney

## Exhibit A

# Amendments to the System Conveyance and Operations Program, Phase IIIA-EIS

## INTRODUCTON

### PHASE IIIA

The Scope of Services adopted in the agreement entered into on June 5<sup>th</sup>, 2001 between the Clark County Sanitation District, on behalf of the Clean Water Coalition (CWC), and Black and Veatch Corporation for the Effluent System and Conveyance Program (SCOP), Phase IIIA, CCSD Project No. 445, herein after referred to as "PROJECT" is hereby amended as follows.

This will amend the PROJECT from:

Completing an Environmental Assessment, Design and Construction Services for the Effluent Interceptor, and, Preparatory Studies for a Future Environmental Impact Statement for future stages of the conveyance system;

To:

Complete the Preliminary Design Report for the Effluent Interceptor as specified in the original Scope of Work. Complete an Environmental Impact Statement for the Effluent Interceptor and continuing conveyance systems to receiving areas within Lake Mead and/or the Colorado River; Development of a Las Vegas Wash Water Quality Management Model from the City of Las Vegas Water Pollution Control Facility to the confluence with Las Vegas Bay; Modeling of water quality and flows within alternative receiving areas within Lake Mead and/or the Colorado River; and, the operations and management of distribution of effluent to future receiving area or areas within Lake Mead and/or the Colorado River.

### PHASE IIIA (Amended)

Work Task A, Environmental Assessment. This amendment will direct the efforts underway for the Environmental Assessment of the Effluent Interceptor to the completion of the above-mentioned Environmental Impact Statement. Funds remaining in Work Task A shall be applied to the completion of Work Task G - Prepare an Environmental Impact Statement.

Work Task B, Effluent Interceptor Design. The preliminary design work associated with Work Task B-1 through B-7 will remain in full force and effect, with the following amendments:

Work Task B-4 will be divided into three sub-work tasks. Work Task B-4.1 will complete the permitting to accomplish the open trench and tunnel geotechnical boring programs.

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Work Task B-4.2 will complete preliminary Geotechnical Investigations for open trench portions of the Effluent Interceptor. Work Task B-4.3 will complete preliminary Geotechnical Investigations for the tunnel sections of the Effluent Interceptor. The preliminary geotechnical investigations included in Work Task B-4.3 are necessary to complete a preliminary Geotechnical Baseline Report and a preliminary Geotechnical Design Report on the following four tunnels.

- 1) CLV Tunnel – Approximately 400 feet of tunnel crossing the Las Vegas Wash Flood Control District RW.
- 2) CCSD Tunnel – Approximately 650 feet of tunnel connecting the Central Plant outfall to the Effluent Interceptor below the AWT discharge facility.
- 3) COH Tunnel – Approximately 1,200 feet of tunnel connecting the COH outfall to the Effluent Interceptor on the North side of the Las Vegas Wash in the vicinity of Pabco Road.
- 4) Mainline Tunnel – Approximately 7,000 feet of tunnel of the effluent interceptor terminating near Three Kids Wash.

The Effluent Interceptor pre-design work will be completed through the Preliminary Design Report, Work Task B-7. The Preliminary Design Report will include a preliminary Geotechnical Report on the open trench portions of Effluent Interceptor and preliminary Geotechnical Baseline Report and preliminary Geotechnical Design Report for the four tunnel sections outlined above. These geotechnical reports will include the recommended final geotechnical investigations to complete Final Design.

Work Task B-7 – Prepare a Pre-Design Report that will be completed to accommodate final design and construction of the following projects:

- 1) Reach One: From the CLV WPCF to the CCSD connection structure to the Effluent Interceptor;
- 2) Reach Two/Three: From the CCSD Connection to the beginning of the Mainline Tunnel, including CCSD and COH connection structures;
- 3) Tunnel Crossings of the Wash: Including the trenchless (tunnel) sections for the Wash crossings, the CLV Tunnel, CCSD Tunnel and the COH Tunnel;
- 4) Main Line Tunnel: The tunnel from the end of open trench in Reach Three to the Terminus of the Effluent Interceptor, including the Terminus structure and return flow structure for returning effluent to the Wash.
- 5) Power Facilities: The optional installment of power recovery facilities at either the COH connection to the Effluent Interceptor, or, at the terminus of the Effluent interceptor near Three Kids Wash.

Work Tasks B-8 through B-14, Final Design and Construction Documents for the five construction packages identified in Task B-7. Final Design of the Effluent Interceptor will

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commence upon the submittal of the Draft Environmental Impact Statement for the continuation of the conveyance system beyond the effluent interceptor or as directed by the CWC. At that time the Final Design of the Effluent Interceptor will be completed through separate Scope of Services, Schedule and Budget.

Work Task C-1, Colorado River Outfall below Hoover Dam, will not be pursued beyond the work effort completed as of March 1, 2002. Further consideration for this option will be included in the Work Task H – Alternative Screening, Determination of Preferred Alternative, and Preliminary Design of Environmental Impact Statement Alternatives.

Work Task D, Modeling of Boulder Basin and Colorado River Below Hoover Dam, will be amended to develop, calibrate, and verify the following computer models:

- 1) The Las Vegas Wash from the discharge point of the City of Las Vegas to the confluence of the Las Vegas Wash and the Inner Las Vegas Bay, a portion of Boulder Basin of Lake Mead.
- 2) The Inner Las Vegas Bay.
- 3) Boulder Basin to and including the narrows of Black Canyon above Hoover Dam.
- 4) The Colorado River below Hoover Dam including Lake Mohave to and through Davis Dam.

The above modeling efforts will include the seven modeling issues identified in the following Amended Scope of Services.

Work Task E, Water Quality Criteria Assessment, will remain as presented in the original Scope of Services. The Water Quality Criteria Assessment will be addressed as a part of the Environmental Impact Statement.

Work Task F, Project Management, will continue through the completion of the Preliminary Design Report for the Effluent Interceptor and will be extended through the completion of the Environmental Impact Statement for the amended Project scope of services. Project Management will include the oversight and management of Federal Lead agencies activities on behalf of the CWC during the EIS process.

Work Task G - Prepare an Environmental Impact Statement that will complete the Environmental Impact Statement for the Effluent Interceptor, the conveyance system to receiving area(s) in Lake Mead and/or the Colorado River, process improvements and the management of Wash water quality.

Work Task H – Alternative Screening, Determination of Preferred Alternative, and Preliminary Design of Environmental Impact Statement Alternatives, will provide the level of design and analysis of not more than three conveyance alternatives, process improvements, supplemental treatment near Three Kids Wash, and the “do nothing” alternative for the EIS.

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**Phase IIIB and IIIC are included in the Scope of Services but not authorized or funded at this time. Activities under Phase IIIB and IIIC are subject to future authorization and funding.**

**Phase III B:**

**Task B-8 through B-14:** The BV+Team will complete the design services for the effluent interceptor. The BV+Team will provide assistance with the acquisition of Right of Way and bidding services.

**Tasks E-2 through E-5:** The BV+Team will work with the CWC and the SNWA to establish water quality criteria.

**Phase III C:**

**Task B-15:** The BV+Team will provide construction services for the effluent interceptor.

**Task F-4:** The BV+Team will develop a Scope of Services, Estimated Budget, and Schedule for future phases of design and construction of elements extending from the Effluent Interceptor.

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The detailed Amended Scope of Services for all tasks is as follows:

**A – Effluent Interceptor Environmental Services****Task A-1 – Develop a Permit Plan (Completed as part of EA)**

An environmental permit plan will be developed for the effluent interceptor (Project) as determined in Task B-1. This plan will be used to ensure that requisite permits are obtained expediently so that a right-of-way grant and construction can quickly follow the Decision Record.

The environmental permit plan will require the land ownership and Project description. After preliminary alignments are identified, the permit matrix developed during Phase I of the SCOP will be reviewed and updated to address the Project description, land ownership, and other site-specific issues. Application requirements, schedules, and permit application costs for the Project alternatives will be described in detail. The updated permit matrix will include federal, state, and local permits and approvals needed before the Project can proceed.

The Technical Memorandum will be reviewed by the Project Steering committee. Edits will be included in a final Permit Plan Technical Memorandum.

**Task A-2 – Prepare an Environmental Assessment (EA)**

This task includes preparation of the federally required EA of the potential impacts associated with the construction, operation, and maintenance of an effluent interceptor as determined in Task B-1, which is expected to traverse private property and lands under the jurisdiction of the Bureau of Land Management and/or the Bureau of Reclamation (Federal Lead).

The EA process has completed tasks 1 and 2 of the following tasks. Tasks 3 through 15 are hereby deleted from Task A-2, and are included in Work Task G – Prepare an Environmental Impact Statement.

1. Project Initiation – The BV+Team will begin the EA immediately upon approval of a short list of two alternative alignments. The BV+Team will:
  - Confirm proposed approach, establish communication protocols, review administration procedures process and review times with CWC Steering Committee, and ensure special concerns are included and addressed in the EA.
  - Prepare a Memorandum of Agreement for execution by the CWC and the Federal Lead Agencies.
  - Prepare a draft Purpose and Need statement for the Project; this is a crucial element because it strongly influences alternatives that must be addressed in the EA.
  - The Permit Plan Project description will be used to define the proposed action and alternatives. The definition of the proposed action and the alternatives will be submitted to the Project Steering Committee for review and acceptance prior to conducting technical analysis for the EA.

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- The BV+Team will prepare project instructions that include relevant data, maps, schedules, formats, and procedures for completing the EA. These instructions will include a summary of project purpose, objectives, approach, outline of deliverables, schedule, contact lists, and confidentiality protocols.
2. The BV+Team will schedule four (4) public scoping meetings, two (2) in Las Vegas and two (2) in Henderson, Nevada. Two (2) daytime and two (2) evening meetings are planned. The BV+Team will prepare and publish scoping meeting notices in three (3) local newspapers. Up to five (5) graphic displays will be prepared for use at the meetings. Up to four (4) BV+Team members will assist with and present at the meetings. Sign-in sheets and comment cards will be prepared. Draft and final notes will be prepared to summarize comments received at the scoping meetings. A court reporter will be retained to record comments that can be included in the Final EA.

**Task A-3 – Perform a Biological Assessment**

Task A-3 is hereby deleted. An expanded Biological Assessment is incorporated in Work Task G – Prepare an Environmental Impact Statement.

**Task A-4 – Perform a Cultural Resources Assessment**

Task A-4 is hereby deleted. An expanded Cultural Resources Assessment is incorporated in Work Task G – Prepare an Environmental Impact Statement.

**Task A-5 – Obtain a U.S. Army Corps of Engineers 404 Permit**

Task A-5 is hereby deleted. An expanded U.S. Army Corps of Engineers 404 Permit is incorporated in Work Task G – Prepare an Environmental Impact Statement.

**B – Effluent Interceptor Design****Task B-1 - Alternatives Development w/ Planning Level Aerial Mapping**

The purpose of this task is to provide a broad review of possible project alternatives. At the conclusion of this task, two alternative projects will be evaluated under the screening analysis task.

