Salton Sea

Water Importation Project

Cordoba Corporation

TerraBrio

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TABLE OF CONTENTS

INTENTION TO SUBMIT PROPOSAL (RFI)

Intention to submit proposal, request for information (RFI) response

Request for Information for Salton Sea Water Importation Projects

March 9, 2018
Los Angeles, California

Dear Mr. Wilcox,

We are glad to have given the opportunity to respond to the Request for Information (RFI) for Salton Sea Water Importation Projects.

Cordoba -Terrabrio is pleased to submit our proposal for your review and consideration. The intent of this proposal is to provide the California Natural Resources Agency (CNRA) with solutions to meet long-range goals of the Salton Sea Management Plan by using an imported water source to submerge the playa, create habitat, and maintain a constant level of water. Our specific objectives include the following:

- Submerge the playa to prevent the release of dust.
- Create a low salinity clean water estuary to provide habitat for migrating birds and fish
- Provide a long-term solution to confine and dispose of high salinity water
- Develop a constant level water feature that would stimulate investments around the perimeter of the Salton Sea and create economic stability

To achieve these goals and objectives, we are proposing to use water from the Sea of Cortez as a long term and sustainable water source to the Salton Sea. Without this “new water”, the Salton Sea will most likely experience a rapid loss in elevation, further concentration of salt, and the ultimate loss of habitat for migrating birds and local fish.

On behalf of Cordoba, we have created an unique partnership with Terrabrio as our key sub-consultant, this partnership will result in providing a programmatic approach to the Salton Sea Water Importation Project.

We understand that the SSMP is a long-range program that concentrates on the immediate need for habitat and air quality protections and includes the development of a long-range plan as part of the first Phase I, Ten Year Plan. Our proposal (request for information response) shall serve to compliment the SSMP for potential inclusion in the long-range plan for the Salton Sea.

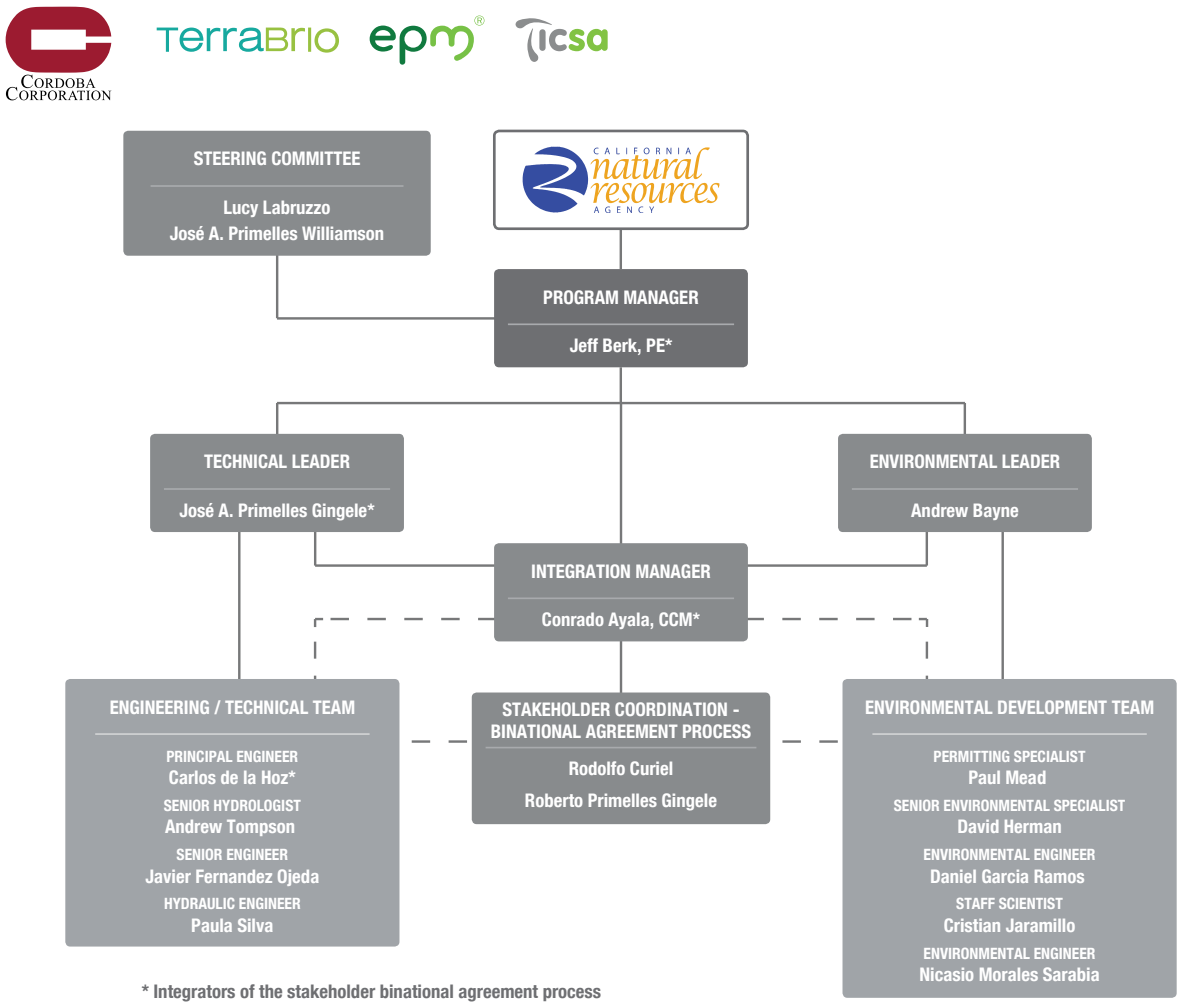
Throughout this document, the word “proposal” should be interpreted to mean Request for Information – Response.

1.

IDENTIFICATION OF PROJECT TEAM

Our Bi-National Team is comprised of two main companies, Cordoba Corporation based on Los Angeles, California and Terrabrio based in Mexico City, Mexico. Cordoba has been involved in environmental planning and water design projects for over 30 years and is currently working on some of the most iconic civil engineering projects in California including High Speed Rail, Transbay Terminal, and the Owen Dust Mitigation Program. Terrabrio is a Water Treatment and conveyance company with extensive experience throughout Latin America and the United States. In addition to Cordoba and Terrabrio, Lawrence Livermore National Laboratories will focus on ground water conveyance and CH2MHill will support Environmental Efforts in both Mexico and the United States. Our Org Chart is provided below.

ORGANIZATIONAL CHART | Advanced Conceptual Engineering



1.1 Project Team & Functional Organization Chart

As shown on our Organization Chart above, Jeff Berk, PE with Cordoba will serve as program manager. Jeff has over 30 years of experience managing large water programs in the United States. Jose Primelles will serve as Technical leader and will also lead the Mexico Environmental work. Conrado Ayala will serve as the integration manager, Conrado has managed multi-disciplinary teams in the United States, Mexico and Middle East, Andrew Bayne will serve as the Environment lead in California and be responsible for coordinating the environmental work.

Due to the complexity of the project and its bi-national, multi-stakeholder characteristics, we've included an stakeholder coordinator, principal engineering team and supporting specialists. This team will ensure efficient collaboration, ultimate integrity and focused delivery.

2.

NARRATIVE DESCRIPTION OF PROJECT CONCEPT (PROJECT UNDERSTANDING)

2.1 Salton Sea Description

The Salton Sea basin is an 8,360 square mile, closed, sub-sea level basin in the low desert of southern California and northern Mexico. The basin is actually part of the Colorado River delta: in the last thousand years, the Colorado River has meandered west and filled the basin at least three times forming a freshwater lake called Lake Cahuilla. Each time, the River eventually returned to its more easterly channel leaving the lake to evaporate.

The current version of the Salton Sea was formed in 1905 when massive flooding caused the Colorado River to break through an irrigation canal and flow freely into the Salton Basin for 18 months. Since then, the Sea's existence has been maintained primarily by agricultural run-off flows from the Imperial, Coachella, and Mexicali Valleys.

At an overall length of 35 miles, a width of 9-15 miles, and a surface area of 360 square miles, the Salton Sea is California's largest lake and is a main stop on the Pacific Flyway for migratory birds. Until recently, approximately 90 percent of the freshwater inflow to the Salton Sea has been agricultural drain water from Imperial Valley, Coachella Valley and Mexicali Valley (Salton Sea Authority website, 2010).

Because the Sea has no outlet, salts and nutrients from agricultural run-off continue to concentrate. Salt concentrations in the Sea are currently at about 51,000 mg/L or about 45 percent higher than ocean water, with salinity increasing at approximately 1 percent per year (DWR, The Resource Agency, Department of Fish and Game, 2009).

2.2 Issues and Concerns

The Salton Sea is a constantly changing body of water that is heavily influenced by sources of water, evaporation, and eutrophication. These influence factors impact health risk, natural habitat, water quality, and economic stability and are summarized in the following table.

Salton Sea – Issues and Concerns				
Influence Factors	**Overview**	**Issue**	**Outcome**	**Impact**
Surface Water	Surface water from agricultural run-off makes up 90% of the water that feeds Salton Sea	Because of water transfer agreements, conservation, and drought, surface water contribution is expected to significantly decrease	Evaporation will outpace water supply and the Sea will begin to recede	• Exposure of Playa creating air quality issues • Reduction of water front reducing economic viability • Reduction of surface area reducing habitat for birds
Evaporation	Salinity concentration of the Salton Sea is 50,000 mg/l (65% higher than the Pacific Ocean)	Reduction of Surface water and evaporation will continue to concentrate salinity	Salinity will increase to the point where it will make the Salton Sea uninhabitable by birds and fish	• Reduction of bird population • Reduction of fish population • Reduction of tourism
Eutrophication	High quantity of nutrients from fertilizer associated with agricultural run-off are discharged into the Salton Sea	Nutrients create algal blooms that die off and consume dissolved oxygen	Low dissolved oxygen contributes to habitat reduction	• Reduction of bird population • Reduction of fish population • Reduction of tourism • Odors

2.3 Project Concept

The Cordoba-Terrabrio Proposed Importation Project would essentially meet the following objectives

- Submerge the playa to prevent the release of dust
- Create a low salinity clean water estuary to provide habitat for migrating birds and fish
- Provide a long-term solution to confine and dispose of high salinity water
- Develop a constant level water feature that would stimulate investments around the perimeter of the Salton Sea and create economic stability

The heart of the proposed project would involve extracting water from the Sea of Cortez and convey this water across the border a dual lake system located within the confines of the Salton Sea. The dual lake system would consist of a perimeter lake (See Perimeter Lake Alternative – Appendix A) and a Central Lake Salton.

We are proposing a **two-step process** for filling the Salton Sea with Sea of Cortez water as follows:

Step 1: The water from the Sea of Cortez would be continuously pumped into the perimeter lake (*new infrastructure*) in order to compensate for the loss of water due to evaporation and maintain a constant elevation and salinity concentration.

Step 2: The center of the Salton Sea would be fed water from the perimeter lake in order to maintain a specific level. However, salinity in the center lake would be allowed to become concentrated over time.

To accomplish this, our proposed Salton Sea Importation Project would involve five (5) major systems each requiring extensive engineering and research to develop preliminary level design criteria, capital cost, and operations and maintenance cost. The five (5) systems are outlined as follows:

1. **Extraction System** – location, flow rate, intake dimensions, operating criteria (number of active and number of standby pumps), pump size, power requirements
2. **Conveyance System** – Routing, flow rate, pipe size, operating criteria (number of active and number of standby pipes)
3. **Distribution System** – location(s), discharge structure, dimensions
4. **Perimeter Lake** – desired elevation, water quality, flow rate (based on evaporation and desired water quality), dimensions (depth, width, length), materials of construction, operating criteria
5. **Brine Lake** – desired elevation, water quality, flow rate (based on evaporation and desired elevation), dimensions (depth, width, length), materials of construction, operating criteria.

Desalination is not included as one of the major systems but should be considered. The Salton Sea is surrounded by geothermal plants that could be used for low cost energy and the brine could be disposed of through deep well injection making the desalination process very cost effective. Besides using the desalinated water to sweeten the "Perimeter" lake allowing for additional habitat, it could be sold to generate revenue that could help offset the O&M costs associated with the proposed Salton Sea Importation Project.

2.4 Project Implementation

Project implementation would consist of three (3) phases as outlined in the following bullet points:

- Phase I: Project Definition Document & (EIR/EIS – Environmental Impact Report/Statement for the state of California), and a MIA (Manifestacion de Impacto Ambiental for Mexico). These documents and process will yield an environmental clearance required to start Phase II. In addition to the EIR and MIA process and related deliverables, our team will develop a business plan with the above alternative, and perhaps; any other alternative that is flushed out through the environmental process.
- Phase II: Construction
- Phase III: Water Importation – Operation and Maintenance

Our intent is implement Phase I and start the PDD (Project Definition Document) as soon as we receive notice-to-proceed (please refer to "Program Development Timeline" for supporting detail). We would initiate the project with a 90-day plan to kick-off the PDD, and in a semi-parallel path, initiate the Program Management and Stakeholder Engagement process. As we are working through this, our Project will develop into a "Definition" state and clear the way to start the EIR-MIA Process.

The project definition would take approximately 9 months, then it would follow by the EIR and MIA process; approximately 18-20 months. Once we've achieved environmental clearance, we can start the detail design, and or; suggest to the Salton Sea Agency and California Natural Resources to engage in a Design-Build, P3, or EPCMO project.

During development of Phase I, we will flush out through preliminary engineering, best alternatives and delivery methods. At this moment, due to the typical approval process; we see this strategy as one that provides required detail to start the project, then by middle of 2019 have enough engineering, cost details, environmental approval within reach to then; come to a solution of a construction-operation delivery method.

We propose that the Cordoba-Terrabrio team engage in development of Phase I. The ultimate Deliverables out of Phase I would lay-out a plan and required engineering for the successful start of Phase II and sub-sequent Phase III.

2.5 Business Plan

A business plan is an essential document in the quest for either debt or equity financing. It includes business objectives, a list of products or services, a market analysis, and potential sources of revenue to finance the business. The following business plan provides some ideas that could be explored to make the Salton Sea Importation Project an economically viable long term sustainable solution for the Salton Sea.

Business Objectives

- Positive Revenue
- Minimal Uncertainty - Sustainable and Predictable
- Contributes to the local economy

Products or Services

- Recreational Activity – Boating, Fishing, Biking, Hiking, Spas, Bird Watching
- Tourism Support – Hotels, Restaurants, Camp Grounds, Gas Stations
- Drinking Water
- Salt

Sources of Revenue

Several sources of revenue should be considered that can create a long term revenue stream that can help off-set the Capital and O&M Costs of the project. These could include:

- Special Assessment District
- Sale of Water
- Tourism Tax
- Public Private Partnerships

Special Assessment District

Special Assessment Districts are created to finance improvements when no other source of money is available. Assessment Districts are often formed in undeveloped areas and are used to build roads and install water and sewer systems so that new homes or commercial space can be built. Assessment Districts may also be used in older areas to finance new public improvements or other additions to the community. The Salton Sea Special Assessment District would calculate an assessment based on mathematical formula that would take into account how much each property would benefit from the installation of the Salton Sea Importation Project. Each parcel in the assessment district becomes responsible for a fixed percentage of the total district debt, and pays that portion of the principal and interest due on the bonds each year. Bond issues are normally structured so the amount of the annual installment remains relatively level.

Desalinated Water Sales

With the advent of new technology, desalination of sea water has become fairly common throughout the world. It still remains expensive due to the high cost of energy and brine disposal. With local geothermal energy and a possible solution for brine disposal, desalination of Sea of Cortez water at the Salton Sea could be cost effective and potentially generate positive revenue. Brine disposal options include the center lake of Salton Sea, deep well injection, and pumping the brine back to the Sea of Cortez. This water could be sold to the local water districts for irrigation or drinking water a provide income to cover the cost of the Salton Sea Importation Project.

Tourism Tax

Once the perimeter lake is completed, it could be filled with clean Sea of Cortez water and habitat will be restored. This would attract tourist that would require hotel space, restaurants, grocery stores and other amenities. All of these amenities could have a special tax that would be applied to the cost of the Salton Sea Importation Project.

2.6 Ownership

Several ownership models should be considered for Salton Sea Importation Project. In the United States, the government typically owns, operates, and finances most of the municipal facilities. In Mexico, it is more common for private companies to own, operate, and finance municipal projects.

One potential ownership model is a Public-private partnerships (P3) between a government agency and private-sector company where the private company could finance, build and operate projects. Financing a project through a public-private partnership can allow a project to be completed sooner or make it a possibility in the first place.

Several companies in Mexico and the US have already expressed interest in a P3 investment for the Salton Sea Importation Project. These companies, include: Empresas Públicas de Medellín, ICA, OHL and ACCIONA. For the Salton Sea Importation Project, one of these companies could pay for the entire project and also provide a desalination plant that could use a portion of the water from the Sea of Cortez to produce drinking water that could be sold and used to pay for the service.

3.

PLANNING AND DESIGN PROCESS OF PROJECT (TECHNICAL APPROACH)

Introduction:

This section is intended to explain the comprehensive technical approach. As a result of the projects complexity and the RFI requirements, we approached the project from the typical Project approval process; thus, introducing specific tasks and development features.

What follows is an explanation of the comprehensive technical solution based on an Environmental Approval process. Such processes are mirrored on both sides of the border: an Environmental Impact Report (*EIR*) for the United States, a Manifestación de Impacto Ambiental (*MIA*) for Mexico and a business plan that integrates the project as a whole.

For ease of understanding, please note that this section explains the technical approach without any explanation as to the Program Execution, or Implementation; such information is discussed in detail, under section 6; Program and Delivery Strategy.

This program has been planned on a Phased approach:

- Phase I: Project Definition and Environmental Clearance & ACE (Advanced Conceptual Engineering)
- Phase II: Design/Construct
    - Delivery Definition Established (DB, EPCMO, P3) – to be determined
- Phase III: Operation and Maintenance

Current Salton Sea Condition:

- Rapid declining Sea Level and increased area of exposed playa.
- Fast growing levels of toxic/unhealthful dusts.
- Bird Migration and increasing levels of fish death rate.
- Increasing levels of Salinity.
- Potential binational public health crises.

Project Objectives:

- Submerge the playa to prevent the release of dust
- Create a low salinity clean water estuary to provide habitat for migrating birds and fish
- Provide a long-term solution to confine and dispose of high salinity water
- Develop a constant level water feature that would stimulate investments around the perimeter of the Salton Sea and create economic stability
- Find economic sustainability

Salton Sea program development plan:

1) Develop a water source and supply Project from the Sea of Cortez to Salton Sea.
2) Define Salton Sea objectives with the Salton Sea authorities and other related stakeholders.
3) Analyze viable alternatives on Baja California and Sonora that will better fulfill the project requirements of water source, permits, land use, elevation/pumping requirements etc. and that has the best chance of being enviromental and socially approved.
4) Obtain required enviromental, water use, Row, construction and other required permits for the development and constrution of the Project in Mexico and USA.
5) Develop the Enginnering of the Project, Schedule and Cost Analysis.
6) Define the Project Delivery Method; Engineering, Construction, Operation and Maintenance entity/entities that can fulfill all water import mechanisms. This definition shall occur once the EIR/MIA and CEQA/NEPA have been approved and a ROD (record of decision) has been obtained.

Required Permits and Studies In Mexico		
Agency	Name	Description
Semarnat	Social Impact Study that will be part of the MIA process in Semarnat	The Social Impact Study is also important for any due diligence with financial institutions and the structure of the study complies with the “Tratados de Ecuador”
	Environment Impact Manifest (MIA) and required Studies.	MIA: Considering that the project will impact several areas and communities on an incremental basis, the MIA will be considered a “Regional” report and will involve the Central offices of Semarnat in Mexico City as well as the State office either on Baja California Norte or Sonora.
		ETJ: Will depend on the type of Vegetation- Trees that will need to be removed for the construction of the pipeline.
		ZOFEMAT: Federal Permit for use of playa land.
Conagua	Water, Constrution and Use of Federal Land Permits.	Conagua will review the technical proposal and the results of the hydrology studies, including water quality etc., in order to assess the overall impact of the project and the possibility of granting such permits.
General / Municipal / State	Right of Way (ROW)	Land Use permits and contracts with land owners.
	Use of Energy Permits and contracts	Required electricity for pumping operation.
	Municipality Permits	Construction, Road and transportation permits etc.
	State Permits	Baja or Sonora State Permits that may be required.

Required Permits and Studies In the United States		
Agency	Name	Description
California Natural Resources Agency - State of California	California Environmental Quality Act (CEQA)	Requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible.
United States Environmental Protection Agency (EPA)	National Environmental Policy Act (NEPA)	Establishes this national environmental policy by requiring federal agencies to prepare an environmental impact statement to accompany reports and recommendations for Congressional funding.
CEQA/NEPA	Technical Reports	• Hydrology and Water Resources • Biological Resources and Wetlands • Preliminary Jurisdictional Delineation • Air Quality and Global Climate Change • Noise and Vibration • Hazardous Materials and Wastes • Archaeological Survey • Historic Architecture Survey • Community Impact Assessment and Draft Relocation Impacts Assessment • Traffic and Transportation • Paleontological Sensitivity
	Initial Study/Environmental Assessment (IS/EA)	This document would identify which resource areas would likely result in significant unavoidable environmental impacts. It would also determine which resource areas would not require inclusion in the Focused Environmental Impact Report/Environmental Impact Statement (EIR/EIS).
	Notice of Preparation/Notice of Intent (NOP/NOI)	The IS/EA circulates with the NOP/NOI. Scoping comments are requested from the reviewing public and agencies.

3.1 Project Feasibility

As discussed in Section 2.2, the Salton Sea Importation project has many aspects to it including extraction, pumping, conveyance, and distribution. The most politically sensitive and complex part of the project is obtaining a sustainable source of water from Mexico.

Project Overview

The proposed project consists of replenishing Salton Sea to an elevation of -235 ft through the use of water from the Sea of Cortez. This would include, extraction from the Sea of Cortez, pumping, conveyance, and distribution into the Salton Sea.

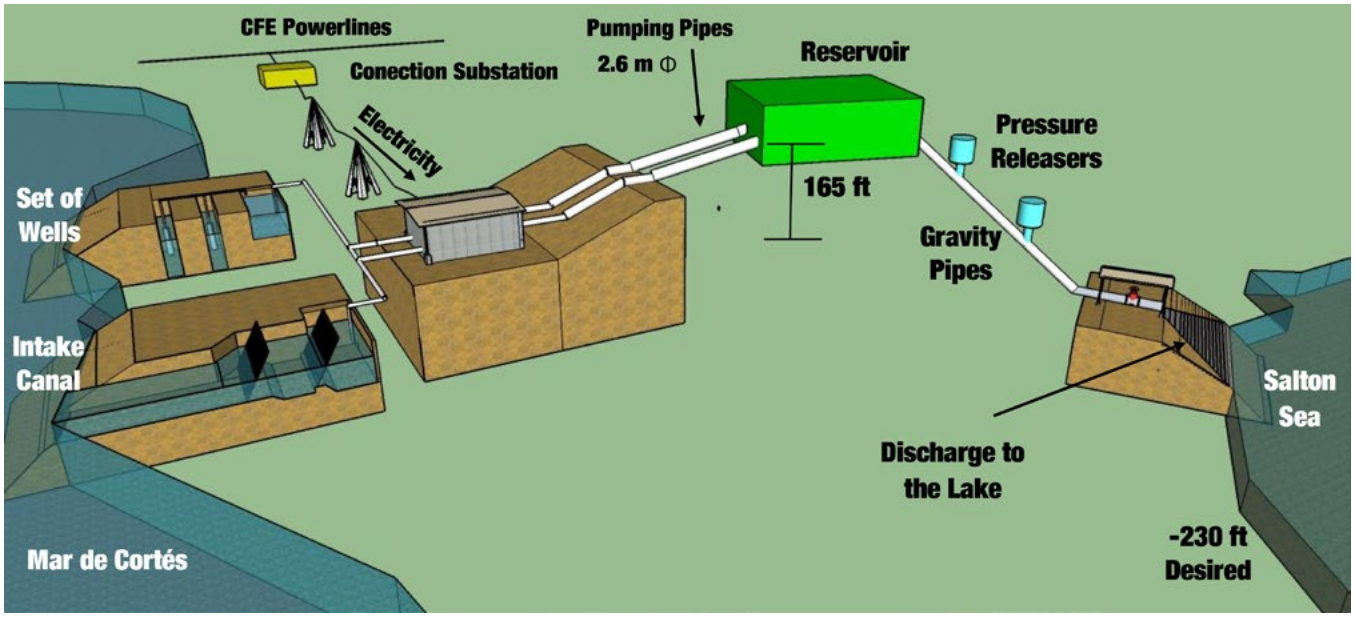


Figure 3.1.1

Extraction from the Sea of Cortez

Water from the Sea of Cortez can be extracted by direct intake or from a beach-well. The direct intake appears to be the most feasible and would be achieved through the use of screens that would eliminate any floating contaminants and small materials and a sedimentation trap that would remove sand and silt prior to pumping.