**Task B-1.1 Initial Alignment Reconnaissance.** The initial reconnaissance will be completed to allow a screening of alternative alignments for the Effluent Interceptor from the City of Las Vegas Treatment Plant to the vicinity of the intake structures for Lake Las Vegas.

**Task B-1.2 Geotechnical Reconnaissance Assessment.** A screening study will be conducted of the alternative pipeline corridors to determine the general geotechnical conditions present in these areas and to identify significant design and construction issues.

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The initial geotechnical investigations will characterize the geologic conditions and potential geologic and seismic hazards along each alternative corridor. Areas of difficult construction that may require special construction procedures shall be identified. Existing reports, published and unpublished geotechnical/geologic reports, and available data pertaining to the alternative corridors will be evaluated. A field reconnaissance of each alternative corridor will be completed and the findings summarized.

The findings from the geotechnical screening will be summarized in a draft Geotechnical Report. The Geotechnical Report will identify the key geotechnical issues and the significant geotechnical areas of design interest and will provide recommendations for a geotechnical investigation program to be performed for the recommended effluent interceptor alignment.

**Task B-1.3 Alignment Alternatives Study.** Initial investigations have identified a primary corridor that could provide the basis for the effluent interceptor pipeline alignment. A screening study will be performed to identify the recommended alignment for the effluent interceptor.

- (1) Identify Alternative Routes. Aerial digital orthophotography at a 1"=200' scale with an approximate 2,000 foot wide corridor and existing property and utility maps within the primary corridor, will be compiled and evaluated to identify potential alternative alignments for consideration in the initial screening analysis.
- (2) Conduct Field Reconnaissance. A field surface reconnaissance will be performed for the alternative routes to determine the specific evaluation criteria relevant to each alternative. A summary memorandum of the field reconnaissance will be prepared.
- (3) The alternative alignments will be evaluated and the advantages and disadvantages of each alternative alignment will be summarized. Evaluation criteria will include geotechnical/geologic conditions, environmental conditions, hydraulic criteria, constructability, pipeline length, required size of pipe, right-of-way width, capital cost, and operation and maintenance costs.

The alignment evaluations shall consider impacts to property and structures, utility conflicts, road crossings, drainage course crossings, construction and maintenance access, construction de-watering, permitting, geologic hazards, environmentally sensitive areas, construction staging areas, waste material storage areas, and other relevant issues.

- (4) A plan and profile drawing for each alternative alignment studied will be prepared. Drawings will be prepared using computer generated drafting and will be suitable for reproduction at 11 inch by 17 inch size as part of the Design Criteria Report. The horizontal scale on the plan and profile drawings will be approximately 2 miles per inch for the 11 inch by 17 inch drawings.

**Task B-1.4 Corrosion Control Investigation.** A corrosion investigation will be performed which will identify significant corrosion concerns that would impact the Effluent Interceptor design criteria and potentially the total cost of the Effluent Interceptor. This analysis will be a broad scope analysis intended to identify fatal flaw issues associated with the alternatives.

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Sources of corrosion that shall be considered are soils, water, and stray electrical currents from cathodically protected buried pipelines. The potential for electrical coupling with existing electrical power transmission lines will also be evaluated for personnel safety and acceleration of corrosion impacts. Preliminary recommendations for safety, corrosion protection, and mitigation of electrical coupling will be identified.

A Corrosion Report documenting the results of this task will be prepared.

**Task B-1.5 Hydraulic Analysis.** Initial hydraulic analysis shall be performed for each of the alternatives to provide a basis for evaluating the impacts associated with implementing the alternative. Hydraulic profiles illustrating system performance will be prepared for each alternative. Areas of hydraulic concern, such as high and/or low-pressure areas, will be identified. Additional evaluations will be performed to assure compatibility with current and planned wastewater treatment and reclamation facilities and operations.

The hydraulic analysis will become a chapter in the Design Criteria Report and will summarize the methods used, assumptions, findings, and recommendations.

**Task B-1.6 Fatal Flaw Analysis.** The BV+Team will conduct a fatal flaw analysis for each alternative to determine if there are any "fatal flaws" that would preclude its construction. Fatal flaws may include technical, practical, or environmental constraints that would make completion of the project alternative virtually impossible.

**Task B-1.7 Facilities Concepts Development.** The basis for selection, sizing, and configuration of the major components of the Effluent Interceptor will be reviewed and defined. Each of the major elements will be studied that comprise a complete project. The purpose of this analysis will be to provide sufficient definition to the components of the Effluent Interceptor to facilitate review and revision to the construction cost estimate. Concept development drawings will be prepared to illustrate each of the project components and for inclusion in the Design Criteria Report.

**Task B-1.8 Design Criteria Report.** Prepare the design criteria report that establishes the preliminary design criteria and operational and maintenance criteria for the Effluent Interceptor. The report will address surveying criteria, right-of-way needs, hydraulic design, material selection, excavation and backfill criteria, dewatering criteria, permitting, and other design elements. The Design Criteria Report will serve as the basis for design, evaluation of alternatives, material selection, and the development of plans and specifications for construction.

### **Task B-2 - Alternative Screening Analysis**

The alternatives developed in preceding tasks will be evaluated to define the recommended preferred alignment for the Effluent Interceptor.

**Task B-2.1 Evaluation Criteria.** The criteria to be used as the basis for performing the screening analysis will be developed by the BV+Team, reviewed and approved by the CWC prior to the screening of the alternatives proceeding. Examples of screening criteria that may be applicable to the Effluent Interceptor include feasibility, constructability, right-of-way and land use impacts, environmental impacts, permitting,

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operations integration with the CWC water treatment and reclamation facilities, construction cost, and operation and maintenance costs.

**Task B-2.2 Cost Estimating.** The definition of the Effluent Interceptor components will be the basis for development of the consultant's opinion of probable construction costs. The cost estimates will incorporate the consultant's experience with similar projects. Contact will be made with equipment suppliers and manufacturers to obtain budget pricing for major equipment items.

The opinion of probable construction cost will include construction costs, O&M costs, and a net present value. O&M costs shall be based on operating costs for similar effluent pipeline facilities. The opinion of probable construction cost will be provided at the completion of the screening work as a chapter in the Preliminary Design Report.

**Task B-2.3 Evaluation Matrix.** The BV+Team shall present the advantages and disadvantages associated with each alternative, and shall identify the recommended alternative for proceeding with the effluent interceptor. The evaluation data will be presented in a matrix format.

**Task B-2.4 Design Criteria Workshop.** The BV+Team will assemble, reproduce, and distribute the Design Criteria Report to participants in a Workshop.

The BV+Team will assist the CWC in preparations for and conducting the Workshop.

**Task B-3 – Effluent Interceptor Design Survey and Aerial Mapping**

This activity will complete survey services to establish horizontal and vertical control for the Effluent Interceptor, to provide alignment information for roadways and the location and elevation of existing topographic features and manmade features that may affect the Project.

The aerial mapping will provide 1"=40' scale digital planimetric and topographic mapping with a 1 foot contour interval, approximately 400' wide centered on the preliminary design alignment. All mapping will meet or exceed ASPRS Class 1 Map Accuracy Standards.

**Task B-4 – Geotechnical Analysis**

**Task B-4.1 Geotechnical Permits.** All permits for the geotechnical investigations shall be coordinated with the appropriate Federal, State, County, and City agencies to obtain permits for conducting the field investigations for the open trench and tunnel geotechnical boring programs.

**Task B-4.2 Geotechnical Investigations.** An expanded geotechnical investigation will be performed in three distinct subtasks. The first subtask will provide permitting for the geotechnical boring program. The second subtask will complete preliminary geotechnical analysis for the open trench area of the effluent interceptor and the third subtask will include preliminary Geotechnical Baseline and Geotechnical Design Reports for the four tunnels identified in the Design Criteria Report. Each subtask will provide expanded data for evaluation of the alternatives and additional geotechnical information that will be applicable to the preliminary design.

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**Task B-4.2.1 Field Investigations – Open Trench.** Collect and review geotechnical information along the selected pipeline alignment, proposed locations of critical structures and at the major flood control crossings. Borings and/or test pits shall be performed at the locations of alignment changes and along the alternative pipeline alignment at an average spacing of approximately 3,000 feet. The geotechnical consultant shall secure the necessary permits, obtain underground utilities clearance, and in addition:

- Perform a field investigation program including borings to characterize the subsurface soil conditions, obtain shallow groundwater data, and collect soil samples.
- Perform laboratory testing on soils samples collected from the exploration to obtain engineering parameters.
- Perform engineering analyses to evaluate pipeline crossings, shallow groundwater, seismicity and faulting, liquefaction, seismically-induced settlement, slope stability, shoring requirements, and use of site soils as bedding and backfill materials.

**Task B-4.2.2 Geotechnical Report – Open Trench.** A draft Preliminary Geotechnical Report shall be prepared documenting the results of the field investigations and analysis of relevant information. The Preliminary Geotechnical Report shall define the preliminary basis for design and shall also define the recommended geotechnical investigations to be performed during final design on the selected alignment.

**Task B-4.3 Geotechnical Investigations for Tunnel Sections of Effluent Interceptor.**

The purpose of the geotechnical work under Work Task B-4.3 is to obtain information considered necessary for preparation of a preliminary Geotechnical Baseline Report (GBR), preliminary Geotechnical Data Report (GDR), Preliminary Design Report (PDR), preliminary plans and cost estimate. The PDR will recommend geotechnical investigations to be performed for final design of the following trenchless (tunnel) sections of the Effluent Interceptor that cross the Las Vegas Wash:

- 1) CLV Tunnel: Approximately 400 feet crossing in soft ground near the CLV WPCF;
- 2) CCSD Tunnel: Approximately 650 feet crossing in soft ground between the CCSD Central Plant and AWT;
- 3) COH Tunnel: Approximately 1200 feet crossing in soft rock at COH WRF outfall;
- 4) Mainline Tunnel: Approximately 7000 feet crossing in hard rock and soft rock terminating at the end of the Effluent Interceptor near Three Kids Wash. The terminus of this tunnel section will accommodate the return flow structure to the Las Vegas Wash, a possible power facility at the terminus of the Effluent Interceptor and continuation of the conveyance system to areas within Boulder Basin and/or the Colorado River.

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**Task B-4.3.1 Tunnel Design Review Board.** The BV+Team will retain a Design Review Board (DRB) consisting of a panel of consultants with expertise in tunneling and geotechnical engineering. The BV+Team will consult with the DRB during the geotechnical investigation work and at selected project completion milestones. The DRB will review and comment on the subsurface investigations and on the preliminary draft of the Geotechnical Data Report (GDR) prepared by the BV+Team. The BV+Team will address the comments of the DRB and will modify the contents of the GDR as mutually agreed upon between the BV+Team and the DRB.