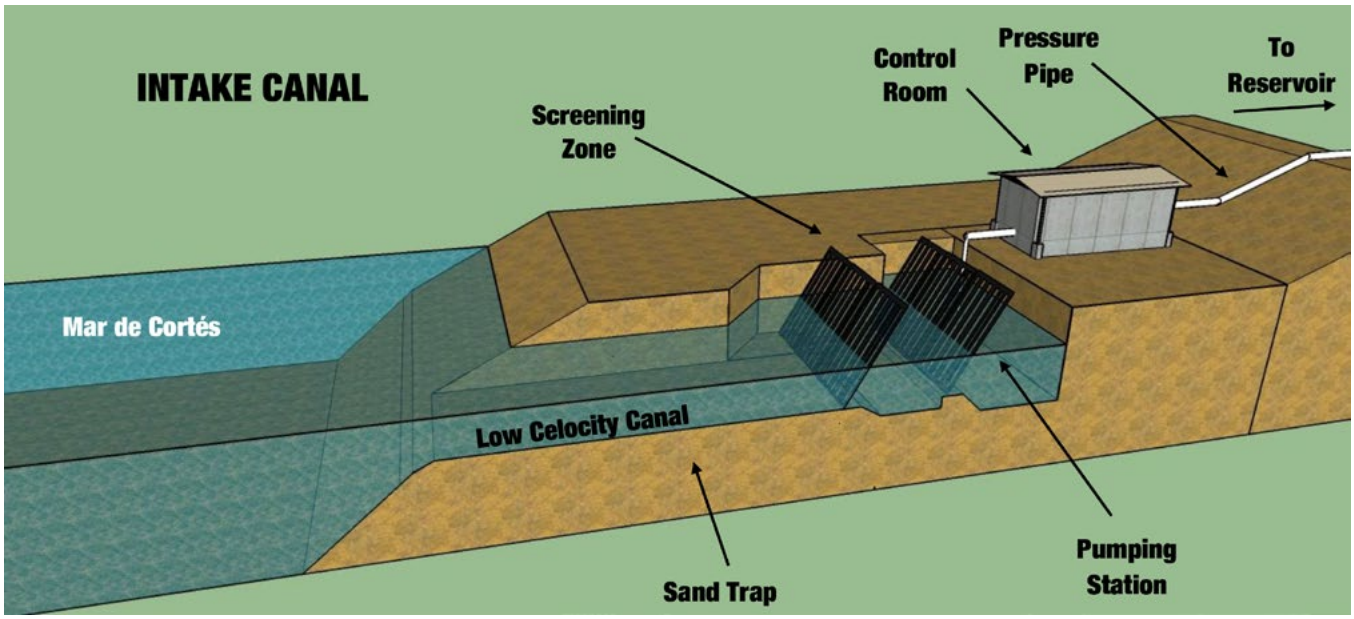


Figure 3.1.2

We looked at two potential locations for extraction (East Option (Sonora) and the West Option (Baja California)) and determined that the East Option was the most cost effective and feasible because the conveyance from this point required a smaller change in elevation (approx. 90 ft less), had a smother terrain for pipe installation, and was more favorable in terms of environmental and social issues. In addition, a now closed shrimp farm with a permitted intake capacity of approximately 300,000 acre-ft/year could be used as an extraction point.

Conveyance

Conveyance of water from the Sea of Cortez will require several miles of pipe that would be installed in both Mexico and the United States. The exact routing will be dependent on obtaining right of ways, permits, third party agreements, and environmental clearances, and the location of the intake.

Simbology

- Sonora A Alternative
- Sonora B Alternative
- Baja California Alternative

Figure 3.3

For the purpose of this feasibility exercise, we selected the Sonora B Alternative at the preferred conveyance routing. When calculating size and type of pipe, considerations were given to friction losses, gradient, water hammer, and seismic activity. Cost of installation was then estimated taking into account access roads, rights of way, possible purchase of land, etc.

Each line was designed to handle 257,000 acre feet/yr (AFY) of flow. The design includes three different options that include fast fill, intermediate fill, and slow fill options. A summary table of calculations is provided below:

SONORA ALTERNATIVE											
Water Intake Option	Replenishing Flow (AFY)	Lake Filling Time (years)	Current Elevation of the lake 2017 (feet)	Desired Elevation of the lake (feet)	Flow to Maintain Lake Elevation (AFY)	Flow per Pipeline (AFY)	Quantity of Pumps/Pipeline	Energy Cosumption (kWh)	Pipe Diameter (feet)	Number of Pipes	Pipe Material
Fast (direct intake)	1,020,000	3.60	-235.00	-235.00	370,000	255,000	8.00	70,208	9	4.00	GRP
Intermediate (direct intake)	765,000	5.80	-235.00	-235.00	370,000	255,000	8.00	52,656	9	3.00	GRP
Slow (direct intake)	510,000	15.90	-235.00	-235.00	370,000	255,000	8.00	35,104	9	2.00	GRP

Table 3.1.1

Each line would be fed by 7 pumps, plus one stand-by. Each pump would deliver an effective capacity of 22,700 gal/min when all 7 pumps are operational. The first leg of the conveyance system would pump the water into the reservoir located 165 ft above sea level. Once the water reaches the reservoir it will be fed by gravity to the Salton Sea. A flow control valve would ensure that the pipe remains full and does not permit the reservoir from emptying below a set point.

The water will fall onto a tiered landing oxygenating the water before it is added to the lake

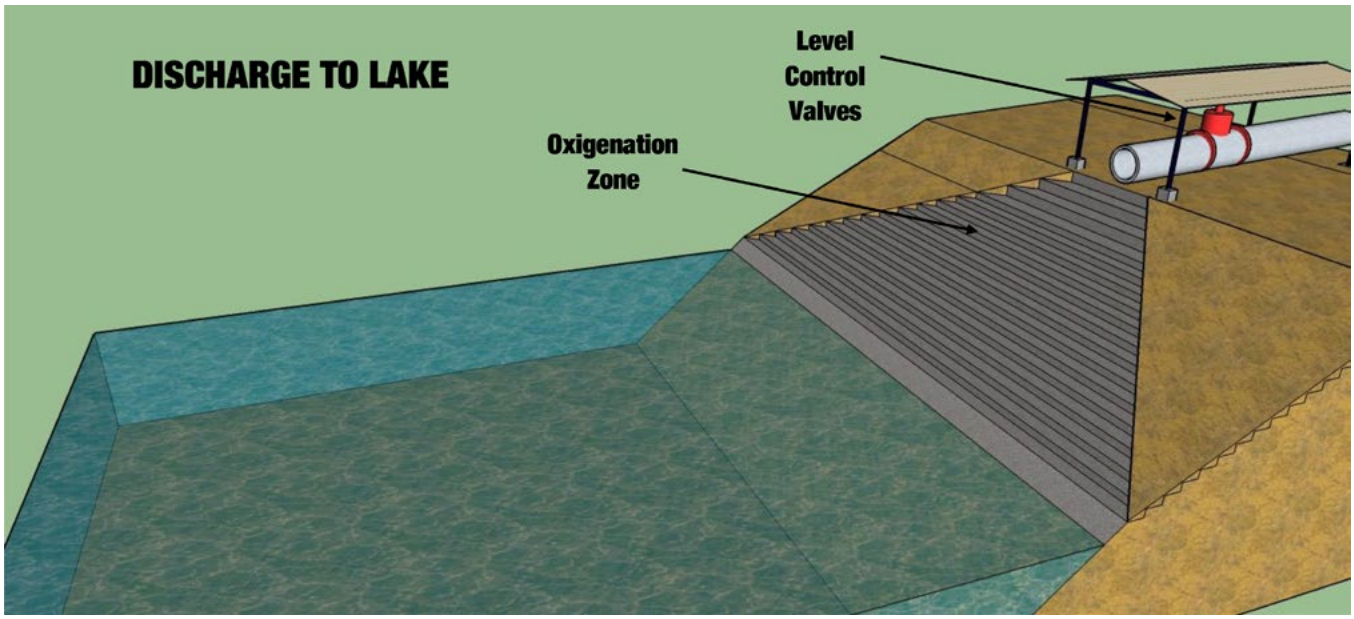


Figure 3.1.3

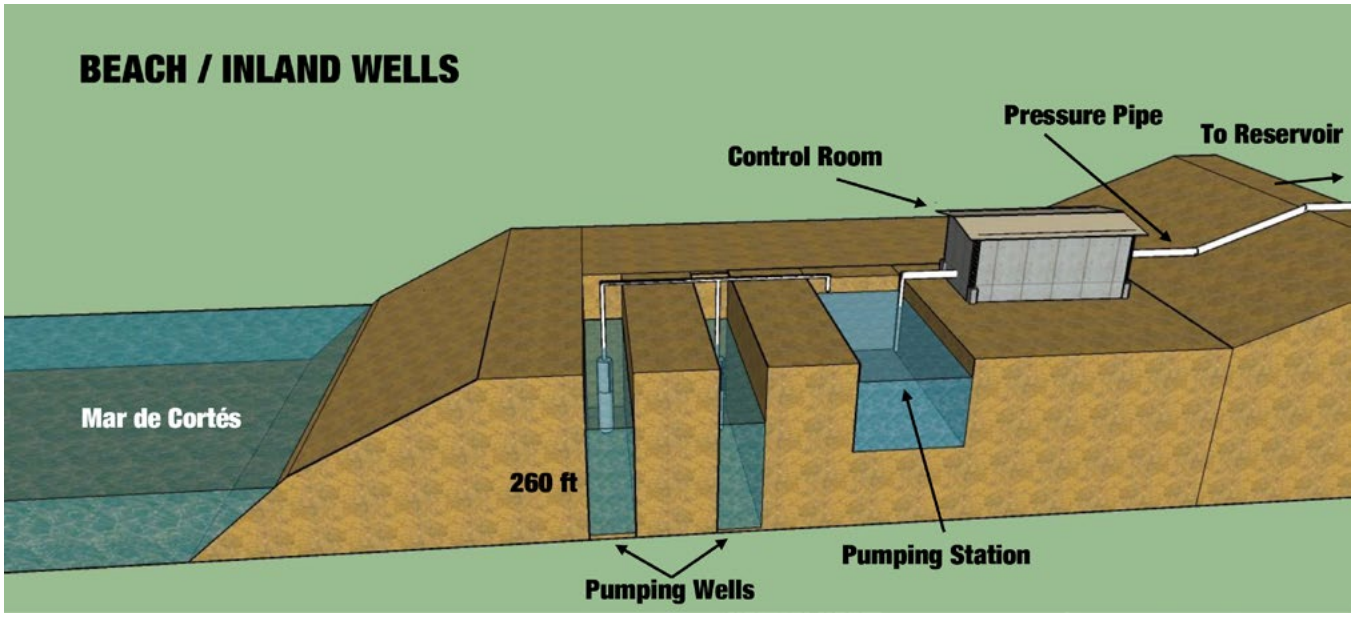


Figure 3.1.4

A second alternative would involve intercepting agricultural water that migrates to the ocean through extraction wells located in Mexicali. This would require special permission from CONAGUA. At this point, we do not recommend discarding this option until we have had discussions with CONAGUA and have a better understanding of the political and engineering constraints.

3.2 Water Source Identification

Analysis of Viable Alternatives on the Sea of Cortez:

1) Viable Sites: (Attach map)
    a. Golfo de Santa Clara-Sonora
    b. Existing shrimp farm in Sonora that is no longer in operation.
    c. Mexicali Valley
    d. San Felipe- Baja California Norte.
2) Options:
    a. Water Intake directly from the Sea of Cortez.
    b. Network of Wells.
    c. Combination of a and b.
3) Develop a comprehenise matrix analysis that considers enviromental, social, required permits, technical viabilty and land use permits.
4) Identify key constraints, including environmental, regulatory and governmental approval factors.
5) Anaylis and conclusions of the Matrix and definition of the 2 most viable alternatives.

The federal entity responsible of granting the water permits, is the Comisión Nacional de Agua (CNA), and will evaluate the overall impact that the project will have on the area where the water permits have been requested in order to define if such permits can be approved.

The request for the water permits, needs to be entered after the MIA process has begun and Conagua will not grant the permits until Semarnat has approved the MIA.

The permits with Conagua are:
1) Water Concession.
2) Construction Permit if Federal Zone.
3) Federal Zone Use.

As part of the water permits evaluation, CNA requires the following studies:
1. Description “Study Area”
2. Interpretation of Investigations
3. Piezometric Analysis
4. Interpretation of Hydraulic Test
5. Analysis of Water Samples in an accredited laboratory
6. Distribution of water salinity
7. Developments and surrounding ecosystems
8. Mathematical Simulation Model

Water Permit Process in Mexico

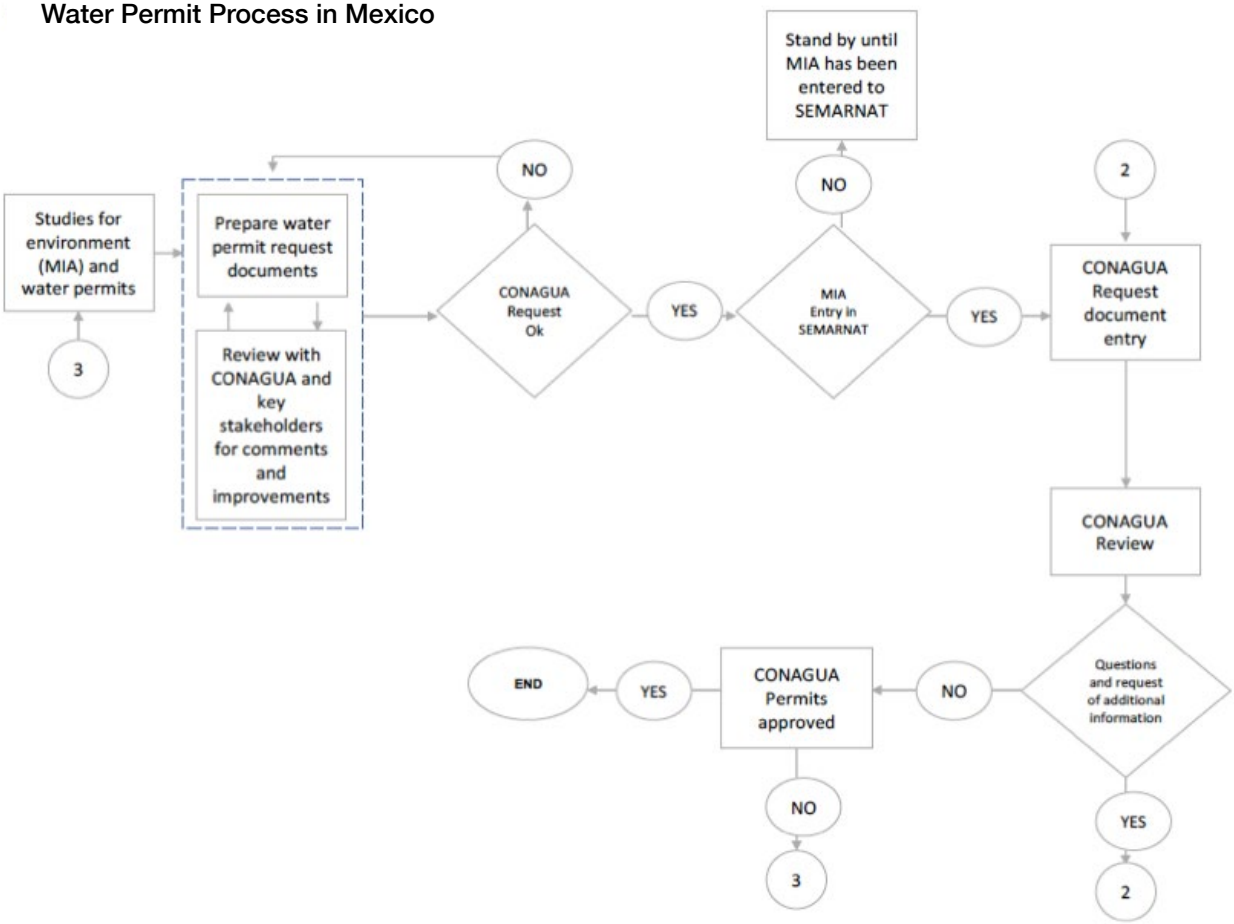


Diagram 3.2

3.3 Land Use and ROW

There are several options for routing the pipeline from the Sea of Cortez to the Salton Sea. One critical variable has to do with the location of the sea water extraction. Based on preliminary discussions with the Mexican Government the Cordoba-Terrabrio team has identified three potential extraction locations:

1. Groundwater just north of Sea of Cortez
2. Shrimp Farm, Sonora
3. San Felipe, Baja

These extraction options as well as the conveyance route are delineated in the following figure.

Each option has pros and cons associated with environmental impact, engineering logistics, and bi-national cooperation. For the purpose of this proposal, the Cordoba-Terrabrio team has selected the Sonora A option as the most viable. A profile of this option is provided in the following figure.

The maximum elevation change would be 82 feet (25M) and would occur near the border of Mexicali and California.

Right of Way (ROW)

The ROW process is tied to the Project Definition and EIR, as such; all ROW clearance, Easement procedures and takes shall be adequately planned and approved per State of California procedures.

Once the ROD (Record of Decision) has been obtained, the project will initiate a ROW/Easement identification and an APE (Area of Potential Effect) map shall be developed. The APE will indicate the preferred alignment with a full ROW take requirement. All utilities, landmarks, properties shall be identified and listed; then all appropriate zoning and parcel maps will be coordinated to complete the initial permit process for Right-of-way Acquisition, or Easement agreement process.

The ROW acquisition process, or easement agreement record shall include urban and rural properties, show in demarcated fair market value with corresponding zoning requirements. The initial ROW requirements and or project request shall include, at minimum the following:

1. Issuing agency
2. Scope
3. Statutory Authority
4. Duration
5. Effective Date
6. Objective
7. Easement/s
8. Appraisal/s
9. Fee Schedule
10. Field Inspections and validations
11. Price Schedule
12. Purchase contract lands
13. State lands
14. Trust/s
15. Survey and Record Documentation
16. Affidavit of Completion
17. Reclamation or Restorations

3.4 Environmental Impact

ENVIRONMENTAL IMPACTS MEXICO		
ANTICIPATED ENVIRONMENTAL IMPACT	POSSIBLE IMPACTS	POSSIBLE MITIGATION
Hydrology and Water Quality	• Temporary interruption during construction of water flow and water streams. • Possible contamination. • Possible impact to aquifers during excavation. • Level reduction of water table of the aquifer due to increased water consumption.	• Implementation of Best Management Practices (BMPs) • Follow the recommendations and regulations of related authorities. • Land protection during construction. • Avoid the deviation of natural streams
Biological Resources and Wetlands (sitios RAMSAR)	• Possible affectation to nesting bird zones (AICAS), due to noise and illumination during construction. • Fauna moving paths interruption. • Possible affectation to natural protected areas, such as RAMSAR sites, Vaquita Marina protected environment and mangroves.	• Monitoring, worker awareness training, weed control, implementing a biological resources management plan. • Implementing a restoration and revegetation plan. • Identification of environmentally sensitive areas and environmentally restricted areas. • Construction period mitigation measures to avoid or minimize impacts on biological resources include mapping special-status plants species and communities to avoid, protocol and/or preconstruction surveys of special-status wildlife species. • Coordinate project mitigation plan with related authorities.
Air Quality and Global Climate Change	• Temporary increase of suspended air particles. • Temporary gas emission from machinery used during construction.	• Water irrigation to reduce air particles. • Control of gas emissions from used machinery.
Noise and Vibration	• Noise increase during construction from the use of machinery and pump system. • Possible perturbation of fauna.	• Machinery should have noise reduction devises. • Pump Station needs to be isolated.
Soil	• Soil contamination. • Soil compacting from the use of heavy machinery.	• Implementation of Best Management Practices (BMPs) • Follow the recommendations and regulations of related authorities. • Land protection during construction. • Use of confined areas for residues. • Implementing a restoration and revegetation plan, identification of environmentally sensitive areas.
Landscape	• Landscape affectation during construction.	• Implementation of Best Management Practices (BMPs).
Public Utilities and Energy	• Project construction could conflict with existing underground and aboveground utilities and could result in scheduled service interruptions. • Project operations use energy. The ongoing use of energy could be mitigated by making a commitment to use renewable energy sources, if available.	• Reconstruct any damage and define control measures to avoid service interuptions. • Follow the recommendations and regulations of related authorities.
Hazardous Materials and Wastes	• Construction of the Project could result in spills of hazardous materials and wastes. Compliance with regulatory requirements for hazardous materials would minimize the risk of releases and exposure to hazards and would reduce potential impacts from construction and operation of the project.	• Develop a hazardous materials and waste control program • The hazardous materials will be segregated and controlled on a separate and confined area. • The hazardous materials will be segregated and controlled on a separate and confined area. Follow the recommendations and regulations of related authorities.
Social	• Opposition of Environmental groups and involved communities.	• Develop and implement an effective communication plan with key stakeholders. • Prepare an Impact Evaluation Study and involve related authorities to define the public request process.
Cultural Resources	• Potential to cause impacts on historic properties	• Conduct an archaeological study with INAH prior to construction.

ENVIRONMENTAL IMPACTS USA		
ANTICIPATED ENVIRONMENTAL IMPACT	POSSIBLE IMPACTS	POSSIBLE MITIGATION
Hydrology and Water Quality	• Project alternatives would result in construction of pumping, conveyance, and intake and outfall facilities. Effects during construction on drainage and storm water runoff patterns, flood flows, and surface and groundwater quality would be reduced to with implementation of Best Management Practices (BMPs) (e.g., Construction Storm Water Pollution Prevention Plan) and adherence to water quality regulations. The BMPs also would limit the project impacts with regional consideration of county and State regulations.	• Potential impacts to water quality in the Salton Sea from importation of water from the Sea of Cortez could be mitigated through the implementation of a phased perimeter lake and brine disposal in deep water intrusion wells.
Biological Resources and Wetlands	• Construction of the Project alternatives could introduce noxious weeds; could directly and indirectly effect species that are rare or protected under State and/or federal law (special-status species), including plants, wildlife, and remove suitable habitat that has the potential to support special-status species; and potentially reduce the functionality of wildlife corridors and linkages. • Operation of the project could permanently impact suitable habitat for special-status plant and wildlife species; permanently impact special-status plant communities and jurisdictional waters; impact U.S. Fish and Wildlife Service (USFWS) recovery plans for threatened or endangered species; impact the Allensworth Ecological Reserve; remove protected trees; and reduce the functionality of wildlife movement corridors and linkages.	• Construction and project period common mitigation measures that avoid and/or minimize impacts on all biological resources and wetlands include monitoring, worker awareness training, weed control, implementing a biological resources management plan, implementing a restoration and revegetation plan, identification of environmentally sensitive areas and environmentally restricted areas, installation and use of approved fencing, and compliance reporting. Construction period mitigation measures to avoid or minimize impacts on biological resources include mapping special-status plants species and communities to avoid, protocol and/or preconstruction surveys of special-status wildlife species, construction timing, and implementation of resource specific guidelines and/or restoration of habitats and monitoring. • Mitigation for impacts during project operation include coordinating with the regulatory agencies (i.e., USFWS, U.S Army Corps of Engineers [USACE], California Department of Fish and Wildlife [CDFW]); compensating for impacts on special-status plant species and plant communities; compensating for impacts on special-status wildlife species; implementing agency-approved guidelines and a habitat mitigation and monitoring plan; and compensating for impacts on jurisdictional waters.
Air Quality and Global Climate Change	• Project construction of the Project would result in substantial emissions of ozone precursors (volatile organic compounds [VOC] and nitrogen oxides [NOx]), and CO. Project construction could conflict with regional attainment plans and exceed CEQA significance thresholds for VOC and NOx, PM10, and PM2.5.	• Project construction impacts could be reduced level by reducing criteria exhaust emissions from construction equipment and by purchasing offsets for emissions associated with hauling material in certain air districts. Project operations for the project would result in a net benefit to air quality because the project would avoid dust plumes expected with the exposure of the Salton Sea playas expected with the No Project Alternative .There is also a potential for the project to resul a net increase in carbon sequestration compared in with the No Project Alternative.

Noise and Vibration	• Implementation of the project would create noise impacts during construction. Mitigation for these impacts includes noise monitoring during construction and requiring the contractor to implement one or more noise control measures to meet noise limits, such as erecting temporary sound barriers to shield sensitive receptors from construction noise. The contract may require the construction equipment to not exceed certain noise thresholds at certain times of day and employ a noise monitor to shut down construction if construction noise exceeds those thresholds.	• Noise from project operations would be localized at the pumps and potentially the outfall into the Salton Sea. These noise sources would only be significant if they were located near a noise sensitive receptor. The typical means for mitigating noise from operations would be erecting a noise wall to shield the receptor from the noise. Alternatively, improvements could be made to the buildings of the sensitive receptor to insulate the inside from noise, for example replace single pane windows with double paned windows.
Public Utilities and Energy	• Project construction could conflict with existing underground and aboveground utilities and could result in scheduled service interruptions. Construction activities could also generate solid and hazardous waste through the demolition of existing roads and buildings.	• Utility interruptions and increased waste generation could be mitigated with advanced notice of utility interruption and setting a target for recycling construction debris. Project operations use energy. The ongoing use of energy could be mitigated by making a commitment to use renewable energy sources, such as solar energy.
Hazardous Materials and Wastes	• Construction of the Project could result in accidents or spills of hazardous materials and wastes and could disturb hazardous waste sites, which may result in temporary hazards to schools.	• During project construction, the handling of extremely hazardous materials within 0.25 mile of a school would be avoided by requiring that contractors not use extremely hazardous substances or a mixture thereof in a quantity equal to or greater than the state threshold quantity (Health and Safety Code Section 25532) within 0.25 mile of a school. Compliance with regulatory requirements for hazardous materials would minimize the risk of releases and exposure to hazards and would reduce potential impacts from construction and operation of the project.
Parks, Recreation, and Open Space	• Construction impacts from implementing the project could impact the recreational uses of the Salton Sea and other area recreation areas due to construction truck traffic.	• Construction noise could disrupt the enjoyment of the Salton Sea for wildlife observation. Operation of the project is expected to increase recreational use of the Salton Sea and area uses. The long term benefits to recreational uses are expected to outweigh the short-term construction nuisances.
Cultural Resources	• Implementation of the project has the potential to cause impacts on historic properties (Section 106) and historic resources (CEQA) representing both archaeological and architectural resources. The project could affect historically significant architectural resources.	• Mitigation for these impacts may include implementing a resource treatment plan for prehistoric and historic resources developed in coordination with the California State Historic Preservation Officer as well as complying with a mitigation framework that may include: • Conduct archaeological resources sensitivity training • Halting work in the event of an archaeological discovery • Relocate historic structures if feasible • Prepare and submit Historic American Building Survey, Historic American Engineering Record, and Historic American Landscape Survey Documentation, provide interpretive exhibits • Repair of inadvertent damage of culturally significant properties

3.5 Salton Sea Salinity

The Salton Sea is a terminal lake with no current outlet. However, large quantities of water are transferred out of the lake every year through evaporation. This has the undesirable effect of increasing salinity concentration and decreasing water volume.

Currently surface water will decrease significantly due to the IID/SDCWA QSA agreement which together with the various changes of uses of water that will cause the lake to accelerate its level drop of last 10-year average of 0.5 ft./yr. to and estimated 1.65 ft/yr. If this situation persists the salinity of the lake in 6 years will go from 65,000 ppm to approximately 100,000 ppm.

Regardless of surface water contribution, the concentration of salt in the Salton Sea will continue to increase unless the salt is physically extracted or the water removed and conveyed to another location. To reduce the impacts of high salinity on the natural habitat as well as create a new economic stimulus, the Cordoba-Terrabrio team is recommending a two-lake system as described in Section II of this document. In this scenario, the "Perimeter" lake would be continuously refreshed by sea water from the Sea of Cortez and maintained at a constant elevation and salinity concentration. The water from the "Perimeter" lake would be allowed to overflow into the "Central" lake where it would concentrate over time and ultimately create something similar to the Dead Sea which has a salinity concentration of about 350,000 ppm. The idea of the inner lake for salt accumulation can have many variations which would have to be analyzed in conjunction with the Salton Sea Authority.

If the lake elevation of -235 ft. is considered, the salinity in 84 years from now (assuming that the imported sea water is fed to the lake in 7 years) will reach a concentration of about 260,000 ppm, at which point the saturation point of sodium chloride will be reached (main component in sea water). After this point the evaporation rate of the lake should have reduced by about 30% (using the formula proposed by the Bureau of Reclamation (January 1, 2000)), the capacity of the lake to accumulate salts would be extended for more than 300 years.

Desalination could also be an option but would need to be studied to determine its viability and cost effectiveness. Several options for desalination have been considered as described below:

- Desalinate the highly concentrated "Central" lake water using local geothermal energy and dispose of the brine through deep well injection.
- Desalinate the Sea of Cortez water prior to distribution into the "Perimeter" lake using local geothermal energy and disposing of the brine through deep well injection.
- Pump the water out of the "Central" lake back to the Sea of Cortez or the Pacific Ocean.

All of these options would be very expensive but under certain conditions could be viable.

3.6 Water Use

Water is currently transferred in and out of the lake from the following sources:

- Precipitation
- Groundwater
- Surface Water
- Evaporation

The surface water contribution has historically been the largest source of water feeding the Salton Sea. It mostly comes from Agricultural run-off via one of three rivers; Whitewater, Alamo, and the New River. In 2001, these rivers contributed over 1,000,000 ac-ft of water per year. With the IID/SDCWA QSA agreement, lining of the All American Canal, and other conservation measures, the surface water contribution is expected to drop significantly.

Figure 3.6.1

The ground water contribution was studied in 2008 by Dr. Andrew Thompson and his team at the Lawrence Livermore National Laboratory along with the Bureau of Reclamation. The study found that most of the groundwater was confined to a deep ground water system where quality is low and natural recharge is not well demonstrated. Consequently, it was estimated that only a very small amount of groundwater made it to the Salton Sea.

The Salton Sea historically gets less than 5 inches of precipitation per year. When run-off from local mountains is included the total average annual contribution of water related to precipitation only amounts to about 68,000 ac-feet per year.

Due to the arid environment and the vast amount of surface area (approximately 350 sq. miles or 224,000 acres) of the Salton Sea, evaporation is one of the biggest contributors to water loss at the Salton Sea. Assuming an evaporation rate of 5.84 feet per year, water loss due to evaporation can exceed 1,308,000 ac-ft. per year.

Taking all of the sources of water into consideration we have a total inflow of 1,363 ac-ft. per year average between 1950 and 1997 and during this period an average increase of slightly over 0.2 ft./year. After this period from 2005 to 2017 the lake dropped an average of 0.5 ft./yr. which results in a deficit of 112,000 acre-ft./yr.

As a result of the IID/SDCWA QSA agreement, water conservation, and the overall reduction of farming in the Imperial and Coachella Valley, the overall water balance for the Salton Sea is significantly impacted and the estimated drop in water levels starting in 2018 will be around 1.65 ft./year almost 370,000 ac-ft./yr. If we consider no other change and do not include any other variables we would need to import 370,000 ac-ft./yr. to maintain water level and an additional amount to recover the water level dropped. There are many considerations that have to be taken into account to determine the amount of water that needs to be imported, these include:

- *Reduced evaporation with receding lake.*
- *Reduced evaporation due to increase in salinity.*
- *Decrease or increase of agricultural run-off to the lake due to changes in any future actions.*
- *Development time to deliver new water to lake.*
- *Establishing a fixed elevation for the lake.*
- *Determining the years required for re-establishing the desired water level.*

All of the items above have to be discussed in detail with the Salton Sea Authority in order to determine the optimum capacity.

We have prepared the Capex and Opex of 3 sizes that can be reviewed (514,000 ac-ft./year, 771,000 ac-ft./yr and 1028 ac-ft./year), that is presented in section 4.

3.7 Cross Border Governmental Coordination and Permitting

This project will include key bi-national working agreements and special treaty development. Once the initial meeting with IBWC occurs, our team will incorporate a bi-national workshop sequence to ensure all agencies are actively participating.

Stake Holders Engagement:
One key objective of the project is to be able to develop an open dialogue and engagement with the stakeholders that need to be involved in the decision part of the project.

A multi task effort with involved stake holders in the USA and Mexico, needs to be organized and promoted, in order to be able to get all the necessary objectives that need to be met and the approval of the best alternative of the project.

The first step is to start a dialogue with the Salton Sea Authorities and the California National Resource Agency (CNRA), in order to define the project objectives, such as lake level altitude and perimeter, water salinity etc.

With clear and defined objectives of the project and with the water source alternatives in Mexico, some initial studies need to be done to be able to prepare an environmental and social impact study for each of the different water source alternatives. The idea is to identify the key constraints that the project will encounter (environmental, regulatory, social and government approval factors.

The studies, will be thoroughly discussed with Semarnat and Conagua in parallel, in order to define with them, which alternative or alternatives could be considered as viable for the MIA and water permits.

As part of the development of the project, it is critical to be able to involve IBWC from the very early stages of the project since the bi-national agreements between USA and Mexico governments is a critical part of the project viability.

The engagement will land owners needs to be handled with extreme care in order to be able to negotiate reasonable costs for the ROW contracts.

Also, we will need to secure the support from key stakeholders from the Federal and State Governments, Municipalities, Local and national Universities etc. The Salton Sea project, could become an Strategic Environmental Project for Mexico and could generate important investments for the Natural Reserves of the Gulf of Cortez and other sensitive environmental and water related issues.
Stake Holders in Mexico:

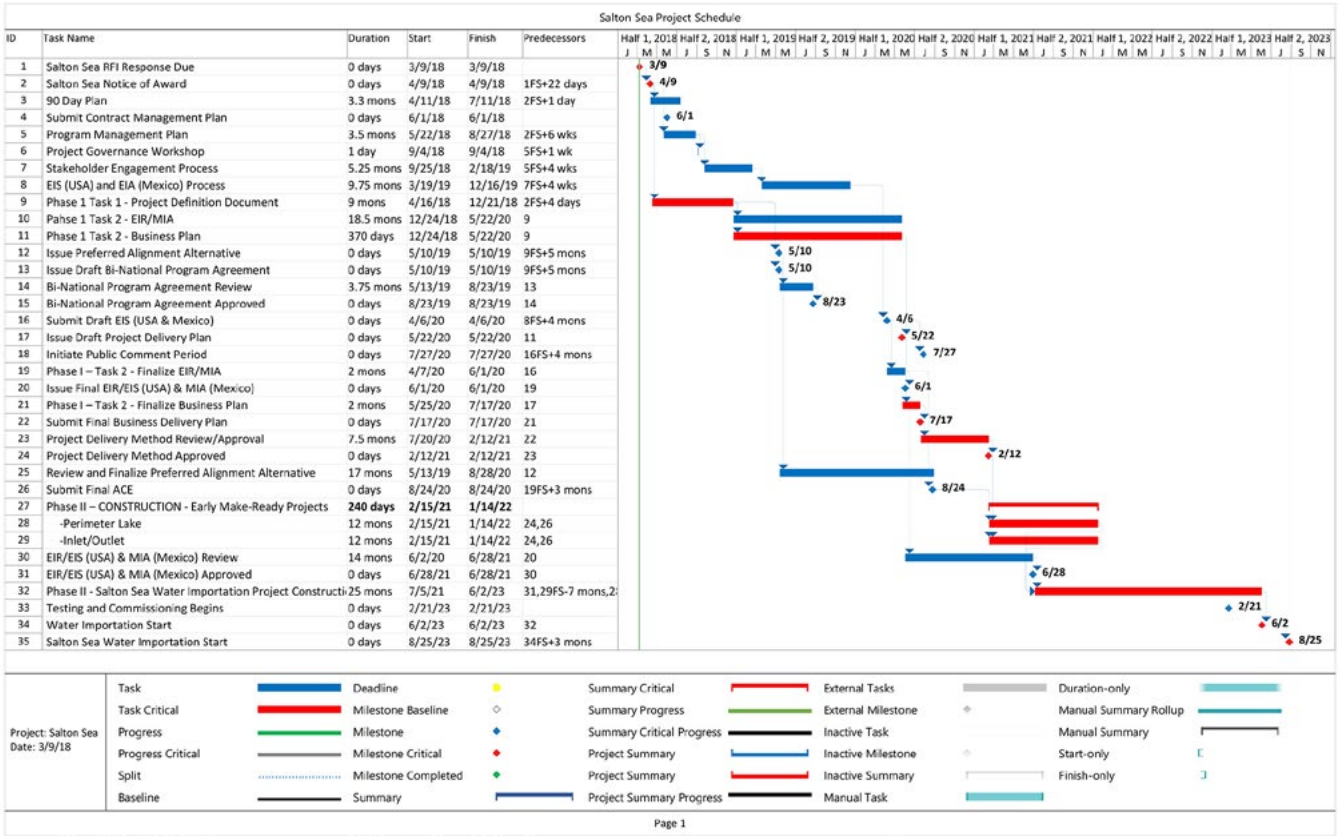
1) Federal Entities: Semartat and Conagua.
2) IBWC
3) State Governments in Baja or Sonora.
4) Municipalities in Baja or Sonora.
5) State Universities and Enviromental groups.
6) Land Owners.
7) Related communities where the water will be obtained and along the construction of the pipe line.
8) Federal Goverment (President of Mexico) in case of the multi national agreement.
9) Health Secretary.
10) Environmental groups (ONGs)

Benefits that need to be considered for Mexico's interest and approval:

1) The growing harm of toxic dusts will affect gradually the cities of Mexicali, San Luis Rio Colorado and other communities. Therefore, the Salton Sea growing degradation must become a concern for Mexico also.
2) Payment for the water that will be sent to Salton Lake.
3) Investment of the Project.
4) Energy Consumption.
5) New Jobs during construction and operation of the project.
6) Funds for the restoration of Natural Protected Areas of the Gulf of Cortez, including the Vaquita Marina protected area.
7) Funds for local Universities and other Institutes for the development of Environmental projects and other Strategic Programs of the States of Sonora and Baja California.

3.8 Project Development Schedule and 3.9 Operational Schedule

Please see attached schedule



ID	Task Name	Duration	Start	Finish	Predecessors
1	Salton Sea RFI Response Due	0 days	3/9/18	3/9/18	
2	Salton Sea Notice of Award	0 days	4/9/18	4/9/18	1FS+22 days
3	90 Day Plan	3.3 mons	4/11/18	7/11/18	2FS+1 day
4	Submit Contract Management Plan	0 days	6/1/18	6/1/18	
5	Program Management Plan	3.5 mons	5/22/18	8/27/18	2FS+6 wks
6	Project Governance Workshop	1 day	9/4/18	9/4/18	5FS+1 wk
7	Stakeholder Engagement Process	5.25 mons	9/25/18	2/18/19	5FS+4 wks
8	EIS (USA) and EIA (Mexico) Process	9.75 mons	3/19/19	12/16/19	7FS+4 wks
9	Phase 1 Task 1 - Project Definition Document	9 mons	4/16/18	12/21/18	2FS+4 days
10	Pahse 1 Task 2 - EIR/MIA	18.5 mons	12/24/18	5/22/20	9
11	Phase 1 Task 2 - Business Plan	370 days	12/24/18	5/22/20	9
12	Issue Preferred Alignment Alternative	0 days	5/10/19	5/10/19	9FS+5 mons
13	Issue Draft Bi-National Program Agreement	0 days	5/10/19	5/10/19	9FS+5 mons
14	Bi-National Program Agreement Review	3.75 mons	5/13/19	8/23/19	13
15	Bi-National Program Agreement Approved	0 days	8/23/19	8/23/19	14
16	Submit Draft EIS (USA & Mexico)	0 days	4/6/20	4/6/20	8FS+4 mons
17	Issue Draft Project Delivery Plan	0 days	5/22/20	5/22/20	11
18	Initiate Public Comment Period	0 days	7/27/20	7/27/20	16FS+4 mons
19	Phase I – Task 2 - Finalize EIR/MIA	2 mons	4/7/20	6/1/20	16
20	Issue Final EIR/EIS (USA) & MIA (Mexico)	0 days	6/1/20	6/1/20	19
21	Phase I – Task 2 - Finalize Business Plan	2 mons	5/25/20	7/17/20	17
22	Submit Final Business Delivery Plan	0 days	7/17/20	7/17/20	21
23	Project Delivery Method Review/Approval	7.5 mons	7/20/20	2/12/21	22
24	Project Delivery Method Approved	0 days	2/12/21	2/12/21	23
25	Review and Finalize Preferred Alignment Alternative	17 mons	5/13/19	8/28/20	12
26	Submit Final ACE	0 days	8/24/20	8/24/20	19FS+3 mons
27	Phase II – CONSTRUCTION - Early Make-Ready Projects	**240 days**	**2/15/21**	**1/14/22**	
28	-Perimeter Lake	12 mons	2/15/21	1/14/22	24,26
29	-Inlet/Outlet	12 mons	2/15/21	1/14/22	24,26
30	EIR/EIS (USA) & MIA (Mexico) Review	14 mons	6/2/20	6/28/21	20
31	EIR/EIS (USA) & MIA (Mexico) Approved	0 days	6/28/21	6/28/21	30
32	Phase II - Salton Sea Water Importation Project Constructi	25 mons	7/5/21	6/2/23	31,29FS-7 mons,2
33	Testing and Commissioning Begins	0 days	2/21/23	2/21/23	
34	Water Importation Start	0 days	6/2/23	6/2/23	32
35	Salton Sea Water Importation Start	0 days	8/25/23	8/25/23	34FS+3 mons

4.

COST PROJECTION

4.1 Description of the Budget

The budget has been developed for the two main alternatives, Sonora Alternative and Mexicali Alternative. And for each of them the possibility of pumping 1.02, 0.765 and 0.510 MMAFY has been analyzed.

In the Sonora Alternative a direct water extraction from the Sea of Cortez is considered. The possibility of extracting water through wells on the beach area could be considered and also the mixed alternative with direct extracting from the sea and wells. The use of wells makes especially sense in the case of pumping the lows flows although these will increase the Operation cost.

In the Mexicali Alternative, extracting water through wells has been considered.

The design of the project is based in the assumptions described in the Chapter 3, in Project Feasibility.

4.2 Budget

Salton Sea Project - Assumptions		
Concept	Value	Bibliographic reference
Water Inflow	1,363 AF/yr	Bureau of Reclamation, Attachment B. Salton Sea Accounting Model, January 21, 2000: average 1950-1997
Evaporation rate	5.84 ft/acre/yr	Bureau of Reclamation, Attachment B. Salton Sea Accounting Model, January 21, 2000: Between 5.75 and 5.92 ft/y
Surface of the lake	224,000 acres	Hazard's Toll 2014 (Pacific Institute): Surface 350 square feet = 224,000 acres
Current water depth	-235 ft	Hazard's Toll 2014 (Pacific Institute)
Current average depth	31.00 ft	The Salton Sea Authority, October 3, 1997
Desired water depth	-235 ft	
Salton Sea Saliniity	45,000 ppm	Bureau of Reclamation, Attachment B. Salton Sea Accounting Model, January 1, 2000: Between 43,000 and 45,000 ppm
Current salinity of the lake	65,000 ppm	Estimated based on the forecast of the Hazard's Toll 2014 (Pacific Institute)
Salinity of water entering the lake	2,800 ppm	Bureau of Reclamation, Attachment B. Salton Sea Accounting Model, January 1, 2000: For 1,346,000 acft/yr (1985-1995), salt concentration 2,800 mg/L, 5,124,370 ton salt/yr
Water source	Sea of Cortez	
Water source salinity	35,000 ppm	Estimated
Water San Diego takes	200,000 AF/yr	Hazard's Toll 2014 (Pacific Institute)
Ancient water descent	0.50 ft/yr	Hazard's Toll 2014 (Pacific Institute): since 2007 to 2017
Future water descent	1.65 ft/yr	Hazard's Toll 2014 (Pacific Institute): since 2017 to 2027

Based on the above assumptions, the following is the budget of the alternative proposed solutions:

SONORA ALTERNATIVE			
CapEx Breakdown (USD)			
Budget Price Estimate (with Wells)	**4 lines (Total 1.02 MM AFY)**	**3 lines (Total 0.765 MM AFY)**	**2 lines (Total 0.510 MM AFY)**
Preenginering	$ 4,000,000	$ 3,920,000	$ 3,800,000
Detailed Engineering	$ 40,000,000	$ 36,000,000	$ 32,000,000
Intake with Wells	$ 77,500,000	$ 65,875,000	$ 54,250,000
Pump Station	$ 64,600,000	$ 53,295,000	$ 35,530,000
Pipeline	$ 1,466,629,787	$ 1,132,324,468	$ 790,829,787
Pipeline Installation & Accesories	$ 941,481,702	$ 761,492,553	$ 530,737,234
Access Roads	$ 47,040,000	$ 45,600,000	$ 43,200,000
High Voltage Line/Substation (Mexico)	$ 65,600,000	$ 55,760,000	$ 45,920,000
Legal & Permiting	$ 12,000,000	$ 12,000,000	$ 12,000,000
Land & Right of Way	$ 37,050,000	$ 33,150,000	$ 27,300,000
Subtotal	**$ 2,755,901,489**	**$ 2,199,417,021**	**$ 1,575,567,021**
Contingency (6%)	$ 165,354,089	$ 131,965,021	$ 94,534,021
Mgt/Sperv Fee (8%)	$ 233,700,446	$ 186,510,563	$ 133,608,083
TOTAL	**$ 3,154,956,025**	**$ 2,517,892,606**	**$ 1,803,709,126**

Opex Costs (yearly basis) (USD)			
Budget Price Estimate (with Wells)	**4 lines (Total 1.02 MM AFY)**	**3 lines (Total 0.765 MM AFY)**	**2 lines (Total 0.510 MM AFY)**
FINANCIAL COST (to 30 yrs)			
Loan Repayment /yr	**$ 194,555,044**	**$ 155,269,583**	**$ 111,228,400**
OPERATING COST			
Electricity ($60/MWh)	$ 36,901,414	$ 27,676,060	$ 18,450,707
Personnel (90 @ $30k)	$ 1,800,000	$ 1,620,000	$ 1,404,000
Maintenance	$ 12,000,000	$ 10,200,000	$ 8,160,000
Insurance	$ 6,309,912	$ 5,035,785	$ 3,607,418
General Administration	$ 1,500,000	$ 1,425,000	$ 1,275,000
Vehicle Fleet	$ 400,000	$ 380,000	$ 360,000
Contingency (4%)	$ 2,356,453	$ 1,853,474	$ 1,330,285
Margin (8%)	$ 4,712,906	$ 3,706,948	$ 2,660,570
Subtotal	**$ 65,980,685**	**$ 51,897,267**	**$ 37,247,980**
TOTAL	**$ 260,535,730**	**$ 207,166,851**	**$ 148,476,380**

MEXICALI ALTERNATIVE			
CapEx Breakdown (USD)			
Budget Price Estimate (with Wells)	**4 lines (Total 1.02 MM AFY)**	**3 lines (Total 0.765 MM AFY)**	**2 lines (Total 0.510 MM AFY)**
Preenginering	$ 4,000,000	$ 3,920,000	$ 3,800,000
Detailed Engineering	$ 40,000,000	$ 36,000,000	$ 32,000,000
Intake with Wells	$ 231,688,556	$ 168,867,500	$ 107,420,556
Pump Station	$ 64,600,000	$ 53,295,000	$ 35,530,000
Pipeline	$ 1,466,629,787	$ 846,646,277	$ 591,308,511
Pipeline Installation & Accesories	$ 941,481,702	$ 569,372,872	$ 396,835,638
Access Roads	$ 47,040,000	$ 33,569,362	$ 31,802,553
High Voltage Line/Substation (Mexico)	$ 65,600,000	$ 39,032,000	$ 32,144,000
Legal & Permiting	$ 12,000,000	$ 12,000,000	$ 12,000,000
Land & Right of Way	$ 37,050,000	$ 25,839,574	$ 21,640,851
Subtotal	**$ 2,910,090,045**	**$ 1,788,542,585**	**$ 1,264,482,109**
Contingency (6%)	$ 174,605,403	$ 107,312,555	$ 75,868,927
Mgt/Sperv Fee (8%)	$ 246,775,636	$ 151,668,411	$ 107,228,083
TOTAL	**$ 3,331,471,083**	**$ 2,047,523,551**	**$ 1,447,579,118**

Opex Costs (yearly basis) (USD)			
Budget Price Estimate (with Wells)	**4 lines (Total 1.02 MM AFY)**	**3 lines (Total 0.765 MM AFY)**	**2 lines (Total 0.510 MM AFY)**
FINANCIAL COST (to 30 yrs)			
Loan Repayment /yr	**$ 205,440,107**	**$ 126,263,578**	**$ 89,267,114**
OPERATING COST			
Electricity ($60/MWh)	$ 60,027,814	$ 39,601,772	$ 26,401,181
Personnel (90 @ $30k)	$ 1,800,000	$ 2,430,000	$ 2,106,000
Maintenance	$ 12,000,000	$ 11,730,000	$ 9,384,000
Insurance	$ 6,662,942	$ 4,095,047	$ 2,895,158
General Administration	$ 1,500,000	$ 1,425,000	$ 1,275,000
Vehicle Fleet	$ 400,000	$ 380,000	$ 360,000
Contingency (4%)	$ 3,295,630	$ 2,386,473	$ 1,696,854
Margin (8%)	$ 6,591,260	$ 4,772,946	$ 3,393,707
Subtotal	**$ 92,277,647**	**$ 66,821,237**	**$ 47,511,900**
TOTAL	**$ 297,717,754**	**$ 193,084,815**	**$ 136,779,014**

4.3 Cost ROMs through program Phase

Our current proposal shows that a full cadre of analysis, decisions and approvals are required in order to achieve operation in the future. The analysis above demonstrates a model tailored to a potential EPCMO, however; due-diligence and best practices will require that we fully study other alternatives, we mention P3 and Design-Build with Agency Operation, as other examples.

If we stay to our proposal to engage the start of Phase I, we are forecasting the following milestones for critical decision making and final Project – Construction Delivery Method.

PHASE I

PROJECT DEFINITION DOCUMENT
Start in April 2018, End by December 2018

- Deliverable: Project Definition Document
- Decision trigger: Start the EIR/MIA process
    - Construction Delivery Method Status: Revised Construction and Delivery Strategy for EPCMO, Design-Build Agency, P3
        - Include schedule, construction and maintenance considerations

EIR-MIA
Start in December 2018, End by June 2020

- Deliverable: EIR/EIS – MIA
- Decision trigger: Evaluate Business Plan with P3, DB-Agency, EPCMO options
    - Construction Delivery Method Status: Revised Construction and Delivery Strategy for EPCMO, P3, DB-Agency
        - Include schedule, construction and maintenance considerations

ROD (Record of Decision)
Achieve ROD in June 2021

- Deliverable: Environmental Clearance – Start Detailed Design/Construction
- Decision trigger: Decide upon P3, DB-Agency, EPCMO
    - Construction Delivery Method Status: Revised Construction and Delivery Strategy for EPCMO, Design-Build Agency, P3
        - Include schedule, construction and maintenance considerations

PHASE II (design-construction) from June 2021 to June 2023

- To be determined, depending on decision at ROD, June 2021
    - Or, Fast -Track decision in June 2020, end of Environmental Document

PHASE III (extract and import water from Sea of Cortez) from June 2023 to 2053

- To be determined, depending on decision at ROD, June 2021

5.

PLAN FOR FUNDING OF PROPOSED PROJECT

5.1 Plan for Funding of Proposed Project

Under the current proposal, we are assuming that most viable project is an EPCMO; however, due-diligence and additional work shall be flushed out through the project definition phase and eventual EIR and MIA. If the CNRA and the Salton Sea authorities were to select and EPCMO as an option, our cost projections under section 4 and assumptions under section 2 would be an appropriate start; where by the CNRA would fund Phase I of the project, through environmental clearance then the EPCMO would fund the rest under an agreed upon Business Plan.

However, the above said; we shall study all alternatives and determine what is best for the project moving forward. Through the PDD and stakeholder engagement process we can arrive at solutions that are tied to critical items, that today are mere assumptions. We highly recommend this project gets started and Phase I moved through quickly to provide the best solution. (f*or additional information, please refer to the Project Development Timeline for general understanding of schedule and decision triggers*).