**Task B-4.3.2 Field Investigations - Trenchless (Tunnel) Sections.** The BV+Team will collect and review geotechnical information along the selected pipeline alignment, proposed locations of tunnel portal structures, and tunnel geotechnical reports and designs within the Las Vegas Wash area. Boring locations and depths shall be performed at locations reviewed and recommended by the DRB. The BV+Team shall secure the necessary permits and obtain underground utilities clearance and in addition:

- Perform a drilling program including borings to characterize the subsurface soil conditions, rock structure, fault and shear zones, obtain shallow groundwater data, and collect soil and rock samples to provide an accurate description of the materials encountered, defining changes in material characteristics with depths.
- Perform laboratory testing on soils and rock samples collected from the exploration to obtain engineering parameters.
- Perform engineering analyses to evaluate tunnel sections, shallow groundwater, seismicity and faulting, liquefaction, seismically-induced settlement, slope stability, shoring requirements, and dewatering during construction.

**Task B-4.3.3 Geotechnical Data Report – Trenchless (Tunnel) Sections.** A preliminary Geotechnical Data Report (GDR) shall be prepared that includes the following items specific to the sections of the alignment that are tunneled.

- Regional geology
- Local geology
- Available logs of borings along the alignment
- Boring location maps
- Exploration and testing procedures
- Laboratory test results
- Pressure test results
- Slug test results
- Pump test results
- Geologic cross sections along the alignment

**Task B-4.3.4 Geotechnical Baseline Report – Trenchless (Tunnel) Sections.** A preliminary Geotechnical Baseline Report (GBR) shall be prepared that follows the guidelines and practices established in Geotechnical Baseline Reports for Underground Construction, ASCE, 1997. The GBR shall include the following items specific to the sections of the alignment that are tunneled.

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- Regional geology
- Local geology
- Description of soil units
- Description of rock units
- Major discontinuities
- Groundwater
- Hazardous Substances
- Anticipated engineering rock mass classifications
- Anticipated groundwater inflows
- Anticipated initial support
- Rock loads
- Soil loads
- Tunnel boring machine requirements
- Liner requirements

**Task B-5 – Perform a Utility Inventory**

This activity is to provide the special engineering services to determine the elevations and locations of underground utilities and hydraulic structures that may be affected by the Project. The utility inventory includes a records search of all existing and planned facilities within the alignment corridor. A utility inventory Technical Memorandum will be prepared.

**Task B-6 – Prepare Preliminary Plans**

This activity will include the preparation of preliminary plans for the effluent interceptor. The drawings will include the following sheets:

- Title Sheet
- Index
- General Notes
- Plan View (Alignment, utilities, property owners, topography)
- Profile (slope and alignment)
- Detail Sheets (Major tunnel sections, utility and road crossings, and outfall to Wash)

**Task B-7 – Prepare a Pre-Design Report**

This activity is to prepare a Pre-Design Report that will include the following:

- Design Criteria Report
- Right-of-Way Analysis
- Existing Facility Search
- Utility Inventory
- Preliminary Geotechnical Report - Open Trench
- Preliminary Geotechnical Data Report - Tunnels
- Preliminary Geotechnical Baseline Report - Tunnels
- Preliminary Drawings - Pipeline and Appurtenances
- Preliminary Drawings - Tunnel Sections and Appurtenances
- Preliminary Cost Estimate, Scope of Service, Schedule and Budget for Phase III B effluent interceptor design services

**Tasks B-8 through B-15 will be deferred until the Draft EIS on the Effluent Interceptor and Conveyance System has been submitted to the Lead Agencies and/or authorization to proceed has been received from the Client.**

#### **Task B-8 – Prepare 50% Plans and Specifications**

This activity will include the preparation of plans and specifications for the effluent interceptor.

The specifications shall be a legible first draft with all Divisions, including Supplemental Technical Specifications.

The drawings will include the following sheets:

- Title Sheet
- Index of drawings
- Location Map
- Abbreviations
- General Notes
- Plan and profile sheets are partially complete
- Detail Sheets laid out

#### **Task B-9 – Prepare Legal Descriptions**

This activity will consist of preparing the necessary Legal Descriptions for the acquisition of right-of-way and easements as identified in the alignment study and right-of-way analysis.

#### **Task B-10 – Right-of-Way Acquisition**

This activity will include obtaining the necessary right-of-way and easements to construct the effluent interceptor.

#### **Task B-11 – Prepare 90% Plans and Specifications**

This activity will include the preparation of plans, specifications, and cost estimate for the effluent interceptor.

The specifications shall be a final version of all Divisions, including Supplemental Technical Specifications incorporating all comments from the 50% design review.

Complete set of drawings including all information necessary to complete a 100% design package including all comments from the 50% design review.

#### **Task B-12 - Obtain Permits**

This activity will include applying for and obtaining all necessary permits to construct the effluent interceptor, with the exception of the permits the contractor must obtain.

Because the list of permits has not yet been completed (Task A-1), the level of effort cannot be predicted with certainty.

#### **Task B-13 – Prepare 100% Plans and Specifications**

This activity will include the preparation of plans, specifications, and cost estimate for the effluent interceptor.

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The specifications shall be the final version of all Divisions, including Supplemental Technical Specifications incorporating all comments from the 90% design review.

Complete set of drawings including all comments from the 90% design review.

**Task B-14 – Bidding Services**

Print and Distribute Bid Documents. Provide a sufficient number of sets of construction contract documents for bidding and construction purposes, and distribute to prospective bidders. Receive deposits for construction contract documents. Maintain a record of prospective bidders and suppliers to whom drawings or specifications have been issued.

Answer Contractor Questions. During the Bid Period, respond to questions raised by potential bidders. Provide CWC with copies of all written correspondence to prospective bidders during the bid period.

Prepare Addenda. Prepare and issue clarifications and/or addenda to the construction contract documents when required.

Consultant's Opinion of Probable Construction Cost. Prepare the final Consultant's Opinion of Probable Construction Cost and provide to the CWC.

Pre-Bid Conference. Conduct, at a date and time selected and a place provided by the CWC, a prebid conference to:

Instruct prospective bidders and suppliers as to the types of information required by the contract documents and the format in which bids should be presented.

Review special project requirements and construction contract documents in general. Receive requests for interpretations, which will be issued by addendum.

Bid Opening. Attend the bid opening at a date, time and place selected by CWC.

Prepare Bid Tabulation. Review the bids and prepare a tabulation comparing the bids received.

Evaluate Bids. Review the supporting and qualifying information provided by the bidders. Prepare recommendations for the CWC on award of the construction contract.

**Task B-15 – Construction Services**

Partnering Workshop. At a date and time selected by CWC and at a facility provided by CWC, attend a 2-day "Partnering Workshop." The Partnering Workshop will include representatives from the CWC, Contractor, and Consultant. The CWC will provide the facilitators for the workshop. The planned representatives from the Consultant's staff would include: Project Manager, Project Engineer, the Staff Engineer responsible for review of contractor's shop drawings, Resident Project Representative, and Assistant Resident Project Representative. Other members of the Consultant's staff may be requested to attend by the CWC.

Answer Contractor Questions. Receive and respond to Requests for Information (RFIs) from the contractor during the performance of the work. Provide written responses to the RFIs. Maintain a database of RFIs and other project-related correspondence on

*Primavera's Expedition Contract Control Software.* Provide reports to CWC with the regular progress reports.

**Prepare Change Orders.** Review requests from the Contractor for "changed conditions" in the Work. Prepare recommendations on acceptability, scope and cost of such requests and review with CWC. Upon CWC's concurrence, negotiate acceptable changes with Contractor. Provide documentation and assistance for CWC in processing of change orders.

**Site Visits.** Make periodic visits to the construction site to observe progress of the work, and consult with the CWC and the Contractor concerning problems and progress of the work. The anticipated schedule will be for the Project Engineer, or other Consultant staff, to make a one-day visit each month to the project site.

Upon substantial completion, inspect the construction work and assist the Resident Project Representative in preparing a "punch-list" of those items to be completed or corrected before final completion of the project.

**Monitor Contractor's Schedule.** Perform a review of the validity of the Contractor's initial project schedule, prepare a report on same, and deliver to CWC and Contractor. Meet with CWC and Contractor to discuss findings and resolve issues. Review and comment on the Contractor's monthly updated construction schedule and advise the Contractor and CWC as to the validity of logic and acceptability.

**Phase Administration.** Provide management and oversight of Consultant's staff in providing services during this Construction Phase Services of the project. Provide CWC with monthly reports on work under this phase.

Review drawings and other data submitted by the Contractor as required by the construction contract documents.

**Assemble Manufacturer's O&M Information.** Collect and organize four (4) sets of operation and maintenance data provided by the Contractor. Each set will be placed in separate binders, with the binders indexed, and a table of contents provided. Binders will be submitted to CWC.

**Update O&M Manuals.** Consultant will update the existing O&M Manuals to reflect the facilities added or modified under this construction contract. CWC will provide electronic and paper copies of the text and graphic files, which the CWC has in their possession, of the existing manuals to Consultant from which to work. Consultant will provide the modified electronic files and one set of camera-ready documents for reproduction and inclusion in the existing manuals.

**Prepare As-Built Drawings.** Upon completion of the project, revise the construction contract drawings to conform to the as-constructed field records. Submit one (1) set of reproducible original mylar drawings to the CWC.

Construction Management. Consultant will furnish construction management staff with specific services to be determined at the completion of Task B-13.

## **PREPATORY STUDIES FOR FUTURE ENVIRONMENTAL IMPACT STATEMENT**

Three separate studies will be completed to develop information needed for preparing an Environmental Impact Statement (EIS) for future stages of the project. These studies are focused on identifying outfall locations within the Colorado River downstream of Hoover Dam.

### **C – Colorado River Outfall Below Hoover Dam**

This series of work tasks will identify potential sites below Hoover Dam that can accommodate a Colorado River Effluent Outfall. The initial work task will assess the physical and technical aspects for a potential outfall. Coordination of efforts with other programs such as the Hoover Dam Historical District and the alignment for the proposed highway corridor for a new access across the Colorado River will be included. In each work task, coordination with downstream interests including, but not limited to, the States of Arizona and California, Native American Tribes, the Metropolitan Water District of California, and Federal and State agencies involved with the Colorado River.

#### **Task C-1 – Location Analysis Study**

**Task C-1.1 – Define River Outfall Issues.** This work task has been completed. The results indicate that only one feasible alternative for a river diffuser is available, in the area of Gold Strike Canyon. Due to a proposed area suitable for National Wilderness Area, recreational areas, spawning areas for endangered species, and physical and technical constraints, no other river outfall areas below Hoover Dam are being considered. The Gold Strike Alternative is one of the alternatives that will be considered in Work Task G – Prepare an Environmental Impact Statement and Work Task H - Alternative Screening, Determination of Preferred Alternative, and Preliminary Design of Environmental Impact Statement Alternatives.