5.2 O&M Strategies and Alternatives

At this moment we propose, not really knowing an outcome of the Environmental Clearance that an EPCMO would result in the ideal strategy, whereby an independent private entity could operate and maintain the importation process, maintenance and overall responsibility of the Salton Sea Water Importation management. Because there are many critical decisions that can affect environment, sustainability, finance, operations and the public good; careful and focused due-diligence must be done.

We foresee that any of the three options:

1. A water agency (such as Imperial or Metropolitan) could manage on behalf of CNRA/Salton Sea Authority
2. Public Private Partnership,
3. Private entity under EPCMO

Any of the three are viable, however; to develop appropriate supporting documentation to arrive at the best decision, the project must go through Phase I and flush all alternatives through risk criteria, financial, environmental restoration, sustainability and even public use/restoration.

Multiple criteria will be developed through the Project Definition document and therefore arrive at the preferred alternative; all of this under an open collaboration with all stakeholders.

6.

PROGRAM AND DELIVERY STRATEGY

6.1 Program Development Plan

This project, because of its complexity requires that it be planned, developed and ultimately constructed through multiple phases. As we envision it, the Salton Sea program will require a project definition document in order to engage the primary stakeholders prior to an Environmental Document approval.

The project definition will start immediately, once NTP is received. The project definition will start-off by incorporating a 90-day plan focused around project objectives and Salton Sea authority requirements, in addition to CNRA objectives and the SSMP chartered goals. Because the Salton Sea water importation project may become integral to the SSMP, we shall incorporate all known assumptions as a means to achieve expected results.
The project will commence with developing a 90-day plan and schedule; capturing the main areas of concern and solution of the project. The project will require that an advanced conceptual engineering (ACE) be developed, in order to facilitate a bridging document concept that can parallel the Environmental Clearance process. Because this project presents the unique opportunity to engage international boundaries, an environmental clearance process will also take effect in Mexico. As we start the 90-day plan, a stakeholder and inter-agency session would kick-off to present the project objectives; therefore; formalizing all intent to develop a feasible project.
Below, we present a representative window into the tasks involved during the 90-day sprint:

90 Day Plan
- Develop Project Kick-off agenda
- Review project objectives & develop start-up strategy
- Initiate Project Definition Planning
- Initiate Stakeholder Engagement Process
- Review the 10-year SSMP and activate collaboration meetings
- Develop Baseline Schedule for full program
- Develop communications plan
- Develop program management plan
- Develop conceptual alternatives for definition phase
- Develop master permit list and initiate entitlement process
- Review and develop bi-national project approval criteria
- Schedule scoping meetings with key stakeholders
- Develop EIR/EIS-MIA/EIA Master Strategy and Execution plan

OUTLINE:
- Project Definition Documents
- Public Scoping Meeting
- Administrative Draft
- State agency review
- Federal agency review
- Cooperating agency review
    - o Public Hearing

The 90-day plan will parallel the development of the Program Management Plan (PMP) which will be developed as the prime and only execution tool that will aid all of the Program participants in following the project standards, goals, charter, objectives and ultimately a successful execution. As is standard of all major programs, the PMP will become a living tool that's updated per the sub-sequent project life-cycle.

Another opportunity, key and unique to this project, is the ability to engage our south of the border in the acceptance of a project that is structured properly. This way the full engagement process is tied to stakeholder ownership and active engagement. Our strategy for PMP development and successful implementation is quite streamlined: follow the Environmental Clearance process, incorporate all key agencies, obtain a clear project definition, and dissect all engineering alternatives through a concise process of elimination under a set criteria and objectives.

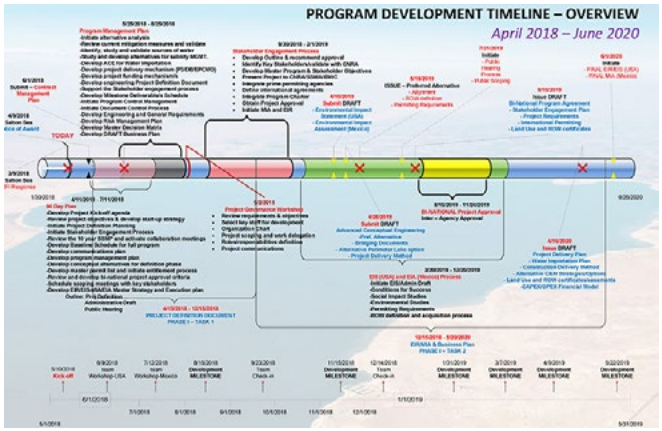
Below is our planned and focused PMP strategy:

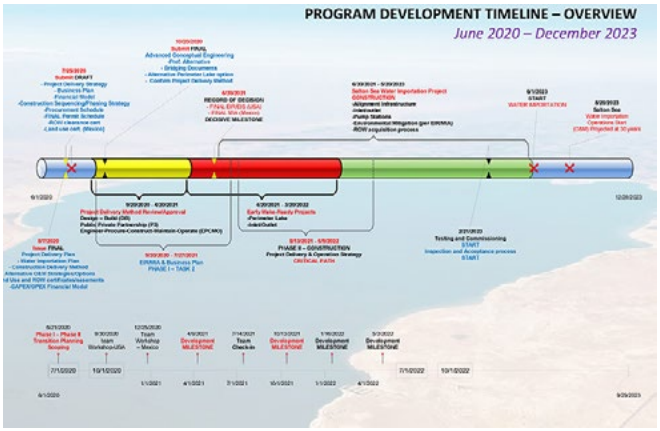
Program Management Plan
- Initiate alternative analysis
- Review and validate current mitigation measures
- Identify, study and validate sources of water
- Study and develop alternatives for salinity MGMT.
- Develop ACE for Water Importation
- Develop project delivery mechanism (P3/DB/EPCMO)
- Develop project funding mechanism/s
- Develop engineering Project Definition Document
- Support the Stakeholder engagement process
- Develop Milestone Deliverable/s Schedule
- Initiate Program Control Management
- Initiate Document Control Process
- Develop Engineering and General Requirements
- Develop Risk Management Plan
- Develop Master Decision Matrix
- Develop DRAFT Business Plan

The intent of the PMP is to provide a focused plan towards program development and execution.

6.1.1 Schedule

Please see the attached timelines and schedules.





6.2 Phase I, Task 1 – Project Definition Document (PDD)

The project definition document shall be utilized as the primary vehicle to get the project started and on the right track. The typical PDD is developed utilizing all known data regarding the Salton Sea that is appropriately vetted and validated for basis of design and preliminary technical assumptions.

The PDD includes three major tasks:

- Compiling and reviewing existing background information that may impact the alternatives or the scope alternatives under consideration.
- Developing project constraints and information required to determine the extent of the existing problem and future needs. This should include any necessary discussions with internal and external stakeholders.
- Analyzing the existing problem and future requirement to determine the project's need and purpose.

End product(s):

- Purpose and need statement
- Adequate information should exist to begin developing alternatives
    - o Review of Existing Reports, Studies and Mapping
    - o This includes planning documents, as-builts, base mapping, a weigh in motion master plan, existing surveys and R/W maps, and any initial reviews
    - o Geological Hazards Review
    - o Utility Research
    - o Program Guidance
    - o Environmental Constraints Identification
    - o Surveying Mapping
- Accelerated Engineering Surveys
    - o Problem Definition
- Initial Alternatives Development
    - o This activity includes identifying all potential alternatives and reaching consensus with internal/external stakeholders on the alternatives that will be addressed in the PDD. It also includes establishing the study limits of the various alternatives to be analyzed in the PDD

- Public / Local Agency Input
    - o Development of Community Action Plan
    - o Initial information or preliminary Scoping meetings with public agencies
    - o Reaching consensus on which alternatives to address in the PDD
- Value analysis
    - o This activity includes reviewing VA procedures, identifying VA team, conducting the analysis, and recommendations to management and the Project Development Team
- Concept Alternatives Development
    - o Development of the basic strategy options to meet the project's needs and purpose; including developing all necessary engineering, cross-sections, preliminary construction sequencing plans, strip maps, ROW requirements, rehab strategies and reviews by all governing authorities
- Alternatives Analysis
    - o This activity is required to develop necessary scope of work and cost of each alternative to be presented in the PDD. Costs developed in this activity will be used for programming purposes, consequently, the analysis should be of sufficient detail to identify all potential costs. Also, included in this activity are tasks required to assess the adequacy of the alternatives to meet the project's need and purpose
- ROW data sheets
    - o Includes assessing ROW requirements, obtaining public records, and preparing ROW costs estimates and cost estimate maps
- Utility Relocation Requirements
    - o Identifying utility needs, inspecting facilities and preparing utility estimate for inclusion in the ROW data sheets.
- Railroad Involvement Determination
- Preliminary Geotech Report
- Hydraulic Review
- Construction Impacts
- Construction Estimates
- Environmental Document (Preliminary)
    - o The Preliminary Environmental analysis report identifies the potential environmental impacts of each alternative, as well as potential range of magnitude (ROM) mitigation costs. This report provided results of project-specific preliminary environmental analyses performed by an interdisciplinary team of environmental and associated specialists. It contains a bottom-up determination of projected time and an estimate to support the needs of the PDD

6.3 Phase I, Task 2 – EIR and MIA development

On both sides of the border, an environmental impact report (EIR) and manifestación de impacto ambiental (MIA) will have to be developed. Below, are the details on the EIR and MIA development:

Environmental Permit in Mexico:

The Environmental Impact Assessment (EIA) has been established as an environmental, analytical and preventive policy instrument that allows a set of projects to be integrated into the environment and eventually a specific plan or program to be enacted.

The procedure offers advantages to the environment and the project: these advantages can be seen in more improved designs that are integrated into the environment, in investments savings, in the costs of works and activities, in social acceptance of the various projects and in a legal certainty to carry out a project.

The evaluation of the environmental impact is a preventive procedure, directed towards informing the promoter of a project about the effects to the environment that can be generated with its construction. It is a corrective element of the planning process and its purpose is to mitigate the negative effects of the project on the environment.

The study is limited to gathering information and consulting authoritative sources in order to obtain evidence as to the projects ability to generate significant and, in the same way, in order to know the load capacity of the area in which the project will be located. With this in place, the study should establish proposals for actions to protect the environment and to correct or mitigate the alterations that may occur.

The goal is to guarantee, in the best possible way, the balance and the characteristics of the environment after putting into operation the project and, collaterally, to preserve the health and well-being of man on a long term basis.

As a summary, this multidisciplinary process must constitute the previous stage (with scientific, technical, sociocultural, economic and legal bases) to make decisions about the operation of a project.

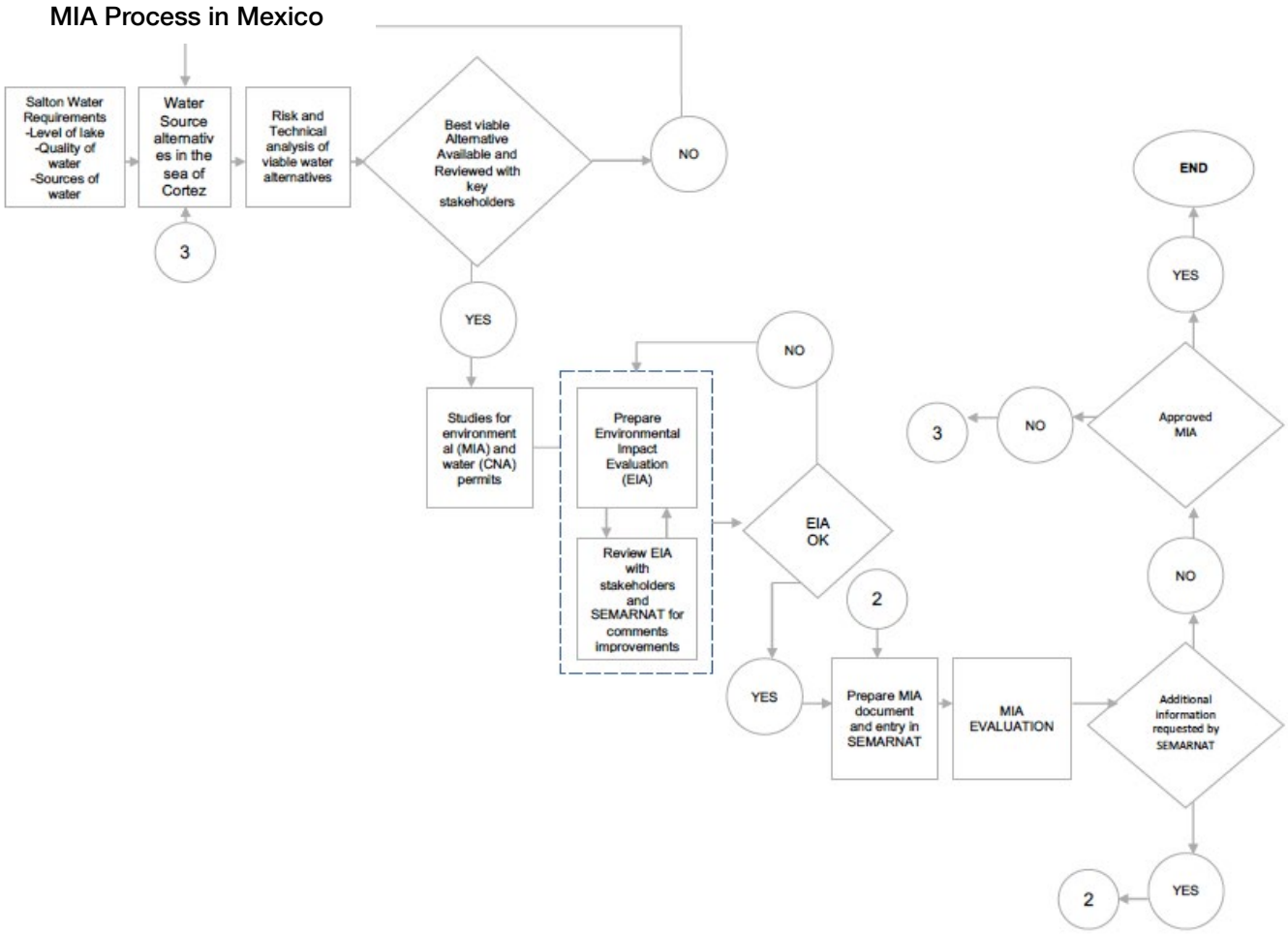
The EIA is considered a precondition to the definition of the characteristics of new projects; this obligates the avoidance of deficiencies in the integration of an Environmental Impact Statement (MIA), particularly in the analysis of the compiled information, under the argument that, given the moment in which the studies were elaborated, more accurate information was not available.

It is important to point out that the legal framework specifies two modalities for the environmental evaluation of the projects: the particular and the regional one. For the regional modality, the scope of its content focuses on two very important items, which are:

1) The description of the REGIONAL ENVIRONMENTAL SYSTEM, which may contain one or more ecosystems and whose trends of development and environmental deterioration is essential to analyze and determine in order to achieve the identification and efficient evaluation of the project's impact on said system, and

2) The type or the nature of the impacts that are generated in the REGIONAL ENVIRONMENTAL SYSTEM and that can be increased by the establishment of the project. In the regional modality, the environmental assessment of the cumulative impacts that has been developed in the Regional Environmental System and the way in which the project can increase the level of accumulation, is one of the fundamental contents of the study that is integrated into the MIA.

MIA Process in Mexico



MIA required Studies:
Documentation and Studies:

1. Topography
2. Geophysical and Geotechnical Studies
3. Conceptual Engineering of the Project
4. Work Program
5. Preventive and Corrective Maintenance Program
6. Sampling and Characterization of Terrestrial Plants and Wildlife
7. Limnological Study (Regional and on site)
8. Ictiological Study (Regional and on site)
9. Noise Study
10. Water Analysis
11. Environmental Impacts and mitigation plan
12. Land Use and project route alignment
13. Project Development Schedule
14. Filling of required formats

ZOFEMAT CONCESSION
Studies:

1. Topography study
2. Construction plans

(Applying regulations NOM-SEMARNAT-146)

3. Study of Tides in the chosen area

Social Impact Studies (EVIS):
As part of the environmental process, the preparation of a Social Impact Study is mandatory in order to be able to define the communities that will be involved directly or indirectly on the Project and be able to engage with these groups.

The right to consultation is considered the "cornerstone" for the recognition and full implementation of the rights of indigenous peoples and communities recognized in the international normative framework. Each promoter must have the Social Impact Assessment (EVIS) whose objective is to identify, in a preliminary manner, the possible consequences and effects of the implementation of development projects on the rights and interests of indigenous peoples and communities, especially those connected to the lands, territories and natural resources where they live and those related to their right to self-determination and autonomy.
It is essential that the indigenous peoples and communities have enough time to make the decision that best suits their rights and interests in case they are affected by a Project.

The binding nature of evaluative studies states:
The Convention 169 of the OIT indicates, in its art. 7.3, that "Governments should ensure that, wherever possible, studies are carried out, in cooperation with the peoples concerned, in order to assess the social, spiritual and cultural impact and on the environment that the planned development activities may have on these people. The results of these studies should be considered as fundamental criteria for the execution of the mentioned activities ".

The Protocol of action indicates the existence of a series of elements or requirements that must be considered when initiating an indigenous consultation process:
1. To be previous to the development and construction of the project.
2. To address those affected or their legitimate representatives
3. It is in good faith
4. With enough information to make decisions
5. In specific there must be "impartial and professional studies of social, cultural and environmental impact"
6. To search for an agreement.
7. In certain cases, it is mandatory to obtain the free and informed consent of the communities
8. Culturally appropriate procedures
9. "Using the forms and institutions that they occupy to make decisions". In the end, it makes a very important consideration, stating that "the lack or vice in any of these elements can be grounds for a jurisdictional procedure" (Supreme Court of Justice of the Nation, 2013, p.20).

Project Milestones Deliverable Schedule (Mexico):

Milestone	Deliverable	Comments
1. Salton Water Authorities Objectives Defined with Stakeholders	Level and Size of Lake Quality of Water Sources of Water	Salton Sea
2. Water Source Alternatives and Risk Analysis	Best Viable Alternative	Sea of Cortez
3. Studies for MIA Water and ROW Permits	Complete set of required Studies for MIA and Water Permits	Definition also of mitigation plan
4. Environmental Chapters	Final document and Water Permit that will be entered in Semarnat documents and CONAGUA	Required
5. Approved MIA	Approved Document by Semarnat	Considering information and review with Conagua
6. ROW Contracts	Signed ROW Contracts	In parallel with MIA and permits process

**For more information refer to the Program Development Timeline

Documentation of Potential Environmental Impacts (U.S.)
The Cordoba-TerraBrio Team (Team) will integrate environmental compliance pursuant to U.S. and Mexican regulations throughout all phases of the Salton Sea Restoration Project. During Phase 1, Preliminary Engineering for Project Definition, the Team will identify environmental constraints, including regulatory and permitting strategies, to inform the alternatives analyses for the components of the proposed project. Project components include:

1. Adjudicating the water level of the Salton Sea.
2. Establishing a perimeter lake separated from a concentrated brine lake with a rock levee .
3. Extracting water from the Sea of Cortez.
4. Conveying the water to the Salton Sea.
5. Discharging the water into the perimeter lake of the Salton Sea .
6. Maintaining the infrastructure in perpetuity.

Stakeholder and regulatory agency outreach occurs throughout all project phases.

Deliverable
Programmatic Stakeholder and Regulatory Agency Outreach Plan. The programmatic outreach plan will identify the milestones along which specific outreach plans are prepared and delivered. For example, a specific CEQA/NEPA outreach plan would detail about how the Notice of Preparation/Notice of Intent (NOP/NOI) published and where and when a public scoping hearing would be scheduled. Among other things, the programmatic outreach plan would identify into what languages the notices and documents would be translated into. This document would identify which federal agencies would be cooperating agencies and which California agencies would be considered responsible agencies. It would also identify what Native American tribes the CEQA and NEPA lead agencies would be obligated to consult with.

Phase 1
The environmental constraints and subsequent environmental impacts analyses to be prepared in Phase 2 of Project Delivery will be divided by governmental jurisdiction. In the U.S. federal laws and regulations as well as laws and regulations of the State of California will be considered.

Deliverable
Environmental Constraints Assessment. This report will identify the habitats for special status plants and animals, wetlands and waters, cultural resources including potential archaeological sensitive areas, historic era buildings, and areas important to local Native American tribes. The Environmental Constraints Assessment will identify a strategy by which the necessary permits would be acquired. The Environmental Constraints Assessment would inform the Preliminary Engineering for Project Definition.

[1]At this time, the Team assumes that rock for the levee would be obtained from commercially available sources. If during the due diligence investigations conducted during Phase 1 demonstrate that there is not sufficient rock available for the levee, then the Team would propose a mining and mine restoration plan.
[2]Rates of discharge will vary: rapid discharge rates would occur originally to achieve the desired water elevation of the adjudicated lake level, followed by more modest annual flow rates to maintain the adjudicated lake level.

Phase 2
Deliverables
CEQA/NEPA Specific Stakeholder and Regulatory Agency outreach plan. Determine the mailing list; date and location of the public scoping meeting; website content

Technical Reports. The following technical studies would be prepared to inform the baseline for environmental impacts analyses of the proposed project:

1) Hydrology and Water Resources
2) Biological Resources and Wetlands
3) Preliminary Jurisdictional Delineation
4) Air Quality and Global Climate Change
5) Noise and Vibration
6) Hazardous Materials and Wastes
7) Archaeological Survey
8) Historic Architecture Survey
9) Community Impact Assessment and Draft Relocation Impacts Assessment
10) Traffic and Transportation
11) Paleontological Sensitivity

Initial Study/Environmental Assessment (IS/EA)
This document would identify which resource areas would likely result in significant unavoidable environmental impacts. It would also determine which resource areas would not require inclusion in the Focused Environmental Impact Report/Environmental Impact Statement (EIR/EIS).

Notice of Preparation/Notice of Intent (NOP/NOI)
The IS/EA circulates with the NOP/NOI. Scoping comments are requested from the reviewing public and agencies.

Public Scoping Meeting
Presentation materials

Focused EIR/EIS
Using the outcome of technical studies, scoping comments received from the public and agencies an EIR/EIS can be prepared that focuses on the potentially significant impacts. The NEPA process requires that all of the alternatives must be analyzed at the same level of detail. The EIR/EIS goes through the following iterations:

1) Administrative Draft for State and federal lead agencies
2) Administrative Draft for the Federal Cooperating agencies.
3) Draft for public and public agency review and comment
    - During the public review period a Public Hearing is held at which the public has the opportunity to provide oral comments. A court report transcribes the comments for the State and federal lead agencies to respond to.

After the close of the comment period, every comment is delimited, assigned a unique number, and receives a response. Standard responses may be prepared to respond to the comments that are included in many submissions. Standard responses can be prepared thematically as well. After the comments are responded to a Final EIR/EIS is prepared. CEQA requires that the lead agency evaluate the feasibility of any mitigation measure or alternative that is proposed in a comment to reduce, minimize, or avoid a potentially significant impact.

1) Administrative Draft Final for State and federal lead agencies
2) Administrative Draft Final for the Federal Cooperating agencies.
3) Draft for public and public agency review and comment

Findings of Fact and Statement of Overriding Conditions
The CEQA process requires that the lead agencies summarize the potentially significant, mitigation measures, feasibility of mitigation measures proposed in the comments, and finally the significant and unavoidable impacts are identified. The project benefits are summarized. Decision makers use this document to determine if the benefits of the project outweigh the significant and unavoidable impacts.

Notice of Determination (NOD)
The CEQA process closes by filing the NOD at the State Public Clearinghouse.

Record of Decision (ROD)
The NEPA process concludes with the issuance of ROD from the federal lead agency. The ROD contains determinations about the significance of the impacts as the project that is approved. It includes the following other determinations:

1) General Conformity with the Clean Air Act
2) Least Environmentally Damaging Practicable Alternative for the Clean Water Act
3) Biological Opinion from the U.S. Fish and Wildlife Service
4) Section 106 MOA with the State Historic Preservation Office
5) Environmental Justice

Phase 3
Environmental Permits.

Federal

Regulation	Agency	Permit
Section 7 of the Endangered Species Act	U.S. Fish and Wildlife Agency	Biological Opinion and Incidental Take Statement (Prior to Record of Decision)
Section 404 of the Clean Water Act	U.S. Army Corps of Engineers	Individual Permit
Section 106 of the National Historic Preservation Act	State Historic Preservation Office	Memorandum Of Agreement (Prior to the Record of Decision)

State

Regulation	Agency	Permit
Section 2081 of the Fish and Code	Department of Fish and Wildlife	Incidental Take Permit
Section 401 of the Clean Water Act	State Water Resources Control Board	Water Quality Certification
Section 1602 of the Fish and Game Code	Department of Fish and Game	Stream or Lakebed Alteration Agreement

6.3.1 Approval Process

The approval process will follow Standard CEQA requirements for the USA and SEMARNAT requirements for Mexico.

6.4 Phase 1, Task 3

As part of our deliverable, and per extensive discussion in section 2, our team will develop a Business Plan that completes our involvement during Phase I of the Salton Sea Water Importation Project.

The business plan will focus on the Construction, Maintenance and Operation characteristics of the Project. We are forecasting a 30-year O&M, per that assumption we shall develop different models.

We propose three models for the Financial Plan:

1. Design-Build with Agency Operation (DBA)

2. Public Private Partnership (P3)

3. Engineer-Procure-Construct-Maintain-Operate (EPCMO)

Based on the list above, during project definition phase and through the first part of the EIR, we will be able to provide enough options and supporting engineering for the Salton Sea Authority and California Natural Resources to conclude a wise and responsible decision on the project.

7.

PROJECT DEFINITION CHECKLIST AND SCHEDULE

7.1 Project Definition Start-up

Once we have completed the PDD and have circulated for review, the process of approval will take place amongst the project team, stakeholders and participating local, municipal and national agencies. We will assume that all PPD assumptions could be approved, any additional development and approval of any required design exceptions as submitted.

Please review the schedule and timeline to reference dates, milestones and durations.

Checklist:

1. PDD circulation Review and Approval
    a. This includes the scoping team field review and constructability review
2. Storm Water Data Report
3. Project Fact Sheet/Design Standards and Basis of Design
4. Master Permit list, during PDD and EIR phases
    a. Discussion and negotiations with the permitting agencies
    b. Preparation of the permit and attachments such as exhibits, maps, etc
    c. Obtain funds for any required permit fee
    d. Submit permit application
5. US Army Corps Permit
6. US Forest Service Permit
7. Department of Fish and Game 1600 Agreement
8. Regional Water Control Board
9. Environmental Commitments Records
10. Base Maps and Plan Sheet for PDD

7.2 EIR-MIA and Water Permits Start-up

The EIR and MIA Start-up will be initiated and started up per the CAL-EPA, CEQA requirements and the SEMARNAT requirements.

The Water Permits will be initiated based on Conagua requirements.

8.

STAKEHOLDER ENGAGEMENT PROCESS, BI-NATIONAL AGREEMENTS

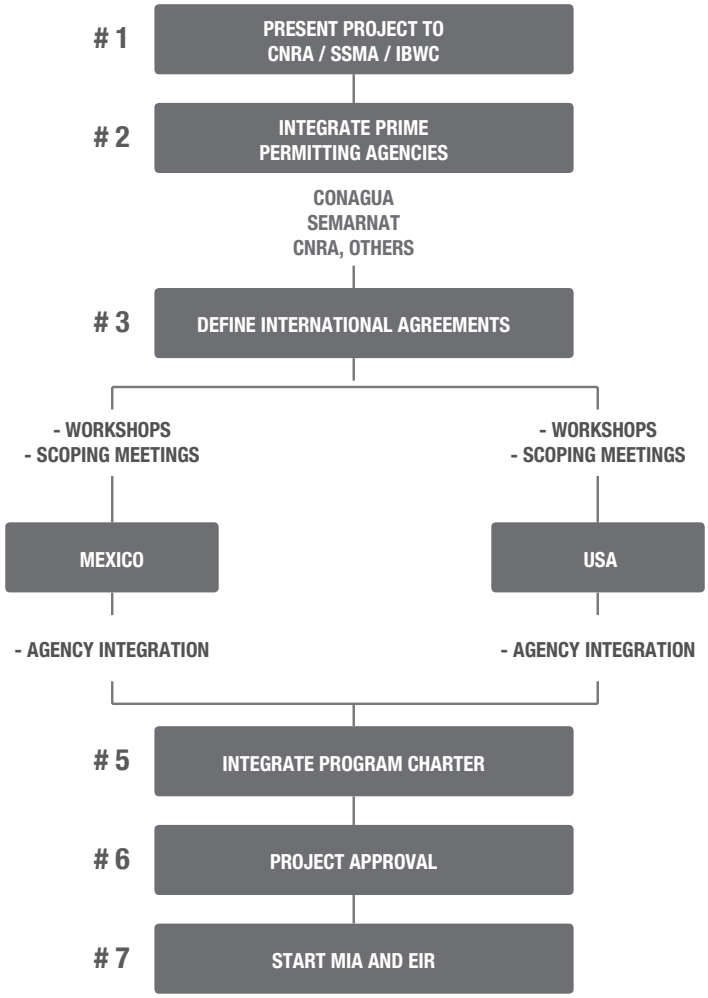
Stakeholder Engagement

The project will develop a Stakeholder engagement plan. The goal of the plan is to improve and facilitate decision making and create an atmosphere of understanding that actively involves project affected parties and other stakeholders in a timely manner, and that these groups are provided sufficient opportunity to voice their opinions and concerns that may influence project decisions.

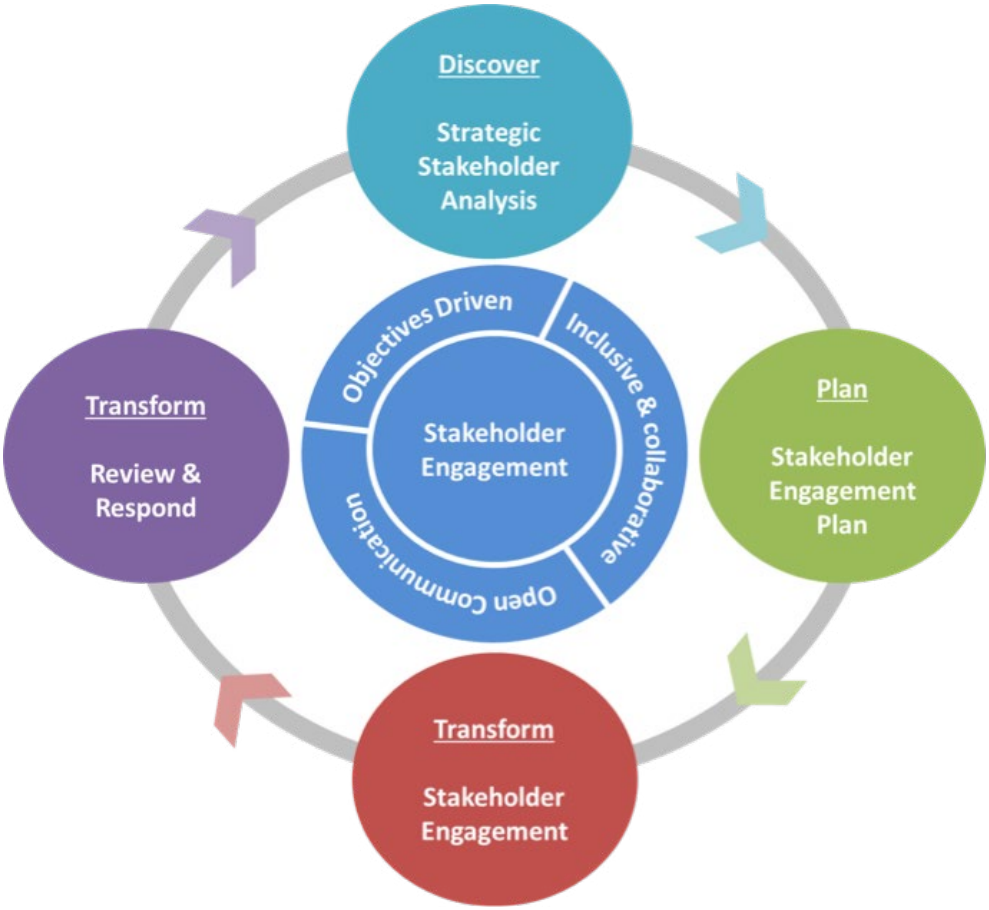
- Key Stakeholder Engagement objectives
- Understand the stakeholder engagement requirements on both sides of the border
- Provide guidance for stakeholder engagement such that it meets all international standards
- Identify key stakeholders that are affected, and/or able to influence the project and its activities
- Identify the most effective methods and structures through which to disseminate project information, and or to ensure regular accessible, transparent and appropriate consultation
- Define roles and responsibilities
- Engage in process for mutual project ownership and bi-national agreements

Below, please see the proposed stakeholder engagement process for the Salton Sea Water Importation Project.

Stakeholder Engagement Process



Stakeholder Engagement



9.

FIGURES

3. Planning and Design Process of Project

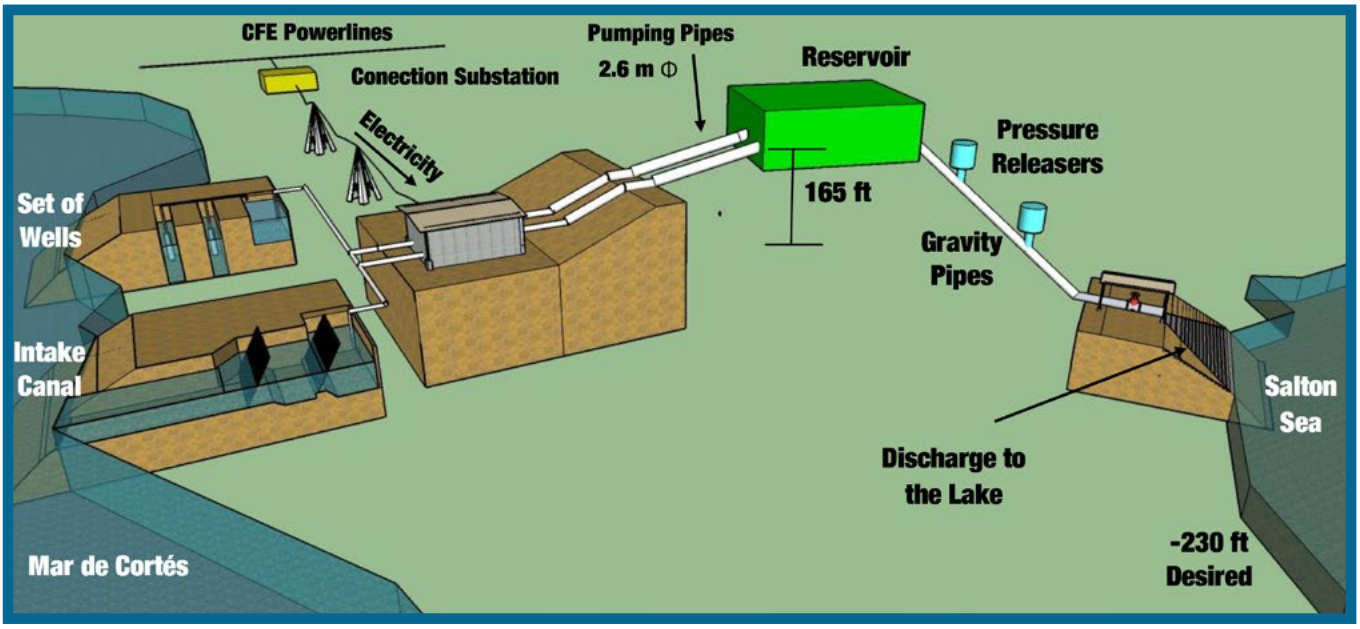


Figure 3.1.1

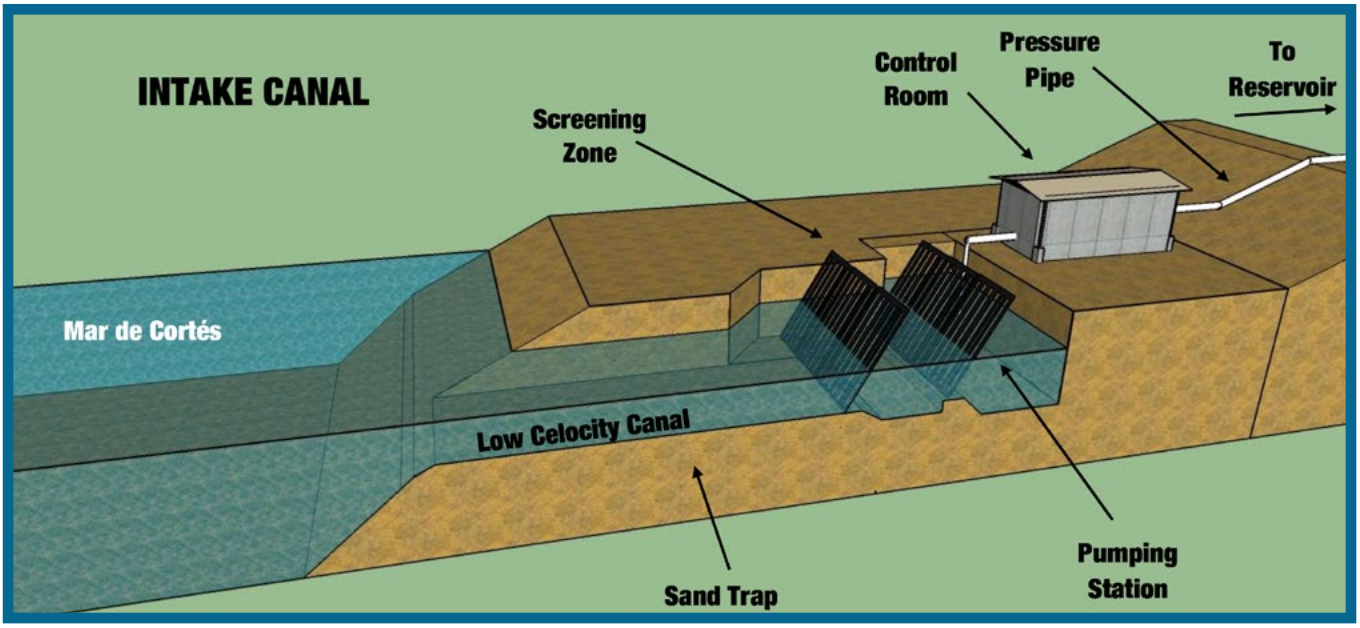


Figure 3.1.2

3. Planning and Design Process of Project

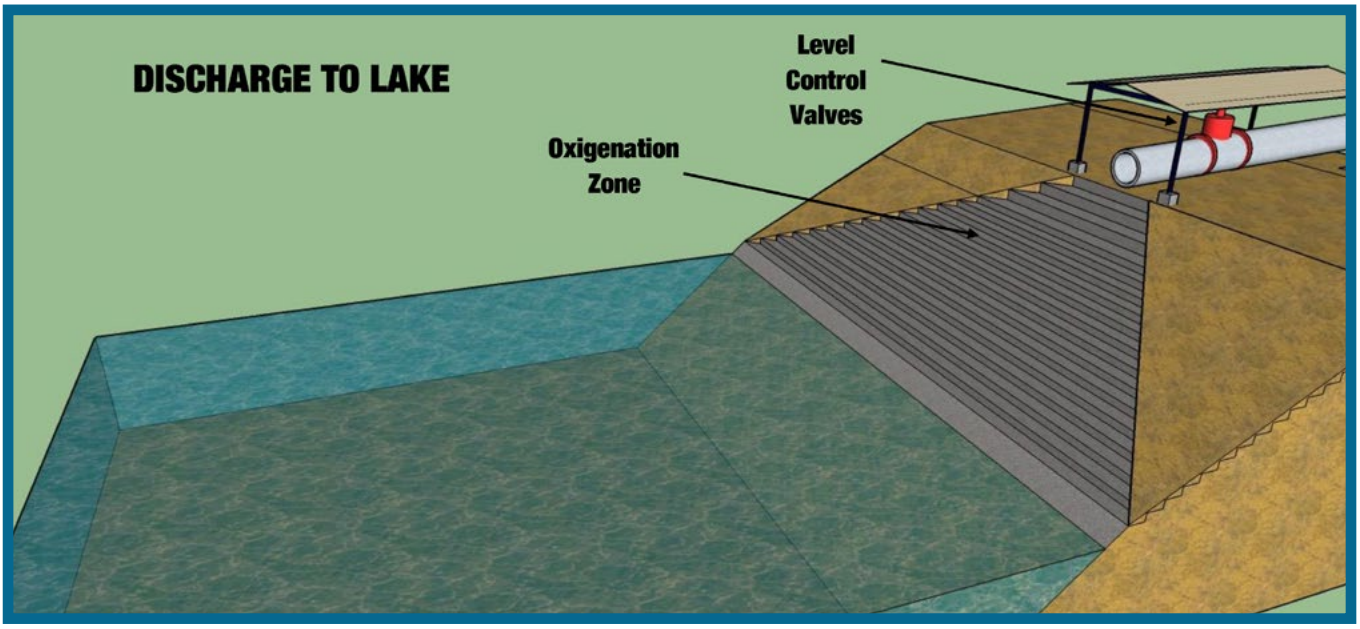


Figure 3.1.3

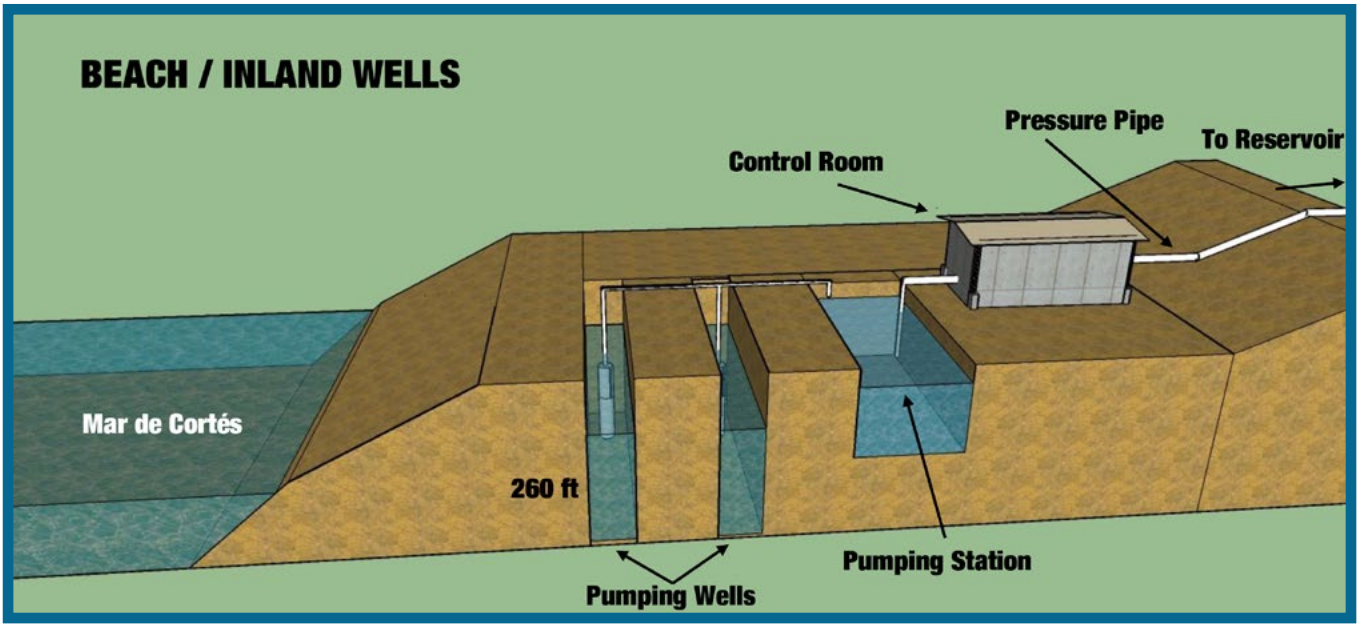


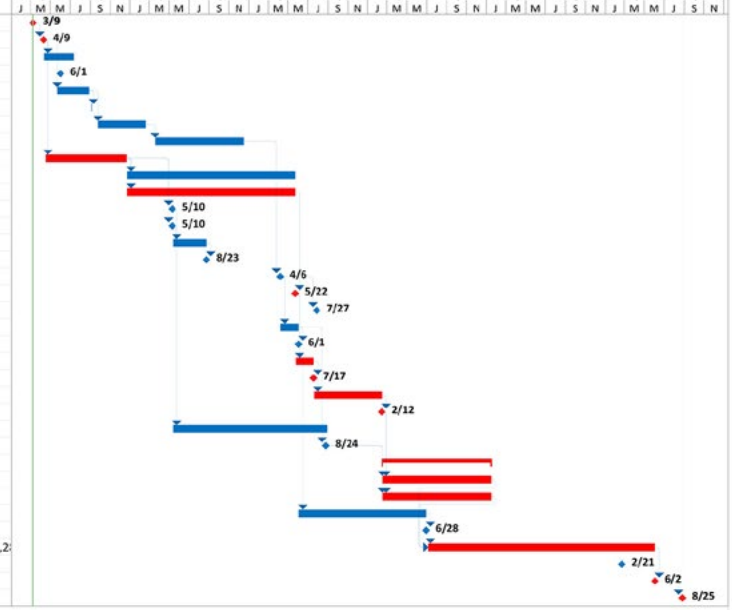
Figure 3.1.4

3.8 Cross Border Governmental Coordination And Permitting

3.9 Project Development Schedule

Salton Sea Project Schedule

ID	Task Name	Duration	Start	Finish	Predecessors
1	Salton Sea RFI Response Due	0 days	3/9/18	3/9/18	
2	Salton Sea Notice of Award	0 days	4/9/18	4/9/18	1FS+22 days
3	90 Day Plan	3.3 mons	4/11/18	7/11/18	2FS+1 day
4	Submit Contract Management Plan	0 days	6/1/18	6/1/18	
5	Program Management Plan	3.5 mons	5/22/18	8/27/18	2FS+6 wks
6	Project Governance Workshop	1 day	9/4/18	9/4/18	5FS+1 wk
7	Stakeholder Engagement Process	5.25 mons	9/25/18	2/18/19	5FS+4 wks
8	EIS (USA) and EIA (Mexico) Process	9.75 mons	3/19/19	12/16/19	7FS+4 wks
9	Phase 1 Task 1 - Project Definition Document	9 mons	4/16/18	12/21/18	2FS+4 days
10	Pahse 1 Task 2 - EIR/MIA	18.5 mons	12/24/18	5/22/20	9
11	Phase 1 Task 2 - Business Plan	370 days	12/24/18	5/22/20	9
12	Issue Preferred Alignment Alternative	0 days	5/10/19	5/10/19	9FS+5 mons
13	Issue Draft Bi-National Program Agreement	0 days	5/10/19	5/10/19	9FS+5 mons
14	Bi-National Program Agreement Review	3.75 mons	5/13/19	8/23/19	13
15	Bi-National Program Agreement Approved	0 days	8/23/19	8/23/19	14
16	Submit Draft EIS (USA & Mexico)	0 days	4/6/20	4/6/20	8FS+4 mons
17	Issue Draft Project Delivery Plan	0 days	5/22/20	5/22/20	11
18	Initiate Public Comment Period	0 days	7/27/20	7/27/20	16FS+4 mons
19	Phase I – Task 2 - Finalize EIR/MIA	2 mons	4/7/20	6/1/20	16
20	Issue Final EIR/EIS (USA) & MIA (Mexico)	0 days	6/1/20	6/1/20	19
21	Phase I – Task 2 - Finalize Business Plan	2 mons	5/25/20	7/17/20	17
22	Submit Final Business Delivery Plan	0 days	7/17/20	7/17/20	21
23	Project Delivery Method Review/Approval	7.5 mons	7/20/20	2/12/21	22
24	Project Delivery Method Approved	0 days	2/12/21	2/12/21	23
25	Review and Finalize Preferred Alignment Alternative	17 mons	5/13/19	8/28/20	12
26	Submit Final ACE	0 days	8/24/20	8/24/20	19FS+3 mons
27	**Phase II – CONSTRUCTION - Early Make-Ready Projects**	**240 days**	**2/15/21**	**1/14/22**	
28	-Perimeter Lake	12 mons	2/15/21	1/14/22	24,26
29	-Inlet/Outlet	12 mons	2/15/21	1/14/22	24,26
30	EIR/EIS (USA) & MIA (Mexico) Review	14 mons	6/2/20	6/28/21	20
31	EIR/EIS (USA) & MIA (Mexico) Approved	0 days	6/28/21	6/28/21	30
32	Phase II - Salton Sea Water Importation Project Constructi	25 mons	7/5/21	6/2/23	31,29FS-7 mons,2
33	Testing and Commissioning Begins	0 days	2/21/23	2/21/23	
34	Water Importation Start	0 days	6/2/23	6/2/23	32
35	Salton Sea Water Importation Start	0 days	8/25/23	8/25/23	34FS+3 mons