The BV+Team will identify and meet with stakeholders with an interest and/or participation role in the Colorado River Outfall. The BV+Team will work with the CWC to review alternatives, prepare alternative descriptions, participate in stakeholder interviews, prepare a summary of interview information and prepare a summary of issues associated with site location and operations of a river outfall.

The BV+Team will obtain data based on the specific alternative outfall sites and connecting pipelines. The intent of this task is to coordinate with ongoing efforts to avoid duplication of effort from previous work and expedite the assessment of potential outfall locations with connecting pipelines. Data gathering for each site and pipeline route will be compiled into a list of data that will be used to evaluate the feasibility of each of the interim and short-listed alternatives for a river outfall system.

The BV+Team will develop a list of probable constraints that may impact the development and selection of an outfall alternative and must be resolved for that outfall alternative to be implemented. This will include identification and coordination of the range of options with the issues concerning impacts from State and Federal Regulatory processes, Clean Water Act-based regulations and rules, stewardship by BOR, BLM, USFWS, EPA and other federal agencies, NDEP, the State of Arizona, the State of California including the Metropolitan Water District, and Native American Tribes. This effort will be closely coordinated with the CWC concerning the other categories considered for alternative evaluation.

**Task C-1.2 – Develop Conceptual Plan for Interim Alternatives.** Task C-1.2 is hereby deleted. The assessment of the Gold Strike Alternative will be included in Work Task G – Prepare an Environmental Impact Statement and Work Task H - Alternative Screening, Determination of Preferred Alternative, and Preliminary Design of Environmental Impact Statement Alternatives.

**Task C-1.3 – Prepare and Distribute TM package for Workshop Participants, Conduct Workshop.** Task C-1.3 is hereby deleted. The assessment of the Gold Strike Alternative will be included in Work Task G – Prepare an Environmental Impact Statement and Work Task H - Alternative Screening, Determination of Preferred Alternative, and Preliminary Design of Environmental Impact Statement Alternatives.

**Task C-1.4 – Evaluation of Shortlist of Alternatives for a Colorado River Outfall.** Task C-1.4 is hereby deleted. The assessment of the Gold Strike Alternative will be included in Work Task G – Prepare an Environmental Impact Statement and Work Task H - Alternative Screening, Determination of Preferred Alternative, and Preliminary Design of Environmental Impact Statement Alternatives.

**Task C-1.5 – Prepare Final Report on Findings and Recommendations.** Task C-1.5 is hereby deleted. The assessment of the Gold Strike Alternative will be included in Work Task G – Prepare an Environmental Impact Statement and Work Task H - Alternative Screening, Determination of Preferred Alternative, and Preliminary Design of Environmental Impact Statement Alternatives.

#### **Task C-2 – Prepare a Recreation Technical Memorandum**

Task C-2 is hereby deleted. The assessment of the Gold Strike Alternative will be included in Work Task G – Prepare an Environmental Impact Statement and Work Task H - Alternative Screening, Determination of Preferred Alternative, and Preliminary Design of Environmental Impact Statement Alternatives.

#### **Task C-3 – Prepare a Biological Evaluation Technical Memorandum**

Task C-3 is hereby deleted. The assessment of the Gold Strike Alternative will be included in Work Task G – Prepare an Environmental Impact Statement and Work Task H - Alternative Screening, Determination of Preferred Alternative, and Preliminary Design of Environmental Impact Statement Alternatives.

**05/15/02 System Conveyance and Operations Program – EIS Amendments****Task C-4 – Prepare a Cultural Resources Assessment Technical Memorandum**

Task C-4 is hereby deleted. The assessment of the Gold Strike Alternative will be included in Work Task G – Prepare an Environmental Impact Statement and Work Task H - Alternative Screening, Determination of Preferred Alternative, and Preliminary Design of Environmental Impact Statement Alternatives.

**Task C-5 – Prepare a Colorado River Outfall Technical Memorandum**

Task C-5 is hereby deleted. The assessment of the Gold Strike Alternative will be included in Work Task G – Prepare an Environmental Impact Statement and Work Task H - Alternative Screening, Determination of Preferred Alternative, and Preliminary Design of Environmental Impact Statement Alternatives.

**D – Modeling of Boulder Basin and Colorado River Below Hoover Dam**

Pollutants of concern in Lake Mead and the downstream Colorado River include conventional constituents, endocrine disrupters, and other toxicants. Conventional constituents include nitrogen, phosphorus, suspended solids, dissolved solids, and bacteria.

To fully understand the transport and fate of pollutants in Lake Mead and the Colorado River requires development of separate reservoir and river simulation models. The simulated flows and constituents flowing out of the reservoir from Hoover Dam become inputs to the Colorado River Model.

The models will provide decision makers with a systematic evaluation tool that will have the capabilities to evaluate potential alternate discharge locations for the CWC highly treated effluent and the operations of the SNWA water intake structures. Impacts from different discharge locations will be compared with each other and with a base "No Action" scenario corresponding to the present discharge through the Las Vegas Wash.

**Task D-1 – Form a Model Evaluation Group and Analyze Pre-Modeling Issues**

Work Task D-1 is ongoing and will continue as models are developed. The Modeling and Water Quality Criteria Committee is acting as the Model Evaluation Group. The identified issues listed below are carried forward in all modeling efforts. There are five major modeling efforts being conducted:

- 1) Development of a Las Vegas Wash Water Quality Management Model on the Wash from the vicinity of the City of Las Vegas Water Pollution Control Facility to the confluence of the Las Vegas Wash with the Inner Las Vegas Bay.
- 2) Development of a Water Quality Model to assess the pollutant loadings and assimilation capacity of the Las Vegas Bay.

- 3) Development of a Water Quality Model on Boulder Basin from the Las Vegas Bay to Hoover Dam.
- 4) Development of a Water Quality Model for determining mixing zone capabilities of the Colorado River Below Hoover Dam.
- 5) Development of a Water Quality Model for determining the assimilation capacities of Lake Mohave.

Each model is being developed as needed from a single dimensional model to a higher level of modeling. The development of the models is in phases as recommended by the Modeling Committee and authorized by the Client.

The BV+Team will coordinate the formation of a Model Evaluation Group (MEG). The BV+Team and the MEG will work together to identify issues related to the following areas of influence:

- Mixing within Lake Mead
- Perchlorate
- Endocrine disrupters, microbes, and other constituents of interest
- Intake water quality for the SNWS plant
- Limnology of the inner Las Vegas Bay
- Las Vegas Bay and Lake Mead fishery
- Endangered species
- Discharge below Lake Mead
- Other issues identified by the group

Task D-1 includes meetings with the MEG to assess modeling issues to be incorporated in each of the models. This evaluation will include but not be limited to:

- Including the areas of Boulder Basin to be covered
- The constituents to be modeled
- Acceptable inputs, including data requirements and availability of data
- Modeling approach
- The choice of the model program and the segmentation used
- Acceptable precision and accuracy of required outputs, including procedures for calibration and verification

The BV+Team will complete the development of models as described above and approved by the Client through supplemental services. Work Tasks D-2 through D-11 are amended as Modeling Issues 1 through 10 and will be considered with all modeling efforts.

**05/15/02 System Conveyance and Operations Program – EIS Amendments****Modeling Issue No. 1 - Develop Modeling Objectives and Criteria.**

The first step in developing the modeling approach is to establish objectives and criteria for both the reservoir and river models.

It is anticipated that the Lake Mead Reservoir Model will be a 3-dimensional hydrodynamic and water quality model, which is capable of continuous simulations of flows and velocities in Boulder Basin and Las Vegas Bay. The model should be capable of predicting the interaction between flows in the Colorado River, Las Vegas Wash and the SNWS water intake facilities. It is anticipated that the model will be capable of simulating at a minimum: nutrients, phytoplankton, dissolved oxygen, and toxic constituents, including perchlorates.

It is anticipated that the Colorado River model will account for gains and losses from the water column of the various constituents simulated by the Lake Mead Model as the constituents travel downstream.

The modeling will include, but not be limited to, the following:

- Length of study reach in reservoir and river
- Constituents to be modeled
- Input data requirements
- Calibration approach
- Verification approach

The BV+Team will conduct a workshop to obtain input from the MEG in developing objectives and criteria for the reservoir and river models. The BV+Team will prepare a "Strawman" document that will be submitted to the Group in advance of the workshop. The document will include the BV+Team's initial recommendations on objectives and criteria and an inventory of the existing data that would be used to validate the models. The document will be used as a starting point for the workshop, and the objectives and criteria will be refined based on the input from the workshop and the MEG.

**Modeling Issue No. 2 - Mixing Issues For Discharge Into Lake Mead.**

In previous TMs, the BV+Team has presented the results of preliminary modeling on new points of discharge within Lake Mead, using a buoyant-plume model. However, several uncertainties remain, including the density of the effluent as it leaves the diffuser, and the spread of the discharge after it reaches its depth of equal buoyancy. For this TM, the range of possible densities will be assessed, taking into consideration the temperature of the effluent at the wastewater treatment plants, air temperature, soil temperature, heat loss in transit, and water temperature during each season and, if appropriate, during seasonal transition times, such as when the thermocline is descending. Using the range of possible densities, the BV+Team will determine the range of possible elevations at which the effluent may reach neutral buoyancy as it rises or sinks at various times of the year.

Once the effluent has reached its depth of neutral buoyancy, it will begin spreading. The velocity of the spread will be estimated from the expected volumes to be discharged and the calculated mixing. The extent of the spread will be estimated from velocity, taking

seasonal variation into account. If data are available, the effect of Colorado River flows through the lake will be considered.

In addition, the BV+Team will review existing data on hydrodynamics and mixing within Boulder Basin to determine whether the data are sufficient for resolving the issues to be modeled. Information on the operation of the penstocks at Hoover Dam will be collected and reviewed, and the shape and extent of the capture zone for withdrawals from Lake Mead will be estimated using the data, and calculated from hydrodynamic formulas.

The need for additional data on mixing and hydrodynamics will be considered. If generalized flow patterns within Boulder Basin cannot be determined from existing data, a dye study will be considered to determine whether necessary data can cost-effectively be obtained. For example, burst releases of dye might be initiated at two or three discrete locations at elevations agreed upon by the CWC, and the direction and extent of the dye tracked at regular intervals for 2-4 days.

### **Modeling Issue No. 3 - Perchlorate Issues.**

The BV+Team will review existing data on historical perchlorate concentrations in Las Vegas Wash and on groundwater extraction and treatment programs designed to remove perchlorate. Future concentrations entering Lake Mead will be estimated for expected future flows in Las Vegas Wash, using assumptions about the proportion of the flow that continues to be discharged to the Wash, and the proportion that is moved to another point. In particular, the issue of whether moving most of the wastewater discharge is likely to exacerbate perchlorate issues will be examined. These estimates will be used for inputting Las Vegas Wash concentrations into the lake model.