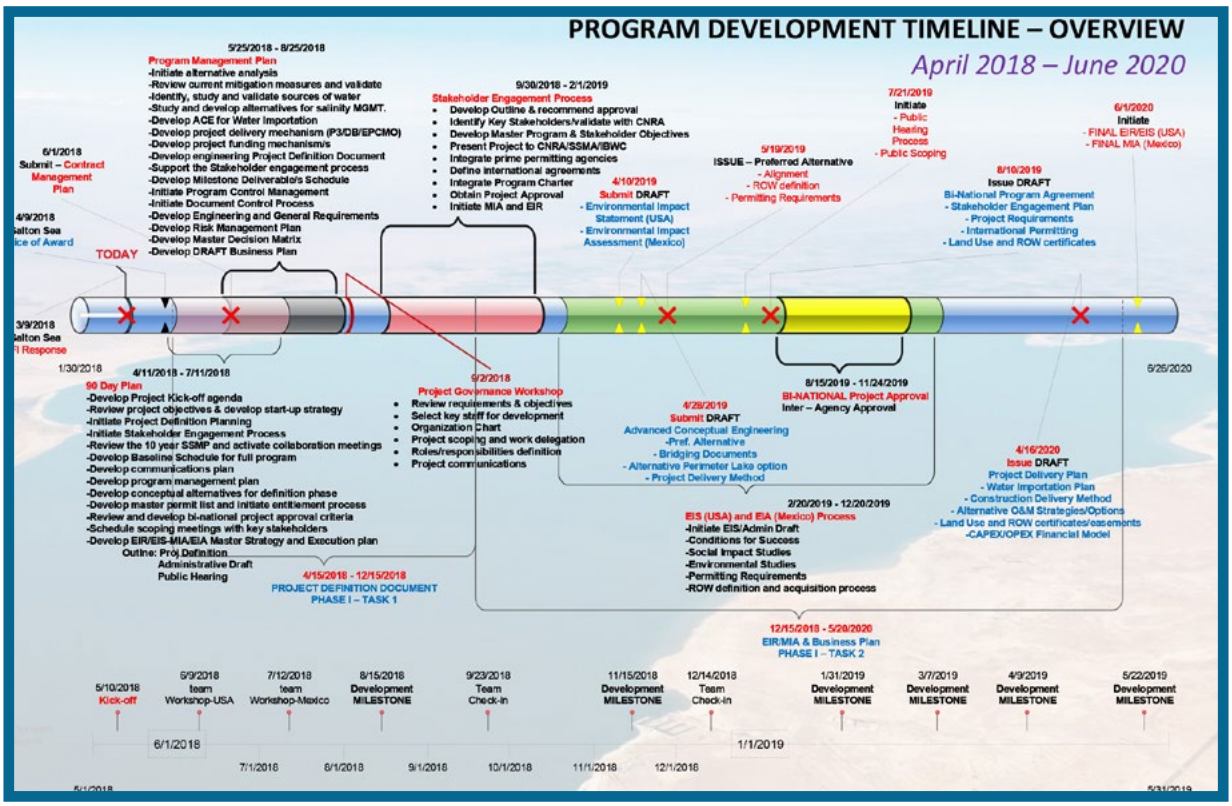


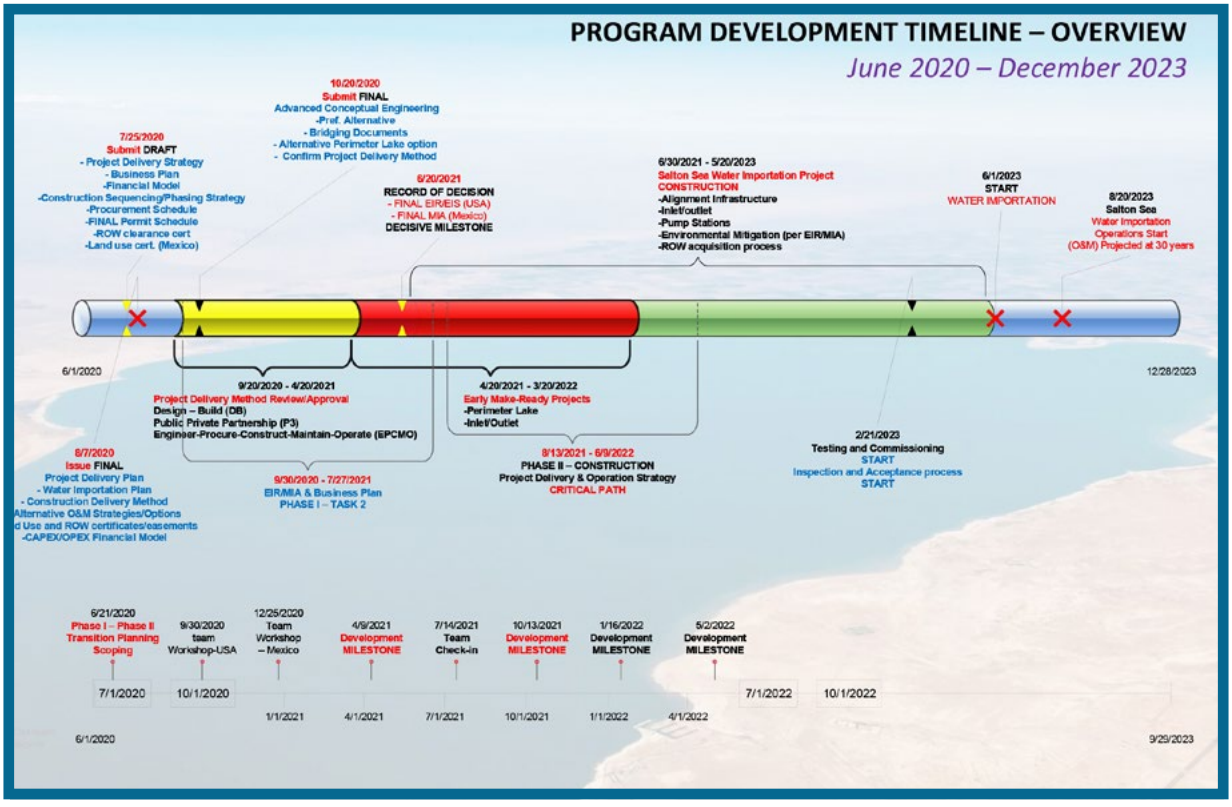
Project: Salton Sea
Date: 3/9/18

Task	Deadline	Summary Critical	External Tasks	Duration-only
Task Critical	Milestone Baseline	Summary Progress	External Milestone	Manual Summary Rollup
Progress	Milestone	Summary Critical Progress	Inactive Task	Manual Summary
Progress Critical	Milestone Critical	Project Summary	Inactive Milestone	Start-only
Split	Milestone Completed	Project Summary	Inactive Summary	Finish-only
Baseline	Summary	Project Summary Progress	Manual Task	

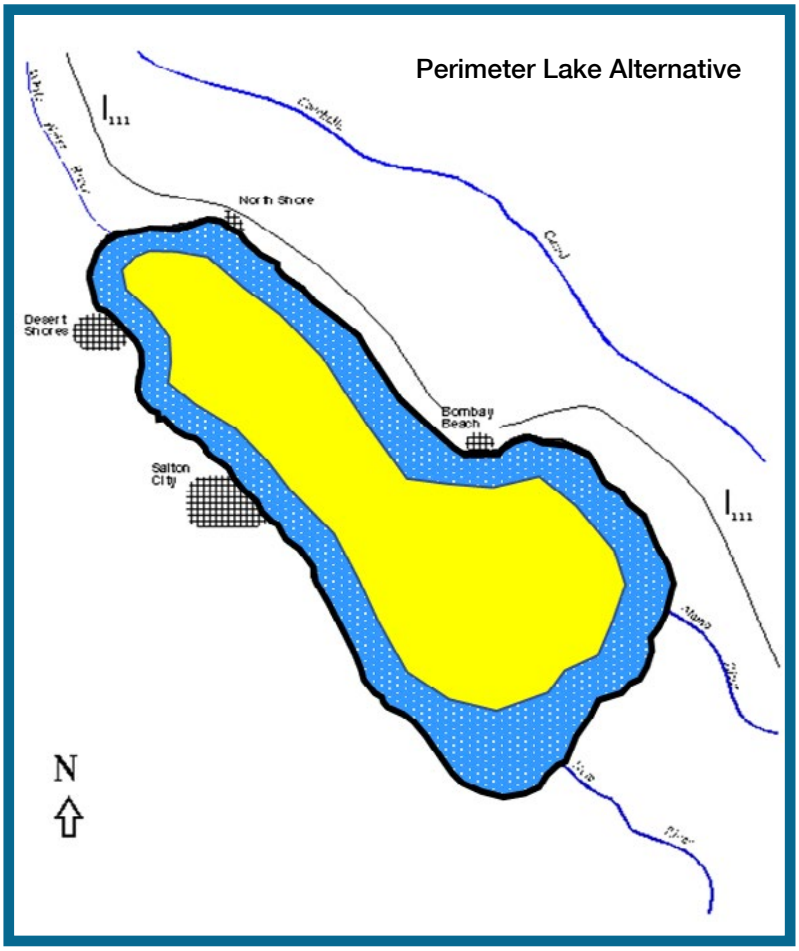
Page 1

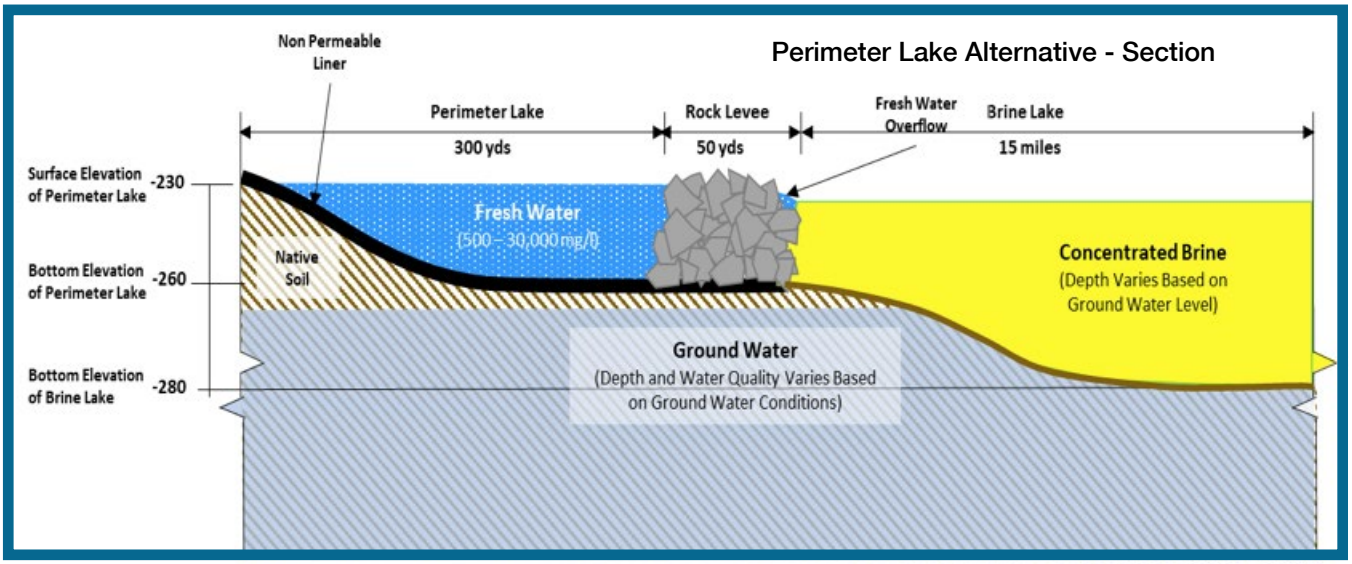
6. Program and Delivery Strategy





APENDIX A: PERIMETER LAKE ALTERNATIVE





10.

RESUMES

	NAME	Andrew Bayne	Andrew Tompson	Conrado Ayala	Carlos de la Hoz	Cristian Jaramillo	Daniel Garcia Ramos	Javier Fernandez Ojeda
	Program Management			x	x			
Services	Project Management	x	x	x	x			
Services	Program Development		x	x		x	x	
Services	Program Development and Delivery	x	x	x				
Services	Planning	x	x	x	x	x	x	x
Services	EIR/EIS	x	x	x				
Services	MIA			x	x	x	x	
Services	General / Civil Engineering		x	x				x
Services	Water/ Hydraulic Engineering	x	x	x	x	x	x	
Services	Enviromental Engineering	x	x	x		x	x	x
Services	Water/Groundwater specialty		x	x		x	x	
Services	ROW acquisition and land use	x	x	x		x	x	x
Services	Permitting	x	x	x		x	x	x
Services	Environmental Clearance	x	x	x				
Services	Stakeholder Engagement	x	x	x	x	x	x	
Services	Construction Phasing			x				x
Services	Operations and Maintenance		x					x
Services	Heavy Civil			x				x
Services	Alternative Delivery Methods	x	x	x	x			
Clients	Metropolitan Water District	x	x	x				
Clients	Imperial Valley		x					
Clients	Los Angeles Department of Water and Power	x	x	x				
Clients	Caltrans	x	x	x				
Clients	CAL-EPA	x	x	x				
Clients	LAWA			x				
Clients	BART	x						
Clients	HSRAA	x						
Clients	SEMARNAT			x	x			x
Clients	CONAGUA			x	x	x	x	x
Clients	SEDATU				x			
Standards	Green Book		x	x				
Standards	Caltrans BMP and SWPPP	x	x	x				
Standards	Program Definition Manual (Caltrans)	x	x	x				
Standards	Hydrology and Sedimentation Manuals (Caltrans)	x	x		x			
Standards	ROW/Easement Process (Caltrans)	x	x	x	x			
Standards	FHWA Design Manual			x				
Standards	IBC			x				
Standards	Others			x				
Software	Auto CAD		x			x	x	
Software	Microstation			x				
Software	GIS		x			x	x	
Software	MS Offices Suite	x	x	x	x			
Software	Other engineering / Hydraulic Software	x	x	x	x	x	x	x

	NAME	Jeff Berk	José A. Primelles Gingele	David Herman	Nicasio Morales Sarabia	Paul Mead	Paula Silva	Rodolfo Curiel	Roberto Primelles
	Program Management	x	x						x
Services	Project Management	x	x	x		x			x
Services	Program Development	x			x		x		
Services	Program Development and Delivery	x				x			
Services	Planning	x	x	x	x	x	x		x
Services	EIR/EIS	x	x	x		x			x
Services	MIA				x		x		
Services	General / Civil Engineering	x		x					
Services	Water/ Hydraulic Engineering	x	x	x	x	x	x		x
Services	Enviromental Engineering		x	x	x	x	x		x
Services	Water/Groundwater specialty	x	x	x	x		x		
Services	ROW acquisition and land use	x	x	x	x		x		
Services	Permitting		x	x	x	x	x		
Services	Environmental Clearance	x		x		x			
Services	Stakeholder Engagement	x	x	x			x		x
Services	Construction Phasing	x	x	x					x
Services	Operations and Maintenance	x		x					
Services	Heavy Civil								
Services	Alternative Delivery Methods	x		x					
Clients	Metropolitan Water District	x							
Clients	Imperial Valley	x							
Clients	Los Angeles Department of Water and Power	x				x			
Clients	Caltrans					x			
Clients	CAL-EPA	x		x		x			
Clients	LAWA								
Clients	BART								
Clients	HSRAA	x				x			
Clients	SEMARNAT				x				
Clients	CONAGUA				x		x		
Clients	SEDATU								
Standards	Green Book	x							
Standards	Caltrans BMP and SWPPP					x			
Standards	Program Definition Manual (Caltrans)			x		x			
Standards	Hydrology and Sedimentation Manuals (Caltrans)	x		x					
Standards	ROW/Easement Process (Caltrans)								
Standards	FHWA Design Manual			x					
Standards	IBC			x					
Standards	Others			x					
Software	Auto CAD			x	x		x		
Software	Microstation								
Software	GIS			x	x		x		
Software	MS Offices Suite	x		x					
Software	Other engineering / Hydraulic Software	x	x	x	x		x		x

CURRICULUM VITAE

ANDREW BAYNE
Senior Environmental Planner

EDUCATION
B.A., Health and Human Performance
Brigham Young University

HIGHLIGHTS
Andrew Bayne is an environmental planning and regulatory compliance project manager with 18 years of experience assisting private sector clients and public agencies. He has managed the preparation of state, federal, and joint environmental review documents for many different types of projects including major restoration programs and plans, specific and general plans, water supply reliability projects, surface transportation projects, and domestic water and wastewater reclamation master plans and projects.

PROJECT EXPERIENCE
California High Speed Rail Program, Sacramento, CA
Senior Environmental Planner
Andrew Bayne is the Acting Project Manager and Environmental Lead for the Fresno to Bakersfield Project of the California High-Speed Rail Program. His position includes managing environmental, outreach, and environmental consulting teams and working with agencies to obtain environmental permits and environmental document approval. In addition to his environmental planning responsibilities, Mr. Bayne coordinates environmental compliance for the construction packages in the Fresno to Bakersfield project for an approximate 80 miles between the cities of Fresno and Shafter. He helped oversaw the circulation of the Fresno to Bakersfield Revised Draft EIR/EIS and Section 7 consultation with the U.S. Fish and Wildlife Service. He managed the team that circulated the Fresno to Bakersfield Final EIR/EIS that achieved a CEQA notice of determination in May 2014, NEPA record of decision in June 2014, and authorization to construct from the Surface Transportation Board in August 2014. He subsequently managed the preparation and submittal of the California Department of Fish and Wildlife Service's 2081 Incidental Take Permit, Section 1602 Master Streambed Alteration Agreement, Section 404 Clean Water Act Individual Permit, and Section 401 Clean Water Act Water Quality Certification. To facilitate the aforementioned environmental permits, Mr. Bayne led the development of procurement documents for a habitat mitigation services contract to deliver endangered species and wetlands and waters mitigation. The procurement was released in early 2015 and a $48 million contract was awarded in the summer of 2015. In the Spring of 2015, Mr. Bayne initiated the preparation of the Fresno to Bakersfield Supplemental EIR/EIS for a Locally Generated Alternative in Bakersfield. In that process the team under his management successfully confirmed that the Locally Generated Alternative is the Least Environmentally Damaging Practicable Alternative compared to the geographically comparable segment of the project evaluated in the Fresno to Bakersfield Final EIR/EIS. In March of 2016, the High-Speed Rail's Board of Directors identified the Locally Generated Alternative as the Preferred Alternative carried forward in the Supplemental EIR/EIS. The Supplemental EIR/EIS was published in 2017 and the final is anticipate to be published in the winter of 2018.

US Bureau of Reclamation, San Joaquin River Restoration Program PEIS/PEIR, Fresno, Madera, and Merced Counties, California.
Environmental analyst and project coordinator for the San Joaquin River Restoration Program PEIS/PEIR. Mr. Bayne also was the primary author of the Transportation and Utilities chapter of the PEIS/PEIR. He also contributed by providing quality assurance review of various chapters prepared by multiple offices and teaming partners. The project would implement the San Joaquin Settlement, a historic agreement to release flows down the San Joaquin River to restore salmon and other fish populations while minimizing water supply impacts.

US Bureau of Reclamation, Shasta Lake Water Resources Investigation Plan Formulation Report and EIS Environmental Assistance, Shasta County, California.
Environmental analyst for the traffic and transportation sections of the Shasta Lake Water Resources Investigation EIS/EIR and provided CEQA technical review of several other sections prepared by multiple offices and teaming partners. The area of study included Shasta Dam and downstream in the Sacramento River, the Sacramento-San Joaquin Delta, and Central Valley Project service areas.

ANDREW BAYNE
Senior Environmental Planner

City of South Lake Tahoe, Ski Run Boulevard to El Dorado Beach South Lake Tahoe Bicycle Trail Implementation, El Dorado County, California.
Primary author of the IS/EA/EA for a bike trail. The project entails approximately 4,000 linear feet of bike trail adjacent to US Highway 50, along with three "spurs" to Lake Tahoe and a "Beach Loop" to be implemented within the backshore area adjacent to a public beach.

Delta Stewardship Council, Delta Plan Programmatic EIR, California.
Assistant Project Manager and author for a Programmatic EIR restoration plan for the Sacramento and San Joaquin River Delta that would meet the coequal goals of restoring the Delta and Suisun Marsh and increasing water supply reliability. Five alternatives were evaluated for each of the seven elements of the Delta Plan. Coordinated document preparation and quality assurance/quality control review of multiple offices, teaming partners, client, and agencies. The study area included the Delta and Suisun Marsh, the Sacramento and San Joaquin river watersheds, and all locations in California the receive Central Valley Project and State Water Project water.

San Benito County Water District, Hollister Urban Area Water and Wastewater Master Plan and Water and Wastewater Coordinated Plan Programmatic EIR, Hollister, California.
Assistant Project Manager and technical writer for a Programmatic EIR for water treatment, water storage, water reclamation, recycled water use, and groundwater banking master plan. Mr. Bayne authored the various sections including land use, hazards, cumulative impacts, and alternatives analysis. The water master plan coordinates four water planning agencies to implement projects that would improve water quality, water supply and reliability, and water reclamation. Projects evaluated included water treatment facilities, water reclamation facilities, recycled water utilities, groundwater pumping, and groundwater banking.

Flood Protection Projects
Department of Water Resources, Central Valley Flood Protection Plan Program EIR, California.
Environmental analyst who contributed to the program EIR for the State's Master Plan for implementing "200-year" flood protection in the Central Valley.

Reclamation District 17, Reclamation District 17 Levee Repair Project EIR/EIS Compliance, San Joaquin County, California.
Assistant project manager for the Phase 3 EIR/EIS, supporting studies, federal permitting, and ESA compliance related to Reclamation District 17 (RD 17) plans for needed repairs to the eastside of the San Joaquin River levee.

Sacramento Area Flood Control Agency, Natomas Levee Improvement Program Comprehensive Environmental Management, Sacramento and Sutter Counties, California.
Environmental analyst who contributed to the program EIR and various CEQA and NEPA environmental documents for a multiple-phase program of flood risk reduction improvements to provide Sacramento's metropolitan area with a "200-year" level of protection.

California Department of Water Resources, Small Erosion Repair Program Environmental Impact Report, California.
Environmental analyst for the program EIR for DWR's repair of erosion sites on Project Levees.

US Department of Agriculture Rural Development, Railroad Flat Water Pipeline and Water Storage Tank IS/MND and EA/FONSI, Section 404 Nationwide Permit Authorization, and Section 7 ESA Consultation, San Joaquin County, California.
Project manager and primary author of an IS/MND-EA/FONSI and Section 404 CWA Nationwide permit application.

US Department of Agriculture Rural Development, City of Angels Wastewater Treatment Plant Expansion IS/MND and EA/FONSI, Section 404 Nationwide Permit Authorization, California Red-Legged Frog Protocol Survey Report, and Section 7 ESA Consultation, San Joaquin County, California.
Project manager and primary author of an IS/MND-EA/FONSI and Section 404 CWA Nationwide permit application.

Union Public Utilities District, Union Public Utilities District Water Storage Tank IS/MND, Section 404 Nationwide Permit Authorization, and Section 106 National Historic Resources Preservation Act Consultation, Calaveras County, California.
Project manager and primary author of an IS/MND and Section 404 CWA Nationwide permit application.

CURRICULUM VITAE

ANDREW F. B. TOMPSON

Physical and Life Sciences Directorate; Lawrence Livermore National Laboratory

EDUCATION

Ph.D., Princeton University, Princeton, NJ (Civil Engineering, 1985)
Sc.B., Brown University, Providence, RI (Civil Engineering, 1980)

HONORS

Distinguished Achievement Award, Extraordinary Programmatic Contribution, Computations Directorate, Lawrence Livermore National Laboratory, 1996
Editor's Citation for Excellence in Refereeing, Water Resources Research, 1994
Francis Robbin Upton Fellowship, Princeton University, 1982 -1984
Shell Companies Fellowship, Princeton University, 1980 - 1981
George H. Main Award in Engineering, Brown University, 1980

PROFESSIONAL

1986 - present, Engineer; Hydrologist, Atmospheric, Earth, and Energy Division, LLNL
2013 - present, LLNL Contract Manager, DOE/EM UGTA project
2014 - present, Corrective Action Unit Lead, Rainier Mesa/Shoshone Mountain, DOE/EM UGTA project
2002 - 2008, Leader, Hydrologic Sciences Group
1984 - 1986, Postdoctoral Research Associate, Massachusetts Institute of Technology

GENERAL RESEARCH ACTIVITIES AND INTERESTS

- Physics of multiphase fluid flow, chemical transport, and chemical transformation in porous media and terrestrial environmental systems
- Applications of radiochemistry and isotope hydrology to topics in radionuclide fate and migration in terrestrial environmental systems as well as in the nuclear forensics sciences
- Integrated analyses of coupled processes linking water, chemical, and energy fluxes between the subsurface, land surface and lower atmosphere
- Coupled mathematical modeling of these processes using techniques in advanced computation, stochastic analysis, geostatistics, and uncertainty quantification
- Integrated groundwater supply, groundwater contamination, and reservoir engineering problems, with recent efforts in geothermal energy, aquifer storage and recovery, isotope hydrology, virus transport, vadose zone interactions, carbon sequestration, and pollution of systems affected by nuclear testing
- Leader and member of numerous interdisciplinary research teams involving engineers, hydrologists, geologists, geochemists, radiochemists, applied mathematicians, computational scientists, and climate scientists

SELECTED PUBLICATIONS

Tompson, A. F. B. (2016), Born from a Flood: The Salton Sea and Its Story of Survival, Journal of Earth Science, Vol. 27, No. 1, p. 089-097, February 2016, DOI: 10.1007/s12583-016-0630-7

Tompson, A. F. B., R. J. Mellors, A. Ramirez, M. Chen, K. Dyer, X. Yang, J. Wagoner, and W. Trainor-Guitton (2013), Evaluation of a Geothermal Prospect using a Stochastic Joint Inversion Modeling Procedure, Geothermal Resources Council Transactions, Volume 36, Geothermal Resources Council Annual Meeting, Las Vegas, NV, September 29 – October 2

Davisson, M. L., T. F. Hamilton, and A. F. B. Tompson (2012), Radioactive Waste Buried Beneath Runit Dome on Enewetak Atoll, Marshall Islands, International Journal of Environment and Pollution, 49(3/4), 161-178

R. M. Maxwell, A. F. B. Tompson, and S. Kollet (2009), A Serendipitous, Long-Term Infiltration Experiment: Water and Tritium Circulation Beneath the CAMBRIC Trench at the Nevada Test Site, Journal of Contaminant Hydrology 108,12-28

Tompson, A. F. B., Z. Demir, J. Moran, D. Mason, J. Wagoner, S. Kollet, K. Mansoor, and P. McKereghan (2008), Groundwater Availability Within the Salton Sea Basin: Final Report, Lawrence Livermore National Laboratory, Livermore, CA (LLNL-TR-400426)

ANDREW F. B. TOMPSON

Physical and Life Sciences Directorate; Lawrence Livermore National Laboratory

Tompson, A. F. B., D. K. Smith, G. B. Hudson and J. R. Hunt (2006), Analysis of radionuclide migration through a 200-m vadose zone following a 16-year infiltration event, Advances in Water Resources, 29, 281–292
Hunt, J. R. and A. F. B. Tompson (2005), Tracing long-term vadose zone processes at the Nevada Test Site, USA, Hydrological Processes 19, 3383–3394

Tompson. A. F. B. (2004), Scientific Challenges for Ensuring Clean and Reliable Water for the 21st Century, in Proceedings, The International Seminars on Nuclear War and Planetary Emergencies 32nd Session, Erice, 19-24 August 2004, World Federation of Scientists, World Scientific Publishing Co, Singapore (also Lawrence Livermore National Laboratory, Livermore, CA, UCRL-PROC-206169)

Maxwell, R. M., C. W. Welty, and A. F. B. Tompson (2003), Streamline-Based Simulation of Virus Transport Resulting from Long Term Artificial Recharge in a Heterogeneous Aquifer, Advances in Water Resources 26(10), 1075-1096.

Tompson, A. F. B., D. K. Smith and G. B. Hudson (2002), Analysis of radionuclide migration through a 200-m vadose zone following a 16-year infiltration event, Lawrence Livermore National Laboratory, (UCRL-ID-146979), 27 pp.

Tompson, A. F. B., C. J. Bruton, G. A. Pawloski, D. K. Smith, W. L. Bourcier, D. E. Shumaker, A. B. Kersting, S. F. Carle, and R. M. Maxwell (2002). On the Evaluation of Groundwater Contamination from Underground Nuclear Tests, Environmental Geology, 42, 235-247

Pawloski, G. A., A. F. B. Tompson, and S. F. Carle, eds. (2001), Evaluation of the hydrologic source term from underground nuclear tests on Pahute Mesa at the Nevada Test Site: The Cheshire test, Lawrence Livermore National Laboratory, (UCRL-ID-147023), 428 pp.

Tompson, A. F. B., S. F. Carle, N. D. Rosenberg, and R. M. Maxwell (1999), Analysis of groundwater migration from artificial recharge in a large urban aquifer: A simulation perspective, Water Resources Research, 35(10), 2981-2998.

Tompson, A. F. B., C. J. Bruton, and G. A. Pawloski, eds. (1999), Evaluation of the hydrologic source term from underground nuclear tests in Frenchman Flat at the Nevada Test Site: The CAMBRIC test, Lawrence Livermore National Laboratory, Livermore, CA (UCRL-ID-132300), 360pp.

Tompson, A. F. B., Falgout, R. D., Smith, S. G., Bosl, W. J., and Ashby, S. F. (1998), Analysis of subsurface contaminant migration and remediation using high performance computing: Advances in Water Resources, v. 22, n. 3, p. 203-221.

Tompson, A. F. B. and K. J. Jackson (1996), Reactive transport in heterogeneous systems: An overview, in Reactive Transport in Porous Media, P. C. Lichtner, C. I. Steefel, and E. H. Oelkers, eds., Reviews in Mineralogy, 34, 269-310.

CURRICULUM VITAE

CONRADO N. AYALA
Program Director / Senior Manager

EDUCATION
B.S. Civil Engineering, University of Southern California, Los Angeles, CA
MBA Drucker School of Management, Claremont, CA

COURSEWORK/CERTIFICATIONS
Hydraulic Analysis
Seismic response and analysis for port facilities and bridges
OSHA 40-hour HAZWOPER
Parsons Project Manager Certification
Structural and seismic design

HIGHLIGHTS
Mr. Conrado Ayala has established himself with nearly 20 years in planning, design, construction, and operations of significant infrastructure. He has civil design, construction management, and environmental remediation engineering experience from characterization and remediation to operations and maintenance. His project experience includes civil design experience for highway, street, bridges and site work for buildings. Design and construction experience includes road widening, new facilities, commercial facility expansion, and design-build. Construction management and Program/Project management of capital improvement projects includes clients such as City of Los Angeles, Port of Los Angeles, Los Angeles County Metropolitan Transportation Authority, California Department of Transportation, City of Pasadena, Marriott International and Federal Highway Administration. He has also monitored natural attenuation studies, environmental site assessments, remedial investigations and feasibility studies.

PROJECT EXPERIENCE
Construction Director. Mexico City Airport - NAICM, Mexico City
Serving as the Construction Director for the new Mexico City airport, managing construction for: Terminal Building, Intermodal Center, Control Tower, Apron, Main entrance viaduct and ancillary related infrastructure. Directing and implementing strategic procurement program approved by the SCT (Secretaria de Comunicaciones y Transportes) and client, Grupo Aeroportuario de la Ciudad de Mexico (GACM). Responsible for leading a team of 120+ staff and special coordination with the Master Architect (Foster). Construction direction per fast-track delivery methods and packaging programs. Responsible for construction bid review and client support for selection. Managing the international tender process and facilitating kick-off strategy sessions for project kick-off. Currently developing the master construction sequence for the Terminal Building, Intermodal Center and elevated viaduct; the sequence spans 4 years of construction, 100 milestones, 4 general contractors and their subs; coordination for local metro/subway authority for station; master utilities for Phase II and airport city.

Program Manager/Construction Manager, Walt Disney Imagineering, Glendale, CA
This $500 million program comprised integral infrastructure such as a 7000 vehicle parking garage, a new transportation guest terminal, demolition of existing hotels and other properties to make way for new site development, street and freeway access modifications in the way of a fly-over ramp, re-alignment of Disney Way at the I-5 freeway, and $10 million for high voltage transmission lines to be relocated and coordinated through SCE, Caltrans and City of Anaheim.

As the Program Manager/Construction Manager, Conrado Ayala managed the schedule, program budget, contract delivery (all Design-Build) and approvals. He was also responsible for all stakeholder involvement related to requirements under CEQA-NEPA for Resort Development. He programmed the design-build delivery of the first $200 million of the project, which included the parking structure and fly-over access and roadway re-alignment. All of the public work required ROW takes and agreements with multiple land rights.

Project Manager/Construction Manager, TraPac Terminal Capital Improvement Project, Port of Los Angeles
Lead the effort of major new build of LEED-certified buildings, major relocation of oil lines, and relocation container berths. Construction inclusive of berth modification, new automated terminal, new AMP for container vessels, major utility relocation, inclusive of port facilities and third party communications. Construction of a Pedestrian bridge overcrossing a new rail line, new shoofly and coordination with Pacific Harbor line for new track and terminal. Coordination for construction of a new grade separation ($55 Million), relocation and new construction of all utilities, rail track and facilities for new yard operations and homeland security facilities. New construction of main gates and automated truck- scales, automation of new container and refrigerated terminals, inclusive of magnetic and remote systems. Major heavy civil related to SS and SD systems. Coordination with LADWP, LABOE, Port facilities, and other CM firms as part of the TraPac Improvement program, overall cost: $1.0 Billion.

CONRADO N. AYALA

Program Director / Senior Manager

Owner's Representative and Project Manager, Pasadena Center Operating Company, Pasadena Convention Center Expansion Project, Pasadena, CA

Served as construction representative for the most highly visible project for the city of Pasadena, California. Project required monthly status report meetings with city officials and project stakeholders. Project won a California "Best" Construction award and Leadership in Energy and Environmental Design (LEED) Gold certification. Services included oversight of the construction project, including the architect of record, contractor, and construction manager. Responsibilities included coordinating and monitoring all phases of the project with the project team. Responsible for project costs, change order analysis, value engineering, and cost control. Provided peer review of contract documents and recommended value-added solutions and modifications. Responsible for project management, budget, and contract execution. Provided value to the project/client by demonstrating analysis of the critical path method (CPM) and recommending phasing and staging of construction activities. Planned and executed the National Pollutant Discharge Elimination System best management practices (BMP) compliance process and recommended BMPs for construction. Engaged the local utility agency for joint program to save the client dollars with an energy-efficient, re-engineered package. Engaged the California Energy Commission for funding of program. Initiated design and construction modifications for achieving LEED silver status. Maintained necessary project documents, reviewed and approved progress payments and consultant invoices, and reviewed and approved change orders. Provided value management techniques that resulted in $1.7 million in savings. Acted as the city of Pasadena construction representative and prepared construction and budget status reports for the city of Pasadena's finance committee and city council. Reviewed and managed the contractual process, including requests for information, construction change directives, changes orders, and redesign. Responsible for project cost control and final closure. Project was finished ahead of schedule and under budget.

Conrado Ayala has established a strong background in roadway improvements, public works, and public transportation through projects including the following:

- **US Highway 101 at Kanan Road Interchange Improvement, Agoura Hills, CA:** Project Engineer/Construction Manager-RE for a major interchange improvement project consisting of new loop ramps, street and bridge widening, and utility relocations.
- **City of La Canada Flintridge, Noise Barrier Sound Walls, La Canada Flintridge, CA:** Project Engineer for development of the noise barrier sound walls process and the pre-plans, specifications, and estimates package for 27 sound walls along I-210 in La Canada Flintridge. The project was part of the California Department of Transportation (Caltrans) process for project development and programming.
- **E Street BRT (Bus Rapid Transit), San Bernardino, CA:** Project Engineer responsible for the preliminary - 35% design as incorporated in the Environmental Document (EIR). Developed ROW plans, initial geometric design, bus pull-outs, encroachment and easement analysis, developed cost estimates for the proposed alternatives and preferred. Developed two bridge alternatives for the I-10 FWY crossing, developed the alignments and ramp modifications, coordinated through the office of Caltrans.
- **City of Los Angeles/Caltrans, Overland Overcrossing, Los Angeles CA:** Project Engineer/Project Manager for development of the PSR-PR, PS&E development for the Overland overcrossing at I-10 FWY. The project was part of the California Department of Transportation (Caltrans) process for project development and programming. Work included design of storm water management using latest BMP Caltrans parameters, shoulder and ramp modifications, and bridge-deck and railing modifications.
- **City of Los Angeles, First Street Bridge Widening, Los Angeles, CA:** Design Civil Lead/Project Engineer environmental document phase to 100 percent design. Prepared design in conjunction with the East Side Light Rail Transit Project. Provided substantial coordination and development of construction and maintenance agreements between railroad agencies and the city of Los Angeles. Developed the phasing and construction plan for a selected cut and reface of a historic building; work included, seismic restraint and retrofit. The seismic retrofit work on the bridge and the adjacent building were coordinated with SHPPO, due to the architectural replications of some elements that were tied to the seismic retrofit. Developed cost estimates and project schedule.
- **Los Angeles Department of Public Works, Los Angeles, CA:** Project Engineer for the review and seismic retrofit of two historic buildings impacted by right-of-way (ROW) impacts relating to I-405 widening project. The buildings were on the ROW selected for widening; the project re-aligned the highway at this location; building retrofit was due to the new highway foundation limits and its vibration proximity. Tasks plans specifications and estimates for seismic retrofit, noise and vibration barriers and vibration monitoring for three years.
- **Alameda Corridor Project, Los Angeles, CA:** Field Engineer for the tunnel excavation, developed plans and execution for utility relocation, shoofly construction at the Port of Los Angeles, supervised contractors related to multiple civil widening along the alignment.
- **Los Angeles Metropolitan Transit Authority, North County Project Study Report, Los Angeles, CA:** Project Engineer for development of a project study report. The project consisted of adding high occupancy lanes on I-5 and State Road 14 and climbing lanes for trucks and reversal lanes for peak hour traffic. The report included cost estimates, design and geometry of lanes, right-of-way costs, bridge improvements (seismic and architectural), signals, ramp modifications, and realignment of the main highways.

CURRICULUM VITAE

CARLOS DE LA HOZ TRIGOS
Project Manager / Integration Manager

EDUCATION
2006-2007 Leadership Program (Ipade Mexico)
1998-1999 AD1 Management Program (Ipade México)
1983-1985 Master in Business Administration (ITESM México)
1977-1981 Degree in Chemical Engineer (ULSA-México)

HIGHLIGHTS
Revenue and profit driven bicultural senior executive with more than 35 years of international experience. Proven track record of establishing strategic business plans and required organizational transformations in a variety of industries in México, USA, Europe, Central and South America, resulting in successful company turnarounds and growth.

SUMMARY
Strong analytical, planning abilities and multi-functional skills to develop and execute corporate business plans. Superior interpersonal and motivational skills.

CAREER HIGHLIGHTS
International Experience- Successfully developed market share for several Chemicals, Acrylic sheet, Wood Particleboard, laminates and Resins in México, USA, Europe, Central and South America.
New Product Development- Created a specialized Marine grade product for the USA Boat and Yacht market, a laminate grade particle board for the USA furniture market, a bullet resistant laminate for the Mexican safety market among other innovative products.
Marketing and sales Experience- Created a USA nationwide group of authorized distributors and sales reps of Acrylic sheet and Particle board in less than 3 years.
Mergers and Acquisitions- Successfully coordinated the acquisition and merger of the largest competitor of Rexcel in the Particle board and laminates industry in México.
Superior Interpersonal and Negotiation Skills- Negotiated agreements with key suppliers and customers for diversified raw materials, services and products.
Management: Director of Polimeros Sinteticos, with immediate improvement in sales, costs, and water treat most, reduction of working capital and expense reductions.
New Business Development: General Manager of TERRABRIO, leader developers of hydroelectric projects.

PROFESSIONAL EXPERIENCE
TERRABRIO: Leader developer of hydroelectric and water treatment projects in México.
DIRECTOR: 2014-Current.
- Developed the Business plan, budget and Operation plan.
- Established controls with KPI´s across the organization.
- Developed operational procedures with an ISO-9000 scope.
- Prioritize the development of 20 hydro projects in several states in Mexico, in order to complete required studies and permits.
- Developed a commercial plan and a potential list of investors.

POLIMEROS SINTETICOS: Leader of gum rosin resins in Mexico.
DIRECTOR: 2013

REXCEL: Wood-Laminates and Chemicals BU of DESC/KUO group.
DIRECTOR 2004-2012

CARLOS DE LA HOZ TRIGOS

Project Manager / Integration Manager

PLASTIGLAS DE MEXICO: Plastics and Chemical BU of DESC group.
COMMERCIAL AND PLANNING DIRECTOR 1994-2003

CHEMTECH INTERNATIONAL-HOUSTON TX: Sales office of Desc.
COMMERCIAL AND ADMINISTRATIVE MANAGER 1986-1993

INDUSTRIAS RESISTOL
EXPORTS MANAGER FOR ACRYLIC-MMA BU. 1984-1986

STRATEGIC PLANNING AND PROJECTS MANAGER 1982-1984

PROJECTS SUPERVISOR 1981-1982

PROJECT EXPERIENCE

Developed hydroelectric projects in Mexico:

- Environmental and water studies, assessment of environmental impacts and mitigation plans.
- Developed the environmental Impact Manifest (MIA) and obtained approval from de Secretary of environmental and Natural Resources (Semarnat) for the 6 projects.
- Developed the water permits required documents and successfully obtained approved water use concession, construction permits and use or federal zone permit in “Comisión Nacional de Agua (CONAGUA)”.
- Developed and obtained required permits for electrical generation, interconnection to the national grid with “Comisión Reguladora de Energía (CRE and CENACE)”.
- Developed Impact Social Studies and obtained resolution from the “Secretaria de Energía (SENER)”.
- Negotiated row contracts for the projects.
- Obtained required constructions permits with municipalities.
- Coordinated EPC contracts with engineering readers.
- Coordinated DUE DILLIGENCE for project financial with “Nacional Financiera(NAFINSA)”.

CURRICULUM VITAE

CRISTIAN JARAMILLO
Environmental, Social & Sustainability Scientist

EDUCATION
BSc. Chemical Engineering with minor in Industrial Engineering; I.T.E.S.M. Monterrey
Master in Public Management (Candidate-2017); I.T.E.S.M.

HIGHLIGHTS
Environmental, Social and Sustainability Specialist with over 8 years of broad experience in diverse industry sectors as of Automotive, Electronic & Devices, Wines & Spirits and Renewable Energies, related to leading and supervising project management field-based activities of strategic environmental, social and sustainable management, corporate communications, regulatory compliance, risk assessments, public indigenous consultation, stakeholder engagement, quality, health and safety, Human Rights and NGO-government partnership with extensive practice in the application of the social and environmental standards and reporting of the World Bank, the Inter-American Development Bank, International Labor Organization, Equator Principles, GRI, ISO and International Finance Corporation with primary focus on Corporate Social Responsibility and Community Development.

Cristian has a vast experience assessing and advising public indigenous consultation and stakeholder engagement for renewable projects in rural markets and special economic zones in Mexico (Oaxaca).

Cristian participated and assessed the first public indigenous consultation process in the Energy Sector in Mexico that lasted over 3 years across two indigenous communities in Juchitan de Zaragoza and El Espinal in Oaxaca. The consultation process served to catalyze the formulation of new regulations that incorporated the Social Impact Assessment and Stakeholder Management Standards and Practices according to Human Rights within the Mexican Energy Law Framework.

PROFESSIONAL EXPERIENCE
CH2M Consultancy Services
Energy & Technology National Museum (MUNET)
Social Impact Assessment & Stakeholder Management Strategy Mexico/ 2016
Led the Social Impact Assessment & Stakeholder Management Strategy ensuring project development be compliant with National and International Standards subscribed by the client as of the new regulations about the Social Impact Assessment for Energy Industry Projects in Mexico allowing access to bank funds and shareholders loans for project continuity.
Advised Project Stakeholder Management Strategy and policies to anticipate and prevent potential risks.
Advised and Conducted client-authorities partnership to provide project support and execution.
SIA project included the integration of all national and international QSHE, Human Safety and Security principles and standards.

RENEWABLE ENERGIES INDUSTRY
Energía Eólica del Sur — Oaxaca, Mexico
IADB Credit loan; Project MLE-117
Environmental, Social and Governance Strategy
2011-2016
Led the Environmental, Social and Governance (ESG) strategy ensuring project development be compliant with International Standards subscribed by the company as of the principles of the IFC's Performance Standards, the World Bank Group's EH&S guidelines, the Voluntary Principles on Security and Human Rights and Equator Principles allowing access to long term bank credits, funds and shareholders loans for project continuity.
Led the Corporate Stakeholder Management Strategy encouraging land access agreements and leasing of 5,400 Ha and 30-km long ROW Transmission Line by improving stakeholder rapport during project development securing consensus, support and engagement across the first Public Indigenous Consultation process performed in the Mexican Wind Farm Industry in 2 rural and high-marginalized communities in Southern Oaxaca together with Federal, State and Municipal Authorities as well as International and Independent Observant Groups as a part of the Corporate Public Consultation and Disclosure Plan under the scope of the ILO Convention #169. Responsible to assist vulnerable groups, ethnic minorities and communities of direct project's influence by promoting social inclusion and gender's perspective within Corporate Community Development Programs such as: preservation of environmental, cultural and heritage assets, human rights, economic development and community healthcare.

CRISTIAN JARAMILLO
Environmental, Social & Sustainability Scientist

WINES & SPIRITS INDUSTRY
Pernod Ricard Mexico —DF, Mexico
Environment and Sustainable Development Strategy
2009-2011
Led the Environmental, Social and Governance (ESG) strategy ensuring project development be compliant with International Standards subscribed by the company as of the principles of the IFC's Performance Standards, the World Bank Group's EH&S guidelines, the Voluntary Principles on Security and Human Rights and Equator Principles allowing access to long term bank credits, funds and shareholders loans for project continuity.
Led the Corporate Stakeholder Management Strategy encouraging land access agreements and leasing of 5,400 Ha and 30-km long ROW Transmission Line by improving stakeholder rapport during project development securing consensus, support and engagement across the first Public Indigenous Consultation process performed in the Mexican Wind Farm Industry in 2 rural and high-marginalized communities in Southern Oaxaca together with Federal, State and Municipal Authorities as well as International and Independent Observant Groups as a part of the Corporate Public Consultation and Disclosure Plan under the scope of the ILO Convention #169. Responsible to assist vulnerable groups, ethnic minorities and communities of direct project's influence by promoting social inclusion and gender's perspective within Corporate Community Development Programs such as: preservation of environmental, cultural and heritage assets, human rights, economic development and community healthcare.

ELECTRONIC & DEVICES
Osram Sylvania — Monterrey, N.L, Mexico
Environment and Regulatory Affairs
2008
Advised the implementation of the Environmental Management System (EMS) ISO: 14001-2004 for the Global Certification Program Osram USA & Germany within cross country business units in Mexico.
Lead training programs and advised environmental audits and risk assessments to all management levels.

AUTOMOTIVE INDUSTRY
NEMAK — Monterrey, N.L. Mexico
Operations Management
2006-2007
Advised the system's planning strategy and metrics according to Corporate Quality, Safety, Health and Evironmental Policies (QSHE) using Value Stream Mapping methodologies (VSM) and assessed the environmental performance of the melting process.

PROFESSIONAL TRAININGS AND COURSES
- Social Impact Assessment and Public Consultation Diploma course; FLACSO Mexico; 2016
- Geographic Information Systems for Socio-Territorial Studies Diploma; Instituto Mora-CONACYT Mexico; 2016
- International Course in Social Policy and Development; Francisco Marroquin University; Guatemala City; 2013
- Certificate in Municipalization for Millennium Development Goals; United Nations-The Latin American and Caribbean Institute for Economic and Social Planning (ILPES); Santiago de Chile, 2012
- Certificate in State-Level Climate Change Action Plans & Development; I.T.E.S.M./British Council/INE; Mexico, 2011
- Certificate on Integral comprehension of International Standards ISO:9001:2008, ISO:14001:2004 & OHSAS 18001:2007; International Northern Registrar (INR); Mexico, 2011

ACADEMIC PARTICIPATIONS AND LECTURESHIP
"The Social Context of Renewable Energy Projects in rural Mexico: Experiences"; Universidad Iberoamericana Campus Ciudad de México, Alternative Energies Class; PhD. Ivan Quevedo; 2015-2016

CURRICULUM VITAE

DANIEL GARCÍA RAMOS

Mexico Operations Lead – Environmental

EDUCATION

M.Sc. Environment and Management, Royal Roads University, 2001, Victoria BC Canada
B.Sc. Chemical Engineering, Universidad Iberoamericana, 1997, México City México

HIGHLIGHTS

Over 17 years of experience as a Chemical and Environmental Engineer. Involved in projects related to (in chronological sequence) health and safety audits; toxicology (kinetics-dynamics); greenhouse gases, ozone depleting substances, and particulate matter air emissions dispersion modeling and human exposure models; ecotoxicology; environmental management systems; life cycle assessment; environmental audits; risk, site, and environmental impact assessment; sustainable development; sustainability performance indicators (social, environmental, and economic); geographic information systems; pharmaceutical manufacturing; shipyards/dry docks; alternative fuels; renewable energy, wind farms; pipelines; power plants; railroads; and mining.

These projects have been performed for both public and private sectors, mainly occupational health institutions, oil & gas, energy, transportation, petrochemical, pharmaceutical, manufacturing, on-shore wind farms, and under/above ground mines. Daniel has international experience participating in environmental projects in Canada, Chile, India, Singapore, Guatemala, Nicaragua and the United States. Due to the complexity of the projects Daniel has participated, he earned the Seniority in managing them, being known as a problem solver.

Besides the above activities, Daniel used to be EHS, and Production manager for a pharmaceutical plant for over 6 years (2004 to 2009), achieving GMP certification in 2008.

PROFESSIONAL EXPERIENCE

- Oversight of the demolition and environmental compliance of the former Colgate-Palmolive plant for future construction of the new U.S. Embassy Project in Mexico City.
- Assessment to the U.S. Department of State on decontamination and soil remediation at the site where new U.S. Embassy Complex in Mexico City will be built.
- Project Management of the Boundary Protection Plan developed for the new U.S. Embassy Complex in Mexico City.
- Management of all preconstruction activities at the site for the new U.S. Embassy Complex in Mexico City.
- Environmental compliance and environmental contractor/subcontractor selection, supervision, and management for the rehabilitation of the former fertilizer plant "Agronitrogenados" in Coatzacoalcos, Veracruz, México, purchased by PEMEX International (PMI).
- Project Manager and staff augmentation management for the design and construction of the new e-coat reactor in Axalta Coating Systems (formerly DuPont) for manufacturing electrostatic paint.
- Environmental compliance and assessment to PEMEX International (PMI) for the 3,500,000,000 USD TransOceanic Belt Project.
- Environmental and safety regulatory framework for construction of shallow offshore platforms in the Gulf of Mexico for Royal Dutch Shell (Shell).
- Support on environmental compliance and permitting of the new BMW plant in San Luis Potosí, Mexico.
- Project Manager of Dow Chemical's Project Faro in Toluca, México.
- Environmental red flags for the development of the following Photovoltaic Projects: San Antonio in El Salvador; Maria Auxiliadora, Nuevo Mundo, and San Pablo de los Corceles in Guatemala.
- Environmental red flags for the development of the following Hydro Projects: Las Pimientas in Guatemala.
- Environmental red flags for the development of the following Wind Projects: Dominica I, Dominica II, Intavan, Sureste in Mexico; Escudero in Panama.
- Development of the GIS platforms for environmental red flag satellite detection of the following countries: Brazil, Colombia, Costa Rica, El Salvador, Guatemala, Panama, and Mexico.
- Environmental Risk Assessment and Accident Prevention Program for Valle de México 1, a 94 MW Combined Cycle Power Plant and its natural gas pipeline, Otumba, Estado de México (EVM Energía, 2014).
- Environmental Risk Assessment for HONDA's new assembly and motor plant, its natural gas pipeline, and gasoline storage tanks, Celaya, Guanajuato (Honda de México S.A de C.V., 2014).
- Environmental risk assessment for the all the pipelines involving natural gas and ethylene for the new High Density Poly Ethylene plant "Etileno XXI" (Braskem-Grupo Idesa- Odebrecht, 2013).
- Environmental risk assessment for the production of sodium cyanide by means of the Andrussow process and environmental risk of the raw materials pipelines (ammonia and natural gas) for a new manufacturing facility in Coatzacoalcos (Grupo Idesa-Cyplus-Evonik, 2013).