Data on perchlorate distribution patterns within Las Vegas Bay and Boulder Basin will be reviewed and compared with perchlorate concentrations in the intake water at Saddle Island. Candidate models will be reviewed to assess their ability to simulate the patterns of perchlorate concentrations in Lake Mead, and the advantages and disadvantages of each type of modeling approach will be identified. Seasonal variations will also be considered, and appropriate lake conditions for optimum perchlorate modeling will be recommended.

### **Modeling Issue No. 4 - Emerging Contaminants of Concern.**

The BV+Team will review data on emerging contaminants of concern to assess whether data is sufficient for modeling purposes. If adequate data is available, the development of the Boulder Basin model and the Colorado River/Lake Mohave model will, to the extent possible, allow for the evaluation of contaminants of concern.

### **Modeling Issue No. 5 - SNWS Intakes**

The BV+Team will review existing data on intake water quality and Lake Mead profiles conducted in the vicinity of the intake, and from these data will attempt to estimate the shape and extent of the capture zone for the SNWS intake. In particular, data will be reviewed for times when there are elevation related differences in Boulder Basin water quality, such as when the thermocline is sinking, when there are low-conductivity interflows from the Colorado River, and when there are zones of elevated perchlorate concentrations. Elevation related differences will be compared with the quality of the intake water, to determine from what elevations the intake is drawing. In addition, the intake capture zone will be calculated from hydrodynamic formulas.

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In addition, a review of literature and available information will be conducted to assess whether issues related to intake quality may be resolved by localized direct action. For example, it may be possible to use air injection to generate localized water currents that allow the intake to avoid drawing from the descending thermocline. The amount of air needed for localized artificial destratification will be calculated, and the cost of equipment, installation, and operation and maintenance will be estimated. The cost of installing a multi-depth intake will also be estimated. Issues that might prevent the installation of localized direct action alternatives, or that might interfere with the operation of the intake or plant, will be identified.

**Modeling Issues No. 6 - Inner Las Vegas Bay**

Data on nutrient loadings at Northshore Road and chlorophyll concentrations in Inner Las Vegas Bay since 1979 will be collected and evaluated, using regression analysis and other graphical comparisons, to assess relationship between nutrient loading and water quality. Seasonal variation will be considered. Adjustments will be considered to evaluate changes in attenuation or other hydrodynamic characteristics.

Data on ammonia loads at Northshore Road and unionized ammonia concentrations in Inner Las Vegas Bay since 1979 will be collected and evaluated, using regression analysis and other graphical comparisons, to assess the relationship between ammonia loading and water quality. Seasonal variation and hydrodynamic changes will also be considered.

**Modeling Issues No. 7 - Fishery Issues**

One effect of moving the discharge will be to reduce nutrient loading to inner Las Vegas Bay. To help assess the effects of this reduction on fish, literature will be reviewed to obtain studies on the effects of reducing nutrient loading on lake fisheries. Creel census data and other available data on fish in Las Vegas Bay and Lake Mead will be obtained from the Nevada Department of Wildlife and the U.S. Fish & Wildlife Service, and reviewed to identify trends. Professional judgment will also be used to evaluate possible effects of reduced nutrient loading on the fishery.

Other effects of moving the discharge are likely to include decreased flows from Las Vegas Wash and increased salinity of the Wash discharge. The projected changes will be reviewed to examine whether decreased flows may affect spawning or other ecological or life cycle issues.

Studies on the presence and needs of the razorback sucker, an endangered species, will be reviewed to assess whether changes may affect the species, either positively or negatively. Among the changes considered will be the effects of decreased turbidity, which may result from reduced Las Vegas Wash flows combined with newly installed erosion control structures, and the possibility of additional predation or competition.

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**Work Task D-8 is hereby deleted. Modeling issues are identified as each model is developed and approved by the Client through supplemental services.**

**Work Task D-9 is hereby amended and listed herein as Modeling Issue No. 1.**

**Work Tasks D-10 Model Selection through Work Task D-13 is hereby deleted. This work is included in the supplemental work authorized for the development of each model.**

## **E – Water Quality Criteria Assessment**

This work task remains as stated in the original approved Scope of Work. The Water Quality Criteria will be continually assessed throughout the completion of Work Task D - Modeling of Boulder Basin and Colorado River Below Hoover Dam, Work Task G – Prepare an Environmental Impact Statement and Work Task H - Alternative Screening, Determination of Preferred Alternative, and Preliminary Design of Environmental Impact Statement Alternatives.

### **Task E-1 – Establish Objectives**

The objective of the Water Quality Criteria Assessment is to develop beneficial uses and water quality criteria that will meet current regulatory requirements and emphasize the Clean Water Act present and future regulatory requirements regarding the National Permit Discharge Elimination System, Regional Storm Water permits and associated Environmental Guidelines. This analysis will complement the efforts of the CAMP and the Erosion Control Structures to establish in-channel riparian and enhanced wetlands, recreational wetlands and wildlife habitat. The Water Quality Criteria Assessment will provide:

- Coordination between proposed actions and predicted outcomes
- Identification of key environmental indicators
- Determination of the areas of cause and effect relationships between actions
- Assistance in organizing a management approach between the many agencies involved within the Wash
- A guide for development of monitoring programs to perform flexible management functions
- Recommend implementation programs for meeting current and future water quality standards in the Las Vegas Wash and Boulder Basin

The BV+Team will use the information generated in this work task to develop a scope of services, budget and schedule to complete work Tasks E-2 through E-5 to be completed in Phase IIIB.

### **Task E-2 – Establish Data and Information Needs**

Review the existing monitoring programs for the Clark County Wetlands Park, Erosion Control Structures, Wash tributaries, storm water and Boulder Basin. Determine the

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need for additional monitoring including seasonal data, frequency of data gathering and testing for regulatory compliance with Clean Water Act permitting regulations.

**Task E-3 – Establish Individual Components and Performance Goals**

From the existing data develop a comprehensive water quality, sediment, and biological monitoring and management program for the Wash and Boulder Basin including:

- Identify goals for each component of Wash management, including but not limited to storm water, tributaries, wetlands, effluent interception, and erosion control structures.
- When the goals of one component may be detrimental for another, identify solutions to the potential conflicts.
- Identify instances where the goals and uses of Wash components may interfere with the water quality goals and regulatory requirements of the Wash and Boulder Basin, and identify solutions to the potential conflicts.
- Identify existing beneficial uses and water quality criteria that may need to be modified due to changes in the Wash.
- Propose beneficial uses and water quality criteria, suitable for consideration by the Nevada State Environmental Commission, to protect the goals and uses of the water quality related components of the Wash and Boulder Basin.
- Draft updates that may be needed to conform wash programs to the Las Vegas Valley Water Quality Plan.
- Coordinate the programs of the Water Quality Criteria Assessment with other water quality programs for Boulder Basin and the Lower Colorado River System.

**Task E-4 – Prepare Water Quality Standards Setting Analysis Report**

Based on the information compiled in Task E-1 through E-3 the BV+Team will prepare a draft Water Quality Criteria Assessment. The draft Water Quality Criteria Assessment will be submitted to the CWC, Las Vegas Wash Management Advisory Committee, and the SNWA for review and comments. Once comments are received, a final Water Quality Criteria Assessment will be prepared.

The process of preparing the draft and final Water Quality Criteria Assessment will include presentations and reviews with the Las Vegas Wash Coordinating Committee.

**Task E-5 – Program Evaluation, Monitoring, Management**

The BV+Team will provide coordination and assistance in monitoring the changes in the water quality characteristics of the components of the Water Quality Criteria Assessment. The BV+Team will make recommendations to the CWC on changes in flow rates, detention times, and other water quality issues that will have an impact on permitting, water quality standards, and treatment processes.

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This work task includes the work as presented in the original Scope of Services and is hereby amended to include the additional time and effort to complete the Environmental Impact Statement.

**Task F-1 – Project Administration**

- **Monthly Progress Meetings.** Participate in monthly CWC meetings to review Project progress and exchange ideas and information. Prepare and post an agenda ahead of each meeting, and prepare and post minutes following project meetings. Monthly deliverables will include: meeting agendas and meeting minutes; updated project schedule, and an update on postings on the Project Specific Web Site (PSWS), with a record copy of all documents provided to the CWC's Steering Committee.
- **Informal Project Meetings.** As required during the course of the Project, meet with the CWC and/or individual CWC members to review TMs and other Project information.
- **Other Stakeholder Meetings.** SNWA, LVWCC, LMWQF, WQCAC, SWAC, etc.
- **Coordination.** The BV+Team will coordinate with the CWC's consultant engineers on all outfall connections. The BV+Team will provide oversight, coordination and management of Federal Lead Agencies activities during the EIS process.

**Task F-2 – Public Information Program**

Develop and implement a comprehensive Public Information/Outreach Plan that will include:

- Community education and participation activities.
- Media Relations (media kits, press releases, etc.).
- Interface with LVWCC and other government agency Public Information Officer's.

Prepare project videos, brochures, newsletters and other collateral materials needed for public information purposes

**Task F-3 – Presentations and Briefings**

Prepare material and/or conduct regular presentations and briefings on the project status to the CWC Senior Staff, Councils, and/or Boards, as requested by the CWC. As requested by the CWC, make presentations to civic and other public groups in the Las Vegas Valley on the project, through the Public Outreach program.

**Task F-4 – Prepare Scope of Services for Phase IV**

Task F-4 is hereby deleted. This amendment will complete the work described for this task.

**05/15/02 System Conveyance and Operations Program – EIS Amendments****PREPARATION OF ENVIRONMENTAL IMPACT STATEMENT AND ALTERNATIVES FOR CONSIDERATION IN THE ENVIRONMENTAL IMPACT STATEMENT FOR THE EFFLUENT INTERCEPTOR AND THE EXTENSION OF THE SYSTEM CONVEYANCE AND OPERATIONS SYSTEM TO RECEIVING AREAS WITHIN BOULDER BASIN AND /OR THE COLORADO RIVER BELOW HOOVER DAM.****G – Prepare an Environmental Impact Statement**

This task includes preparation of the federally required Environmental Impact Statement to address the potential impacts associated with the construction, operation, and maintenance of an effluent interceptor, the effluent conveyance system to receiving areas within Boulder Basin and/or the Colorado River, the water quality issues associated with the receiving areas within Boulder Basin and/or the Colorado River, and the management of the water quality issues of the upper Las Vegas Wash between the City of Las Vegas Water Pollution Control Facility and the Las Vegas Bay. The conveyance system is expected to traverse private property and lands under the jurisdiction of the Bureau of Land Management, the Bureau of Reclamation, and the National Park Service. The Bureau of Reclamation and the National Park Service is expected to be co-leading Federal agencies for the development of the Environmental Impact Statement.

**Task G-1 – Agency Involvement and Coordination**

The BV+Team will assist the Clean Water Coalition (CWC) in identifying cooperating and permitting agencies with a regulatory role in the project. The BV+Team will assist the lead agencies and the CWC in formulating a list of perspective authorizing agencies that may be required to issue regulatory permits for the System Conveyance and Operations Program (SCOP). The BV+Team will participate in agency coordination meetings as needed.

**Task G-2 – Notice of Intent Preparation, Scoping Meetings, Scoping Notices, and Public Involvement**

The BV+Team will assist the lead federal agencies in developing a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) for this proposed action. This will include the construction of a preliminary purpose and need statement and a project mailing list including federal, state, local and tribal agencies along with special interest groups, and individuals that may have an interest in the proposed project. The BV+Team will draft the NOI to be published in the Federal Register (FR), develop mailing notices and the public meeting notices for the local newspapers. The NOI formally announces the start of the public scoping process and invites the public to comment and provide suggestions on the scope of the EIS. The NOI should describe the proposed action and possible alternatives as well as the dates and locations of the public scoping meetings.

The BV+Team will assist the lead federal agencies with public scoping. The BV+Team will assume the following responsibilities for this task:

- Develop up to six display boards to be used at the public scoping meetings in order to illustrate the proposed project and outline the National Environmental Policy Act (NEPA) process for the general public.
- Assist the lead agencies in scheduling the dates and locations of up to eight (8) public scoping meetings including four (4) meetings in the Las Vegas Valley, two (2) meetings in California, and two (2) meetings in Arizona. THE BV+Team will provide a court reporter at these meetings to document oral comments from the public. The BV+Team will provide public notifications, meeting room and support activities, and notifications of cooperating agencies.
- Develop written information to be distributed at the public scoping meetings including sign-in sheets and informational handouts such as a preliminary project description, maps of the project vicinity, and a comment sheet to elicit written comments from the public.

The BV+Team will assist the CWC and the lead agencies in constructing a Public Involvement Plan for the SCOP. The Public Involvement Plan will outline project schedules for public meetings and other scoping practices in which parties known to be interested in the proposed action are identified and petitioned for comments. The BV+Team assumes that the CWC will be responsible for facility usage fees.

After identifying public and other agency issues and concerns through a series of eight public meetings, The BV+Team will assist the CWC and lead agencies, in revising the Public Involvement Plan for this project. This will include identifying the need for additional public meetings including their locations.

### **Task G-3 – Summary Report of Public Scoping Meetings**

A report summarizing the public scoping meetings including locations, times, and attendance will be developed once the public comment period closes. This summary document will include the public comments, concerns, and issues as well as a draft issues statement and evaluation criteria.

The lead agencies and the CWC will receive a total of thirty (30) copies of this report, and the information will be included in the EIS. The record of the public meetings, public notices, and written and oral comments will become part of the Administrative Record for the project.

### **Task G-4 – Develop Purpose & Need and Draft Project Description**

Using the information already generated by the CWC and BV+Team, the BV+Team will compose a draft project description along with a purpose and need statement for the project. These will be used to begin developing the EIS. Activities associated with this task will include:

- Meet with the lead agencies, cooperating agencies, CWC, and members of the BV+ Team to begin identifying the information gaps for the project. In order to establish and maintain a project schedule, data gaps must be identified early in the process.
- Assist the lead agencies in developing a preliminary plan for addressing the baseline information needs and constructing a project schedule and timeline to measure project progress.

#### **Task G-5 – Prepare Alternatives Matrix and Develop Alternatives for the EIS**

The BV+Team will develop the description of the alternatives to be evaluated in the EIS. An Alternatives Matrix will be developed for up to four (4) alternatives. The matrix will allow for side-by-side comparison of each alternative relative to each resource category. Alternatives that are eliminated from further detailed analysis will be summarized in the EIS and Administrative Record. The BV+Team will advise the lead agencies regarding potential alternatives that should be analyzed due to requirements of federal, state, and local regulations.

#### **Task G-6 – Attend Subcommittee Meetings and Project Meetings**

The BV+Team will participate in the monthly subcommittee meetings and weekly project meetings. In addition, The BV+Team will be responsible for scheduling and attending bi-weekly status meetings with the lead agencies and other agency representatives.

#### **Task G-7 – Develop Analysis Criteria and Identify Significant Issues**

With the guidance of lead and cooperating agencies, the BV+Team will develop evaluation criteria standards from information gathered through the public scoping process and coordination with the local, state and federal agencies.

#### **Task G-8 – Review and Evaluate Existing Data**

The BV+Team will compile and review management and technical documentation for the Las Vegas Wash and Lake Mead Area. Sources of information will include federal agencies management documents, other EIS and EA documents relevant to the project, studies conducted in association with the Las Vegas Wash Coordination Committee, biological opinions, applicable recovery plans, and technical studies prepared for sensitive resources that may occur in the area.

Other federal and state agencies staff will be consulted regarding relevant documents and technical studies performed in the project vicinity. A search of the Internet, university libraries and the BV+Team project files will also be conducted. A bibliography of related documents will be developed to assist the individual project resource specialists in identifying existing documentation for the project area.

This information will be used by the lead agencies, CWC, and the BV+Team to evaluate data deficiencies and generate a project Data Deficiency Report. Upon review, issues that have been thoroughly covered under a prior environmental review will be eliminated from detailed study. This will narrow the discussion of these issues in the EIS to a brief

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presentation of why they will not have a significant effect on the human environment or provide a reference to their coverage elsewhere.

**Task G-9 – Prepare Data Deficiency Report**

The BV+Team will complete a report that outlines the additional data needs, along with the plans and methods to acquire the information. The Data Deficiency Report will consider data requirements based on public scoping, NEPA, and other federal state and local regulations and permitting requirements.

The BV+Team assumes only one review and revision of this report will be required by the lead agencies. This report is not expected to exceed 40 pages in length and will include a clear and concise estimate of additional data needs, personnel, and methods to accomplish the work, and an estimation of the additional hours required to complete the effort.

**Task G-10 – Technical Reports on Affected Environment**

Technical Reports will be developed that describe all the results of research and field surveys for the project. At a minimum, Technical Reports will be prepared for cultural resources, biological resources, and hazardous materials. These reports will be summarized in the affected environment section of the EIS. In addition, they will be included as appendices in the EIS.

The BV+Team will conduct reconnaissance-level surveys for all resources areas except biology and archaeology, where more intensive surveys will be necessary. It is assumed that the pipeline alignment, outfall locations, and ancillary facilities such as power generation facilities and transmission line corridors will be marked in the field by a licensed land surveyor prior to initiating any surveys.

**Cultural Resources**

Cultural resources are objects, sites, structures, buildings, or areas of architectural, archaeological, cultural, or scientific significance. These resources receive federal protection under Section 106 of the National Historic Preservation Act (36 CFR 800). The lead agencies will be required to consult with the Nevada State Historic Preservation Officer and, if significant resources are affected, with the federal Advisory Council on Historic Preservation. The lead agencies cannot issue a decision document until it obtains approval of the project from these agencies.

Archaeologists will perform a study of existing regional data, including compiling analyses and interpreting archaeological and historic data. The data will be used to develop an appropriate strategy for the field investigations. The literature search will include the results of the following:

Archaeological records search – U.S. Geologic Survey (USGS) topographic maps at the Harry Reid Center for Environmental Studies, Barrick Museum of Natural History, University of Nevada, Las Vegas, will be consulted to determine the extent of previous research within the area of interest. Records of the U.S. Bureau of Reclamation, National Park Service, and U.S. Bureau of Land Management will also be researched.

Historical resource inventories search – National and state register of historic resources will be reviewed to identify any registered sites within the area of interest.

Ethnographic resources – Previous ethnographic inventories will be reviewed to determine the locations of potentially sensitive ethnographic sites.

The Class I review and survey plans (research design, site prediction model) and field authorization form will be submitted to the lead agencies for approval. Fieldwork on federal lands cannot commence until the written authorization to proceed has been received from the lead agencies.

A Class III, or intensive field survey of the project area will be completed, according to the research design approved by the lead agencies. All cultural resources observed will be identified and inventoried. The recordation of cultural resources will include the completion of the appropriate site forms, site maps, illustration of diagnostic artifacts, photographs, and the location of sites on a 7.5-minute topographic map. A permanent datum will be placed in all newly identified and recorded sites. Isolated artifacts will be recorded, photographed, and illustrated, and plotted on a 7.5-minute topographic map. Global Positioning System (GPS) coordinates will be recorded at site data. It is expected that no more than 8 sites, or a total of 24 artifacts will be recorded. No artifacts or samples of any type will be collected from cultural sites. Site excavation or testing does not apply to the scope and budget of this project, and is not required at this time. Previously recorded sites within the project area will be located and any negative impacts will be reported as an addendum to earlier site forms.

The report will include a cultural history, the previously recorded sites and surveys, site descriptions, a historic context, and recommendations of eligibility to the National Register of Historic Places. Twelve (12) copies of a report that documents the results of the literature and field surveys will be prepared for the lead agencies. The report will follow a format accepted by the lead agencies and the State of Nevada on previous projects.

Because of the high sensitivity to human disturbance, the information on cultural resources is highly confidential and the report will be summarized in the EIS. This approach will allow the cultural consultation process to run concurrently with the EIS.

The BV+Team assumes that the lead agencies will require the evaluation of the proposed pipeline and its ancillary facilities as one complete project. Therefore, the scope and budget for the cultural resources assumes that all information regarding the proposed project and the ancillary facilities will be provided to the BV+Team prior to initiating the cultural resources evaluation.

#### Biological Resources

The BV+Team will assess impacts to federal, state, and agency-listed sensitive species within the project area. The BV+Team will coordinate with the U.S. Fish and Wildlife Service (USFWS), Nevada Natural Heritage Program, and the lead agencies to obtain a list of species potentially occurring in the project area. A team of botanists/biologists will conduct pedestrian surveys to determine the presence/absence of sensitive terrestrial and riparian botanical and wildlife resources within the project area. It is anticipated that an approximately 400-foot wide corridor will be evaluated and that modified "zone-of-influence" protocol surveys will be acceptable to USFWS. Sensitive species are defined

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as federally endangered or threatened plants and wildlife, species of concern, and state-protected species. The need to conduct aquatic surveys does not appear warranted at this time. A separate scope would be developed if it is determined these are necessary.

This survey will include an estimate of succulent species within the proposed right-of-way. Any cactus or yucca relocation activities would be covered under separate scope and budget.

**Hazardous Materials**

The BV+Team team will conduct a hazardous materials records database search to identify known or potentially hazardous or contaminated sites along the alignment alternatives. Once the database search is completed, a site assessment will be conducted to evaluate current conditions of the primary alignment and properties in the vicinity of this alignment. Services will also include, interviews with persons knowledgeable about the site, a regulatory records review, and a review of ownership/use history. The objective is to determine if there is evidence of real or suspected contamination resulting from hazardous substances or solid waste. The information gathered will be evaluated, incorporated into a technical report and GIS database, and the results summarized in the EIS.

**Task G-11 – Prepare Affected Environment Sections of the EIS**

The BV+Team will concisely describe the environment of the area that may be affected by the project. The information presented will be proportionate to the importance of the impact, with less important material summarized, consolidated, or included by reference.

**Task G-12 – Conduct Impact Analyses and Prepare the Impacts Section of the EIS**

The BV+Team will conduct impact analyses for each resource and determine the impact's significance. Direct and indirect impacts will be evaluated. The discussion of the impacts in the EIS will include the relationship between short-term uses of man's environment and the maintenance and enhancement of long-term productivity, any irreversible or irretrievable commitments of resources, and cumulative impacts that result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.

**Task G-13 – Identify and Assess Mitigation and Monitoring Measures**

The BV+Team will assist the lead agencies in developing reasonable and achievable mitigation measures to reduce and offset potentially negative environmental impacts of each of the proposed project alternatives.

**Task G-14 – Prepare Preliminary Draft EIS**

The BV+Team will prepare fifty (50) copies of a Preliminary Draft EIS for review by the lead and cooperating agencies and CWC. Resource specialists will prepare individual resource sections, which will be compiled, reviewed, and edited by the project manager and/or the manager's designee. It is assumed that the EIS will address three (3)

alignment alternatives and the associated ancillary facilities, and the no-action alternative. An electronic comment tracking form will be distributed with the copies.

### **Task G-15 – Revise Preliminary Draft EIS and Prepare Draft EIS**

The cooperating agencies and CWC will provide written comments, preferably in electronic format, using the comment tracking form provided. Because of the large number of reviewers, there will certainly be instances of conflicting comments. The BV+Team will review the comments and prepare a summary of those comments.

A two-day meeting is planned, in the Las Vegas Valley or Boulder City, with representatives from the reviewing agencies to resolve those comments.

The BV+Team will then prepare up to six (6) copies of a "check draft" Draft EIS for review by the lead and cooperating agencies. It is anticipated that the check draft will not be widely circulated among agency technical staff, but reviewed by agency project managers to ensure comments have been addressed to their satisfaction.

Following review and concurrence from the lead and cooperating agencies, the BV+Team will distribute up to 300 copies of the Draft EIS to the lead agencies, all participating agencies, and the public. Up to 100 copies of the Draft EIS on compact disk will also be prepared. The document will also be made available for posting on the Internet (on the lead and/or cooperating agencies home pages). The electronic versions will be in a format compliant with Section 508 of the Rehabilitation Act amendments of 1998, which requires electronic information used by the federal government be in a format accessible to people with disabilities.

### **Task G-16 – Prepare Notice of Availability and Public Notices**

The BV+Team will assist the lead federal agencies in developing a Notice of Availability (NOA) for the EIS. The BV+Team will draft the NOA to be published in the Federal Register, develop mailing notices, and the public meeting notices for the local newspapers. The NOA formally announces the start of the public comment period for the Draft EIS and invites the public to comment on the content of the Draft EIS. The NOA should briefly describe the proposed alternatives and the results of the impact analyses as well as the dates and locations of the public hearings.

### **Task G-17 – Draft EIS Public Meetings**

The BV+Team will schedule and facilitate the public meeting in up to eight (8) locations (four (4) in the Las Vegas Valley, two (2) in California, and two (2) in Arizona) to solicit comments from the public on the Draft EIS. The BV+Team will provide a court reporter to take oral comments and up to three staff members to provide assistance in answering queries from the public. The BV+Team will develop the informational materials for the meetings and include handouts, comment cards, and displays. The BV+Team assumes that the CWC will assume the responsibility of all facility usage fees.

**Task G-18 – Prepare Preliminary Final Environmental Impact Statement**

Once the public comment period is closed (likely to be 60 or 90 days), the BV+Team will organize the public comments into a database spreadsheet. The project manager and the respective resource specialists will individually analyze each comment and draft a response.

The BV+Team will prepare and distribute up to fifty (50) copies of the Preliminary Final EIS to the lead and cooperating agencies and the CWC for review and comment.

The cooperating agencies and CWC will provide written comments, preferably in electronic format. Reviewers may have conflicting ideas on how to respond to certain public comments.

The BV+Team will circulate a summary of those comments where reviewers have suggested alternative responses. A two-day meeting will be held, in the Las Vegas valley or Boulder City, with representatives from the internal reviewing agencies to establish agreed-upon responses.

The BV+Team will then prepare up to six (6) copies of a "check draft" Final EIS for review by the lead and cooperating agencies. Upon receipt of approval and concurrence from the lead and cooperating agencies, the BV+Team will prepare the Final EIS.

**Task G-19 – Prepare Final Environmental Impact Statement**

The BV+Team will prepare and circulate up to three hundred (300) copies of the Final EIS using a mailing list approved by the lead agencies. The Final EIS should be distributed to the same recipients of the Draft EIS and to any person, organization, or agency that submitted substantive comments on the Draft EIS. In addition, one hundred (100) Final EISs on compact diskette and an Internet version will be prepared for posting on agency home pages, again in compliance with Section 508 guidelines.

**Task G-20 – Record of Decision**

The BV+Team will assist the lead agencies in the development and distribution of the Record of Decision (ROD) for the Final EIS. The ROD is issued at least thirty days after publication of the Federal Register notice of the filing of the Final EIS. The BV+Team will assist the lead agencies in providing a copy of the ROD to individuals and agencies on the approved mailing list.

**Task G-21 – Administrative Record**

The BV+Team will establish and maintain the Administrative Record for the environmental document including all materials used to develop the EIS. The BV+Team assumes up to two copies of these materials will be organized and provided to the lead agencies as part of the supporting records file. The BV+Team will store the Administrative Record in their facility throughout the EIS process. At the completion of the process, a copy will be submitted to the lead agencies and a copy will be submitted to the CWC.

**Task G-22 – Prepare Biological Assessment and Participate in the Section 7 Consultation**

Threatened and endangered species are of likely occurrence in the project area. The Endangered Species Act of 1973, as amended, protects those species. The United States Fish and Wildlife Service (USFWS) is responsible for enforcement of the Endangered Species Act and the protection of all listed species. The BV+Team will coordinate with the USFWS to solicit their concerns and to acquire a list of species that they believe may inhabit the project area.

The purpose of the Section 7 process is to obtain a Biological Opinion on whether development of the project will jeopardize the existence of a listed species or adversely modify critical habitat. A non-jeopardy Biological Opinion functions as the USFWS approval and is needed before the project can proceed.

Completing the Section 7 consultation and obtaining a non-jeopardy ruling in the Biological Opinion are critical for this project. The Section 7 consultation process must be complete before the lead federal agencies can issue a Record of Decision. Given that at least two federal agencies, the lead agencies and USFWS, are involved, the review and decision time can be protracted. Once the lead agencies is satisfied with the Biological Assessment, the document will be forwarded to the USFWS, which will have 90 days to formulate a Biological Opinion. Once the USFWS has determined if the project may affect a listed species, they will have an additional 45 days to issue a Biological Opinion.

A total of ten copies of a draft Biological Assessment documenting the results of a literature search and field survey effort will be prepared for concurrent review by the lead and cooperating agencies and the CWC. Comments will be addressed and ten (10) copies of the Biological Assessment will be prepared. Because Section 7 is an agency-to-agency consultation, the lead federal agencies will be responsible for transmitting the Biological Assessment to the USFWS.

**Task G-23 – U.S. Army Corp of Engineers Section 404 Permit**

The BV+Team will coordinate with the U.S. Army Corp of Engineers (USACE) to obtain a Section 404 permit for this project. If the USACE determines a Nationwide Permit is required, the BV+Team will assist the lead agencies and CWC in submitting the required delineation report and Preconstruction Notifications (PCN). If the USACE determines the project must be completed through an Individual Permit or Letter of Permission (LOP), it would be accomplished under a separate scope and budget.

**Task G-24 – Tribal Consultation and Coordination**

The BV+Team will provide, via a subcontract, qualified personnel who possess the knowledge and experience to coordinate and consult with the involved tribal entities. Notices regarding the project will be sent to the tribes on the lead agencies tribal mailing list. Invitations to attend the scoping meetings and public hearings will be mailed to the tribes. The BV+Team will schedule and facilitate up to twenty (20) meetings with tribal members.

The subconsultant for Tribal Consultation and Coordination will be submitted to the CWC for approval through Supplemental Services.

## **H – Alternative Screening, Determination of Preferred Alternative, and Preliminary Design of Environmental Impact Statement Alternatives**

### **Task H-1 – Alternative Analysis**

This task evaluates the existing and ultimate assimilative capacity of the receiving waters. Planning and design criteria for the effluent conveyance system to receiving areas within Boulder Basin and/or the Colorado River will be developed. Based on the results of the hydraulic models, the operating capacities of the receiving areas within the Boulder Basin, Black Canyon above Hoover Dam and/or the Colorado River will be developed. The capacities of the conveyance system and the receiving areas will be used to develop a management program for conveyance and distribution of the effluent. This management program will allow flexibility in distribution of effluent to receiving areas based on seasonal variations, lake levels, and other factors potentially impacting water quality of the Boulder Basin, Black Canyon above Hoover Dam and/or the Colorado River. This task includes the following subtasks:

**Task H-1.1 – Initial Alignment Reconnaissance.** The initial reconnaissance will be completed to allow a screening of alternative alignments for the Effluent Conveyance System from the terminus of the Effluent Interceptor to receiving areas within the Las Vegas Bay and the vicinity of Promontory Point in Boulder Basin, Black Canyon above Hoover Dam and/or the Colorado River below Hoover Dam.

**Task H-1.2 – Geotechnical Reconnaissance Assessment.** It is anticipated that the alternative alignments will involve major tunneling. A screening study will be conducted of the alternative conveyance system corridors to determine the general geotechnical conditions present in these areas and to identify significant design and construction issues.

The initial geotechnical investigations will characterize the geologic conditions and potential geologic and seismic hazards along each alternative corridor. Areas of difficult construction that may require special construction procedures shall be identified. Existing reports, published and unpublished geotechnical/geologic reports, and available data pertaining to the alternative corridors will be evaluated. A field reconnaissance of each alternative corridor will be completed and the findings summarized.

The findings from the geotechnical screening will be summarized in a draft Geotechnical Report. The Geotechnical Report will identify the key geotechnical issues and the significant geotechnical areas of design interest and will provide recommendations for a geotechnical investigation program to be performed for the recommended effluent interceptor alignment. The Geotechnical Report will include an outline of Geotechnical Data Reports and Geotechnical Baseline Reports for the tunneling components of the conveyance system.

**Task H-1.3 – Alignment Alternatives Study.** Initial investigations have identified alternative corridors that could provide the basis for the conveyance system alignment. A screening study will be performed to identify the preferred alignment for the conveyance system.

#### **A – Coarse Screening**

- 1) The screening study will identify four alternative alignments for the Clean Water Coalition Effluent System Conveyance and Operations Program by conducting a coarse screening of up to eight (8) alternatives/alignments, developing mapping data, providing utility research, investigating tunneling requirements and environmental issues. The coarse screening evaluation of conveyance system alternatives will be conducted concurrently with evaluation and analyses of the Effluent Interceptor portion of the system.

During the coarse screening evaluation, multiple conveyance system alignments and facility locations will be assessed based on an analysis of the major categories listed below.

- a) Capacity of Receiving Waters
  - b) Tunnelling Considerations
  - c) Environmental Impacts
  - d) Institutional Involvement
  - e) Hydraulic Operation and Reliability
  - f) Assessment of Supplemental Treatment near Three Kids Wash
  - g) Constructability
- 2) The alignments alternatives to be screened will be categorized into five alignment “concepts” that include:
    - a) Las Vegas Bay portion of Boulder Basin,
    - b) Hemenway Wall area of Boulder Basin,
    - c) Black Canyon narrows above Hoover Dam,
    - d) Into Hoover Dam penstocks and/or flood conveyance tubes,
    - e) Goldstrike Canyon below Hoover Dam.

The purpose of coarse screening is to reduce the alignment concepts to 2-3 alignments and facility location concepts with the best scores from the evaluation. At least one alignment from each surviving concept will be advanced into fine screening.

#### **B – Final Screening**

- 1) Fine screening. Screening of the categories above will be expanded and the reduced list of proposed alignment and facility location concepts will be evaluated against specific criteria included within each of the categories.
  - a) Identify Alternative Routes. The alternative routes will be laid out on 1 inch to 2000-foot digital orthophotos rectified to the USGS topography.

- b) Conduct Field Reconnaissance. A field surface reconnaissance will be performed for the alternative routes to determine the specific evaluation criteria relevant to each alternative. A summary memorandum of the field reconnaissance will be prepared.
- c) The alternative alignments will be evaluated and the advantages and disadvantages of each alternative alignment will be summarized. Evaluation criteria will include geotechnical/geologic conditions, environmental conditions, hydraulic criteria, supplemental treatment near Three Kids Wash, constructability, pipeline length, required size of tunnel, right-of-way issues, capital cost, and operation and maintenance costs.

The alignment evaluations shall consider impacts to property and structures, utility conflicts, road crossings, drainage course crossings, construction and maintenance access, construction de-watering, permitting, geologic hazards, environmentally sensitive areas, construction staging areas, waste material storage areas and disposal, and other relevant issues.

- 2) Conceptual Plans. A plan and profile drawing for each alternative alignment studied will be prepared. Drawings will be prepared using computer generated drafting and will be suitable for reproduction at 11 inch by 17 inch size as part of the Design Criteria Report. The horizontal scale on the plan and profile drawings will be approximately two miles per inch for the 11 inch by 17 inch drawings.

**Task H-1.4 – Corrosion Control Investigation.** A corrosion investigation will be performed which will identify significant corrosion concerns that would impact the project design criteria and potentially the total cost of the project. This analysis will be a broad scope analysis intended to identify fatal flaw issues associated with the alternatives.

Sources of corrosion that shall be considered are soils, water, and stray electrical currents from cathodically protected buried pipelines. The potential for electrical coupling with existing electrical power transmission lines will also be evaluated for personnel safety and acceleration of corrosion impacts. Preliminary recommendations for safety, corrosion protection, and mitigation of electrical coupling will be identified.

A Corrosion Report documenting the results of this task will be prepared.

**Task H-1.5 – Hydraulic Analysis.** Initial hydraulic analysis shall be performed for each of the alternatives to provide a basis for evaluating the impacts associated with implementing the alternative. Hydraulic profiles illustrating system performance will be prepared for each alternative. Areas of hydraulic concern, such as high and/or low-pressure areas, will be identified. Additional evaluations will be performed to assure compatibility with potential power generation and Lake and River diffuser options.

The hydraulic analysis will be incorporated in the Design Criteria Report and will summarize the methods used, assumptions, findings, and recommendations.

**Task H-1.6 – Power Recovery.** The BV+ Team will conduct a power recovery analysis for the alternative(s) that extend to the promontory point area. The power recovery

analysis will be incorporated in the Design Criteria Report and will include a benefit/cost ratio for the facilities proposed.

**Task H-1.7 – Fatal Flaw Analysis.** The BV+Team will conduct a fatal flaw analysis for each alternative to determine if there are any “fatal flaws” that would preclude its construction. Fatal flaws may include technical, practical, or environmental constraints that would make completion of the project alternative virtually impossible.

**Task H-1.8 – Facilities Concepts Development.** The basis for selection, sizing, and configuration of the major project components will be reviewed and defined. Each of the major project elements will be studied that comprise a complete project. The purpose of this analysis will be to provide sufficient definition to the project components to facilitate review and revision to the construction cost estimate. Concept development drawings will be prepared to illustrate each of the project components and for inclusion in the Design Criteria Report.

**Task H-1.9 – Preliminary Design Fine Screening Analysis.** The alternatives developed in preceding tasks will be evaluated to define the recommended preferred alignment.

**Task H-1.10 – Design Criteria Report.** Prepare the design criteria report that establishes the preliminary design criteria and operational and maintenance criteria for the project. The report will address surveying criteria, right-of-way needs, hydraulic design, supplemental treatment near Three Kids Wash, material selection, tunneling, tunnel portal areas, deep water diffusers, river diffusers, excavation and backfill criteria, dewatering criteria, permitting, and other design elements. The Design Criteria Report will serve as the basis for conveyance system pipeline and tunnel design, evaluation of alternatives, material selection, and the development of plans and specifications for construction.

**Task H-1.11 – Design Criteria Workshop.** The BV+Team will assemble, reproduce, and distribute the Design Criteria Report to participants in a workshop.

The BV+Team will assist the CWC in preparations for and conducting the workshop.

**Exhibit B**  
**Amendments to the System Conveyance and Operation Program, Phase IIIA-EIS**  
**Budget Summary**

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| Work Task | DESCRIPTION                                                                   | Phase IIIA Contract Budget April 1, 2002 | Budget Used Through March 1, 2002 | Budget Allocated to Effluent Interceptor Pre-Design | Phase IIIA Budget Allocated to EIS Process | Budget Necessary for Completion of EIS | Additional Funds Needed for Phase IIIA - EIS |
|-----------|-------------------------------------------------------------------------------|------------------------------------------|-----------------------------------|-----------------------------------------------------|--------------------------------------------|----------------------------------------|----------------------------------------------|
| A         | Environmental Assessment                                                      | \$632,800                                | \$121,232                         | \$0                                                 | \$511,569                                  | \$0                                    | (\$511,569)                                  |
| P         | Effluent Interceptor Pre-Design                                               | \$2,822,506                              | \$998,757                         | \$1,644,747                                         | \$179,002                                  | \$0                                    | (\$179,002)                                  |
|           | Colorado River Outfall Location Analysis                                      | \$143,970                                | \$137,453                         | \$0                                                 | \$6,517                                    | \$0                                    | (\$6,517)                                    |
| D         | Modeling of Boulder Basin/Colorado River/Las Vegas Wash                       | \$685,881                                | \$265,943                         | \$0                                                 | \$419,938                                  | \$1,584,875                            | \$1,164,937                                  |
| E         | Water Quality and Criteria Assessment                                         | \$101,125                                | \$37,416                          | \$63,709                                            | \$0                                        | \$0                                    | \$0                                          |
| F         | Project Management                                                            | \$843,648                                | \$337,459                         | \$360,000                                           | \$146,189                                  | \$930,000                              | \$783,811                                    |
| G         | Environmental Impact Statement                                                | \$0                                      | \$0                               | \$0                                                 | \$0                                        | \$2,405,071                            | \$2,405,071                                  |
| H         | Conveyance Alternatives for EIS (Hemenway Wall, LV Bay, Process Improvements) | \$0                                      | \$0                               | \$0                                                 | \$0                                        | \$2,515,679                            | \$2,515,679                                  |
|           | Supplemental Services Phase IIIA (Remaining Authorized Budget)                | \$70,070                                 | \$0                               | \$0                                                 | \$70,070                                   | \$0                                    | (\$70,070)                                   |
|           | Supplemental Services Phase IIIA - EIS                                        | \$0                                      | \$0                               | \$0                                                 | \$0                                        | \$700,000                              | \$700,000                                    |
|           |                                                                               |                                          |                                   |                                                     |                                            |                                        |                                              |
|           | BV+Team Amended Totals for Phase IIIA - EIS                                   | \$5,300,000                              | \$1,898,260                       | \$2,068,456                                         | \$1,333,285                                | \$8,135,625                            | \$6,802,340                                  |
|           |                                                                               |                                          |                                   |                                                     |                                            |                                        |                                              |
|           | Federal Co-Lead Agency Reimbursable Budgets                                   | \$0                                      | \$0                               | \$0                                                 | \$0                                        | \$600,000                              | \$600,000                                    |
|           | Supplemental Services Budget - Federal Co-Lead Agencies                       |                                          |                                   |                                                     |                                            | \$60,000                               | \$60,000                                     |
|           | Federal Co-Lead Agency Budgets for Phase IIIA - EIS                           |                                          |                                   |                                                     |                                            | \$660,000                              | \$660,000                                    |
|           |                                                                               |                                          |                                   |                                                     |                                            |                                        |                                              |
|           | Total BV+Team and Federal Co-Lead Agency Budget for Phase IIIA - EIS          |                                          |                                   |                                                     |                                            |                                        | \$7,462,340                                  |

**Exhibit B**  
**Amendments to the System Conveyance and Operation Program, Phase IIIA-EIS**  
**Budget Summary**

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**PHASE IIIA EIS AMENDMENT – BUDGET SUMMARY**

|                                                                                                                                 |                    |
|---------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Environmental Impact Statement                                                                                                  | \$2,405,071        |
| Engineering Design and Studies to support EIS                                                                                   | \$2,515,679        |
| Modeling of Las Vegas Wash, Boulder Basin, and Colorado River & Lake Mohave                                                     | \$1,584,875        |
| Project Management                                                                                                              | \$930,000          |
| Phase IIIA – EIS Amendments Supplemental Services                                                                               | \$700,000          |
| <b>Subtotal – Phase IIIA EIS Budgets</b>                                                                                        | <b>\$8,135,625</b> |
| <b>Budget Carried forward from Phase IIIA to Phase IIIA – EIS Amendments</b>                                                    | <b>\$1,333,285</b> |
| <b>Subtotal – BV+ Team Budget Augmentation for EIS and supporting engineering design, studies, modeling, project management</b> | <b>\$6,802,340</b> |
| <b>Federal Co-Lead Agencies Reimbursable Budgets (USBOR &amp; USNPS)</b>                                                        | <b>\$600,000</b>   |
| <b>Federal Co-Lead Agencies Supplemental Services</b>                                                                           | <b>\$60,000</b>    |
| <b>Total BV+ Team and Federal Co-Lead Agency Budget for Phase IIIA - EIS</b>                                                    | <b>\$7,462,340</b> |