DANIEL GARCÍA RAMOS

Mexico Operations Lead – Environmental

- Environmental/transportation risk assessment for 4,152 km of railroad tracks, trainyards, and trains in Mexico (KCSM, 2013).
- GIS platform and remote sensing for detection of environmental liabilities and superficial hydrocarbon leaks due to oil exploitation activities (Baker-Hughes, 2013).
- Under and above ground hazards recognition in Los Filos, a minesite in Mexico (Goldcorp, 2013).
- Cyanide code audit at La Libertad mine in Nicaragua (B2Gold, 2013).
- GIS platform and remote sensing for detection social and environmental risks, and natural hazards due to oil exploitation activities in 100,000 ha (Schlumberger, 2013).
- GIS platform and remote sensing for detection of environmental liabilities and superficial hydrocarbon leaks due to oil exploitation activities in 1,800 km2 (Petrofac, 2013).
- Safety leadership training in Los Filos a minesite in México (Goldcorp, 2013).
- Probabilistic explosion hazards in pharmaceutical manufacturing processes (TEVA Pharmaceuticals, 2012).
- Environmental risk assessment due to the use of sodium cyanide in a mining process (Minera Frisco, 2012).
- Under and above ground hazards recognition in Marlin, a minesite in Guatemala (Goldcorp, 2012).
- Corporate Standards Audit at Aranzazú Mine (Aura Minerals, 2012).
- Environmental Risk Assessment for a 28 MW Cogeneration Plant in Altamira, Tamaulipas (GDF Suez, 2012).
- Hazards Identification and Positive Interventions in Marlin Mining Unit, Guatemala (Goldcorp, 2012)
- Environmental Risk Assessment for a Natural Gas Compressor Station (InterGen, 2012).
- Site prospection (grid interconnection, wind, environmental, and orographic feasibility) for developing 1 Wind Farm totaling 104 MW in Coahuila (independent consultant, 2012).
- Site prospection (grid interconnection, wind, environmental, and orographic feasibility) for developing 5 Wind Farms totaling 1,000 MW in Zacatecas, Baja California, Querétaro, Guanajuato, and Coahuila (for ENERTHI Mexico, 2010-2011).
- Economic, Social, and Environmental feasibility for the use of alternative fuels (Natural or Liquefied Petroleum Gas in the entire taxi fleet of Mexico City and Valle de Bravo (for IMPCO Technologies Inc., 2003).
- Socioeconomic Impact Assessment for the construction of a Liquefied Natural Gas storage/regasification facility (for Chevron-Texaco Overseas Petroleum, 2003).
- Environmental Risk Assessment for Tractebel Energia de Monterrey Power Plant (for Tractabel Energía, 2003).
- Environmental Impact Assessment for the Huimilpan-Palmillas Gas Pipeline (for Coral Energy, 2003).
- Political approach for the construction of a Liquefied Natural Gas storage/regasification facility (for Chevron-Texaco Overseas Petroleum, 2002).
- Development of real-time geo-positioned navigation systems for an environmental risk study in Mexican rail-roads (for Transportadora Ferroviaria Mexicana TFM, 2002).
- Economic, environmental, and social baseline in Playas de Rosarito for the construction of a Liquefied Natural Gas storage/regasification facility (for Chevron-Texaco Overseas Petroleum, 2002).
- Environmental Risk Assessment for the Mier-Monterrey Gas Pipeline (for Kinder Morgan Inc., 2002).
- Assessment on the economic and social impacts derived from the construction of Golfo and Peñoles Thermoelectric Power Plants (The Inter-American Development Bank) 2002.
- Environmental, Social, and Economic Impact Assessment for the construction for Energía Azteca X Power Plant and Peaker Project (for InterGen Energy Inc, 2001).
- Science and trans-science of transgenic corn (events 176, MON 810, BT-11, CBH-351; genes cry 1Ab, cry 1Ac, cry 1F, cry 9c) for decision-making (for The Intersecretarial Commission for Biosafety of Genetically Modified Organisms CIBIOGEM, 2001).
- Environmental, Social, and Economic Impact Assessment for the construction for Energía Azteca VIII Power Plant (for InterGen Energy Inc, 2000).
- Air baseline and pollutants dispersion and impact modeling from the operation of Energía Azteca VIII Power Plant (InterGen Energy Inc., 2000).
- Discussion Panel: Phthalates and Human Health: Environmental Exposure (for The National Center of Environmental Health CENSA, 2000).
- Sustainable Development & Natural Resources, Federal Sustainable Development Strategies (for Natural Resources Canada, 1999).
- Ecosystem's Health: Air Quality Assessment within the Mining District of Molango (The National Center of Environmental Health CENSA, and Minera Autlán, 1999).
- First approach to estimate social, economic, and environmental effects due to the exposure to Methylcyclopentadienyl manganese tricarbonyl (MMT) as a fuel additive (For The National Center of Environmental Health CENSA, 1999).
- Design and Implementation for Sustainability (for Noranda's Alumysa in Victoria, Canada and Patagonia, Chile, 1998).
- Evaluation of the British Columbia Salmon Fishery using Generic Performance Measurement Criteria (for The Canadian Ministry of Agriculture, Aquaculture, and Fisheries, 1998).

CURRICULUM VITAE

JAVIER FERNANDEZ OJEDA
Technical Director

EDUCATION
2000 Industrial Engineer Master in Mechanical Basque Country University, Spain, Europe.
2003 Industrial Engineer Master in Calculation of Structures Basque Country University, Spain, Europe
2000 Mechanical Engineering Product Design
2003 Technology, Quality and Pathology in Edification
2003 Tube Construction
2004 Calculation and Construction of Structures
2004 Diploma in Strategic Revitalization of Cities
2004 Management Techniques Coaching

HIGHLIGHTS
Engineer specializing in the design, consulting and monitoring of construction of hydraulic and energy projects.

SKILLS
Proficient in CYPECAD calculation of structures
Proficient in AUTOCAD drawing
Proficient in ARQUIMEDES, PRESTO and TCQ costs
Office, Lotus Notes

PROFESSIONAL EXPERIENCE
TERRABRIO
Technical Director July 2017-Present.
Engineer specializing in the design, consulting and monitoring of construction of hydraulic and energy projects.

Responsibilities:
- Responsible for the design and development of projects and for the lead of teams.
- Providing hydraulic calculations.
- Providing mechanical designs and civil engineering.
- Providing financial model.
- Monitoring of construction.
- Responsible for budget management, customer relationships and cost avoidance.

Projects I worked on:
- Escalona Hydroelectric Power Station (14.5 MW)
- Gaya Hydroelectric Power Station (12 MW)
- Picachos Hydroelectric Power Station (12 MW)
- Sonora wind Proyect (300 MW)

HITE HIDROPROYECTOS
Managing Director
September 2012 – June 2017
Company specializing in the design and construction management of hydroelectric projects.
Projects I worked on:
- Project and Construction Contract Analysis of Escalona Hydroelectric Power Station owned by Terrabrio-Leaf (14.5 MW).
- Project of PH-3 (7.4 MW), PH Ocampo (10.4 MW), PH-1 (2 MW) and PH Cuetzalin (1 MW).
- Hydroelectric Power Stations owned by Impulsa Generacion.
- Project of Coyolapa Hydroelectric Power Station owned by Autlan (30 MW).
- Project of Rio Frio (22.8 MW) and Rio Blanco (19.5 MW) Hydroelectric Power Stations owned by Invex.
- Revamping of Necaxa Hydroelectric Power Station owned by Fenix Group (from 200 to 260 MW).
- Revamping of Minas Hydroelectric Power Station owned by Autlan-CFE (from 15 to 21 MW).
- Revamping of El Encanto Hydroelectric Power Station owned by Autlan-CFE (from 10 to 18 MW).

CURRICULUM VITAE

JAVIER FERNANDEZ OJEDA
Technical Director

OJEDA ENGINEERS
Managing Director January 2011 to August 2012
I started my own engineering company in Houston, Texas, USA, specializing in the design and construction of hydraulic projects and in calculations of structures.

AYMA ENGINEERING AND CONSULTING ENGINEERING AND CONST.
Project Manager January 2009 to January 2011
Mexican company located in Guadalajara, Mexico, specializing in the design, consulting and supervision of construction of hydraulic and environmental projects.
Projects I've worked on:
- Supervision of mechanical, hydraulic and economic project of the Atotonilco WWTP in Mexico City. (top flow: 790,000 gpm). Supervision of Agua Prieta WWTP project, Guadalajara (top flow: 240,000 gpm). Supervision of Ahogado WWTP project, Guadalajara (top flow: 64,000 gpm).
- Conducted the design and development of Hermosillo WWTP project, Sonora (top flow: 130,000 gpm).
- Supervision of project and construction of Queretaro Aqueduct, Queretaro (flow: 36,000 gpm).
- Supervision of project and construction of Guanajuato Dam Aqueduct, Gto. (flow: 32,000 gpm).

AREMA S.A. ENGINEERING AND CONSTRUCTION
Project Manager May 2007 – January 2009
Spanish company located in Barcelona, Spain, specializing in the design, construction and maintenance of hydraulic and environmental projects.
Projects I worked on:
- Project and construction of Barcelona WWTP reverse osmosis.
- Project and construction of the hydraulic barrier of the Llobregat aquifer, Barcelona.
- Project and construction of Fibracolor Industrial Group WWTP reverse osmosis, Tordera.
- Project and construction of Barcelona Water Treatment Plant sludge lagoon.
- Projects of wastewater treatment plants in Egypt, Equatorial Guinea and Romania.

CONSTRUCTIONS VILLA-REYES, S.A.
Construction Manager May 2004 – May 2007
Spanish company located in Barcelona, Spain, specializing in the construction of buildings.
Projects I worked on:
- Construction of 152 apartments and urbanization in Badalona, Barcelona.
- Construction of 4 buildings with 27, 16, 12 and 9 apartments correspondingly in Barcelona.
- Reform and expansion of a hospital and two schools in Barcelona.

TALLER DE ARQUITECTURA, V.S.S.L.
November 2003 – May 2004
Engineer in architecture office, Spain. Providing the structural calculations.

LAMINACIONES ARREGUI, S.L.
October 1999 – May 2000
Engineer in metallurgical company, Spain. Design a steel-drilling machine.

CURRICULUM VITAE

Jeffrey Berk, PE
Senior Vice President

EDUCATION
MS, Environmental Engineering, Loyola - Marymount University
BS, Civil Engineering, California - Polytechnic State University

PROFESSIONAL AFFILIATIONS
California Association of Sanitation Agencies
National Association of Clean Water Agencies
Water Environment Federation

BOARDS
Henry Samueli School of Engineering and Applied Science Dean's Advisory Council
Cal Poly Pomona School of Engineering Deans Advisory Council
California Association of Sanitation Agencies

HIGHLIGHTS
Jeff has broad experience in infrastructure planning, engineering design, construction, and research. He has assisted water, wastewater, and environmental clients address their business and engineering challenges for more than 28 years. His professional achievements as Principal-in-Charge are reflected in numerous on-going multi-million-dollar assignments, including projects for the City of Los Angeles Bureau of Sanitation, Los Angeles Department of Water and Power, Orange County Sanitation District, and San Francisco Public Utilities Commission. Jeff is a Board Member of the California Association of Sanitation Agencies Associates Committee, and is a frequent contributor to industry organizations and text books, including the Management of Practice No. 8 of the Water Environment Federation and the Sludge Manual of the U.S. Environmental Protection Agency.

EXPERIENCE
City of Los Angeles, Bureau of Sanitation, Various Projects, California.
Principal in Charge. With an annual budget of over $300 million, the Los Angeles Bureau of Sanitation (LABOS) collects, cleans and recycles solid and liquid waste generated by residential, commercial and industrial users in the City of Los Angeles and surrounding communities. Over the past 27 years, served as Project Manager or Principal in Charge on numerous projects, including:
- Enhanced Watershed Management Plan (EWMP) for Ballona Creek and Los Angeles River
- Terminal Island Treatment Plant Dewatering Expansion Project
- Hyperion Treatment Plant Digester Screening Facility

Currently, Contract Manager for the LABOS On-Call contract and is responsible for client satisfaction, resource management, and quality control.

Orange County Sanitation District, Various Projects, California.
Orange County Sanitation District, Various Projects, California. Principal in Charge. The Orange County Sanitation District (OCSD) is a public agency that provides wastewater collection, treatment, and disposal services for approximately 2.5 million people in central and northwest Orange County. OCSD has two operating facilities that treat wastewater from residential, commercial and industrial sources. Served as Project Manager or Principal in Charge on several significant projects at both facilities, including the P1-101 Dewatering and Odor Control project and J-112 Ocean Outfall Booster Pump Station Evaluation. As Principal in Charge, currently responsible for managing the financials of multiple projects, resource management, quality control, and client satisfaction.

Jeffrey Berk, PE
Senior Vice President

PUBLICATIONS AND PRESENTATIONS

Sludge Manual, U. S. Environmental Protection Agency. Authored Centrifuge Thickening section, 2010.

Manual of Practice No. 8, Water Environment Federal/American Society of Civil Engineers. Principal author of Solids Thickening chapter, 2009.

“Cost Reduction through Automatic Optimization,” presented at Residuals and Biosolids Specialty Conference, Cincinnati, Ohio (with Brady), Water Environment Federation, 2006.

“Thermal Dryer Basics,” presented at the Residuals and Biosolids Specialty Conference, Utah, Water Environment Federation, 2004.

"Quantifying the Effect of Snow Melt Dependent Inflow and Infiltration on a Mountain Communities Collection System," presented at the Collection System Specialty Conference, (with Schindler, Cecil) Water Environment Federation, 1999.

"Application of Enhanced Primary Treatment at the Clark County Sanitation District’s Wastewater Treatment Plant," presented at the Nevada Water Pollution Control Association Conference, Las Vegas, Nevada (with Johnson, Bain), 1997.

"Optimization of Recessed Chamber Filter Presses for Dewatering Combined Primary and Waste Activated Solids to Meet a Capacity Shortfall," presented at the National Conference, Water Environment Federation (with Lee, Bain, Shepherd), 1996.

"Selection of Biosolids Dewatering Equipment for the Aliso Water Management Agency," presented at the California Water Environment Association Conference (with Smith, Wilson, Pyska), 1995.

"A Ferrous Chloride Solution," published in the Operation Forum magazine, Water Environment Federation (with Haug, Zschach, Harrison). 1995. "Enhanced Biosolids Dewatering Through the Use of Ferrous Chloride, presented at the National Conference, Water Environment Federation (with Haug, Harrrison), 1994.

"Performance Evaluation of High Torque Sludge Dewatering Centrifuges," presented at the Joint Residuals Conference, American Water Works Association/Water Environment Federation (with Harrison, Kvasnicka, Haug), 1993.

"Effect of Process Variables on High Torque Dewatering Centrifuge Performance," presented at the National Conference, Water Environment Federation (with Harrison, Kvasnicka, Haug), 1993.

"Evaluation of Sludge Screening and Screenings Dewatering Technologies," presented at the Cal/Nevada Section Conference, American Society of Civil Engineers (with Davarinejad, Skager, Ohanian), 1992.

CURRICULUM VITAE

JOSÉ ALFREDO PRIMELLES GINGELE

Commercial Director / Technical Director

EDUCATION

1978 -1982 University of Texas at Austin - Petroleum Engineer
1984 - 1985 Corpus Christy State University - Master´s degree in business and administration

HIGHLIGHTS

Engineer specialized in business and investment projects, water, energy and construction.

He specializes in business, in market operations, in energy, water and infrastructure project operations. He is a leading expert in advising operations. He has participated more than 200 energy projects, water treatment, among others.

PROJECT EXPERIENCE

TERRABRIO S.A.P.I. DE C.V.
Commercial Director
2013 – Present
Work in the projection, construction, development, promotion, equipment, start up, operate, conserve and maintain infrastructure projects, plants and electric power generation projects.
Development of 30 hydroelectric projects.
Development of contracts and agreements with public and private physical and moral persons, as well as with municipal, state and federal authorities, with the purpose of obtaining concessions, authorizations or permits, as well as the obtaining and exploitation of concessions and authorizations in general.
Subscription and development of contracts and agreements with municipal, state, and federal authorities, with the purpose of obtaining concessions, authorizations or permits.

TECNOLOGIA INTERCONTINENTAL S.A. DE C.V.
Director
1989 – 2013
Responsible for business development in water treatment, definition of technical solutions for water treatment, preparation of bidding packages, high level relationship.
Responsible for the design of the plan of the maintenance plans based on the analysis of each plant and its components.
Optimization of spare parts management and repairs.
Creation of improvements to the design and automation of the plants with internal and external resources.
Improve and maintain systems for measuring the working parameters of each plant.
Ensure compliance with maintenance plans with internal and external resources.
Implement predictive maintenance measures.
Maintain the organization and operation of the process and its maintenance.

In charge of the Engineering, Construction, Start-up and Operation of the following municipal plants:
- City of Tuxtla Gutierrez Municipal Wastewater Treatment Plant
- City of Tampico/Madero Municipal Wastewater & Advanced Treatment Plant
- City of Celaya Municipal Wastewater Treatment Plant
- City of Lerdo Municipal Wastewater & Advanced Treatment Plant
- City of Reynosa Municipal Wastewater Treatment Plant
- City of Cuernavaca Municipal Wastewater Treatment Plant
- City of Tecoman Municipal Wastewater Treatment Plant
- City of Colima Municipal Wastewater Treatment Plant
- City of Morelia Municipal Wastewater Treatment Plant
- City of Tecoman Municipal Wastewater Treatment Plant
- City of Colima Municipal Wastewater Treatment Plant
- City of Morelia Municipal Wastewater Treatment Plant

JOSÉ ALFREDO PRIMELLES GINGELE

Commercial Director / Technical Director

In charge of the Engineering, Construction & Start-up of over 100 Treatment Plants which include the following industrial plants:
- 5 Anaerobic/Aerobic WWTP's for Tequila Distilleries
- 3 Anerobic/Aerobic WWTP's for Hershey's
- Aerobic WWTP for Cargill in Friona, TX
- 20 Anaerobic/Aerobic WWTP's for Modelo Brewery
- 2 Aerobic WWTP's for Wm. Wrigley Jr. Company in the Phillipines and St. Petersburg, Russia.
- 4 Anaerobic/Aerobic WWTP's for Grupo Alfa (Petrochemical)
- 5 Anaerobic/Aerobid WWTP's for Arancia-CPC (Corn Products)
- 24 Aerobic WWTP's for Coca-Cola Bottling Plants in Mexico, Costa Rica and Honduras
- 2 Aerobic WWTP's for Kimberly Clark

In charge of coordinating the Engineering & Construction of the following plants:
- 4 Aerobic WWTP for Coca-Cola
- Aerobic WWTP for a Maltery and a Brewery for Modelo Brewery
- Anaerobic WWTP for Imexa (Yeast)
- Instalation & Operation of several anaerobic and aerobic pilot plants.

CURRICULUM VITAE

DAVID A. HERMAN
Environmental / Construction Specialist

EDUCATION
MS, Environmental Science, 1986 - SUNY College of Environmental Science and Forestry, Syracuse, NY
BS, Environmental Science, 1983 - SUNY College of Environmental Science and Forestry, Syracuse, NY

CERTIFICATIONS & SKILLS
NICET Level IV, Transportation Engineering Technology/Highway Construction
OSHA 40 Hour Hazardous Materials Training Course
OSHA Confined Space Awareness Course
American Concrete Institute: Testing Technician Grade 1
Bilingual: English and Spanish

HIGHLIGHTS
Bridge, highway, railroad, airport facilities, and utilities construction management. Environmental Regulatory Compliance. Environmental Impact Analysis. Contaminated soils and ground water remediation. Removal of underground storage tanks (UST's) Air quality studies. Environmental permits procurement. Asbestos and lead abatement management.

PROJECT EXPERIENCE
New York State Department of Environmental Conservation
November 2005 - Present - Division of Environmental Remediation ~Albany, New York, Sanitary Construction Inspector II
Oversee environmental remediation programs, including Brownfield cleanup programs, environmental restoration projects, manufactured gas plant sites, and superfund sites. Supervise site characterizations, remedial investigations, remedial actions, and operations and maintenance programs. Inspect and evaluate community air monitoring programs.
- Successfully completed soil and ground water remediation and restoration programs at utility and gas manufacturing companies' properties, and manufacturing facilities throughout New York State.
- Managed site investigations and characterizations at more than 50 utility owned properties.
- Effective coordination and management of contractor and consultant operations to ensure environmental protection and regulatory compliance.
- Efficient oversight of soil investigations, ground water sampling, sediment sampling and investigative work.

CTE Engineers, Inc. ~ New York, New York and Fort Lee, New Jersey
January 1986 -2005 - Senior Environmental Scientist, Senior Construction Inspector
Reconstruction of the Williamsburg Bridge in Manhattan and Brooklyn, New York for the New York City Department of Transportation. Led the inspection of all construction operations, including demolition, and reconstruction of new bridge approach structures, and roadways.
- Managed lead and petroleum contaminated soils remediation programs; decommissioning of monitoring wells; soil vapor extraction systems; and lead and asbestos abatements.
Reconstruction of Route 9A Segment 5 (Westside Highway) in Manhattan for the New York State Department of Transportation.
Lead inspector for work related to underground utilities, drainage structures, water mains, sewers and roadway installations. Directed building demolitions, and confined space entry work. Responsible for safety inspections, and compliance with applicable local, state and federal regulations.
- Successful removal of more than 40 underground storage tanks (UST's).
- Managed the remediation of hazardous and petroleum contaminated soils and asbestos and lead abatements.
Infrastructure Rehabilitation of Grand Central Terminal in Manhattan for Metro-North Railroad.
Senior construction inspector for all aspects of construction on the North End Access project. Team leader for environmental operations, asbestos and lead abatements, air quality studies, and railroad safety programs. Collected samples for CO, CO2, NOXs, and components of combustible engine exhausts, welding fumes and other pollutants.
- Developed and implemented air monitoring programs for airborne contaminants (mercury, PCB's vapor and particulate, and nuisance dust).
- Employed Oxygen monitors, aerosol monitors, Low and High volume sampling pumps and direct read gas samplers.
- Work was conducted successfully on live tracks with energized third rails, in coordination with a busy commuter railroad schedule.

DAVID A. HERMAN
Environmental / Construction Specialist

Other Projects:
- Airport wide utility survey for the Utilities Master Plan at John F. Kennedy International Airport for the Port Authority of New York and New Jersey.
- Wetlands delineations, Munsell soil testing, environmental impact studies, and traffic counts and speed studies for the proposed Sterling Forest Interchange 15A in Sterling Forest, New York for the New York State Thruway Authority.
- Developed protection measures of stream and wetlands on project site; inspected all aspects of bridge reconstruction, roadway approaches, ramps, highway lighting, signals, and guardrails for the Reconstruction of Route 1 over Conrail in Woodbridge, New Jersey.
- Construction inspector for a sewer and water main rehabilitation Project in Brooklyn, New York for the New York City Department of Environmental Protection.

New York State Department of Health (NYSDOH); Bureau of Occupational Health & Environmental Epidemiology Albany, New York, November 1989-March 1994, Public Health Specialist II
Developed and managed NYSDOH approved environmental training programs, liaison between NYSDOH and the public to provide information related to asbestos and indoor air quality.
- Successfully performed audits of NYS approved training programs and conducted site visits to training institutions to help establish and implement improved environmental training programs.

Testwell Craig Laboratories; Ossining, New York, April 1988-October 1989, Project Manager
Conducted Inspections and prepared Management Plans in accordance with the Federal Asbestos Hazard Emergency Response Act (AHERA). Provided on-site management of large asbestos abatement projects. Ensured regulatory compliance with Local, State and Federal regulations. Projects included:
- City University of New York (CUNY), City College, Baruch College
- Westchester County Rye School District
- Kings Park Psychiatric Center
- Head Start Day Care Centers throughout New York City.

CURRICULUM VITAE

NICASIO MORALES
Senior Engineer

EDUCATION
2014-2018 Operation Manager (Terrabrio Mexico)
2011-2014 Hydrogeology Manager (DANONE GROUP México)
2010-2011 Project Manager (AYESA, Mexico).
2009-2010 Project Manager (Independent Professional)
2002-2009 Project Engineer (URS Mexico)

HIGHLIGHTS
Nicasio Morales, is a Hydrology Engineer from Autonomous Metropolitan University (UAM), he has experience in environmental consulting, renewable energy project, well construction, geohydrology and superficial hydrology, and Geographic Information Systems (GIS). Projects Mr. Morales has participated in public and private projects related to: disaster prevention; geohydrology assessment; water and sewage infrastructure assessment, construction wells, energy projects. Nicasio Morales is a GIS and Groundwater specialist. He has participated during projects related to risk analysis, water sampling for quality evaluation, aquifers test, Environmental Impact Assessments, Health & Safety Assessments (for both labor and non-labor environments), and renewable energy projects.

SUMMARY
Strong analytical, planning abilities and multi-functional skills to develop feasibility studies.

CAREER HIGHLIGHTS
- Feasibility studies for hydroelectric projects
- Field studies for hydroelectric projects
- GIS development for hydroelectric and environmental projects
- Feasibility studies for water resource for Danone plants and manager for construction wells
- Follow up to water quality for extraction wells in 26 plants in Danone water
- Hydrology studies for risk and environmental analysis
- Field studies for flood areas

PROFESSIONAL EXPERIENCE
TERRABRIO S.A.P.I. DE C.V.
Operation manager for developer of hydroelectric in México
Operation Manager: 2014-Current
- Field studies for 9 hydroelectric projects in Chiapas and Veracruz, Mexico
- Feasibility and hydrology studies for 8 hydroelectric projects
- Social studies for 8 hydroelectric projects in Chiapas, México
- Feasibility for wind generation in Sonora, Mexico

DANONE GROUP: Hydrogeology for water resource
Project Manager: 2011-2013

AYESA: Field studies for flood areas
Project Manager 2010-2011

INDEPEND PROFESSIONAL: Hydrology and hydrogeology studies
Project Engineer 2009-2010

URS CORPORATION: Hydrologist Engineer
Engineer staff 2002-2009

CURRICULUM VITAE

NICASIO MORALES
Senior Engineer

PROJECT EXPERIENCE
Developed hydroelectric projects in Mexico:

- Environmental and water studies
- Field studies for gauging stations on rivers
- Hydrology studies
- Feasibility studies for hydroelectric projects
- GIS development for hydroelectric and wind projects

CURRICULUM VITAE

PAUL MEAD, JD
Senior Permitting Specialist

EDUCATION
J.D.
Chapman University School of Law, Orange, CA
B.A.
University of California, Irvine, Irvine, CA

REGISTRATIONS/CERTIFICATIONS
Environmental Management Certification, University of California, Irvine
Endangered Species Act §10 (Habitat Conservation Plan) Training; U.S. Fish and Wildlife Service
California Rapid Assessment Method (CRAM) for Riverine Wetlands, U.C. Davis Extension;
U.S. Army Corps of Engineers, Wetlands Delineation Training, Wetlands Training Institute
State Bar of California: No 242878
U.S. District Court, Central District of California
Bioremediation of Hazardous Waste in Contaminated Soil; Utah State University

HIGHLIGHTS
Mr. Paul Mead is experienced in site-integrated life-cycle support, including planning, design, construction, and operations. He has civil design, construction management, and environmental remediation engineering experience from characterization and remediation to operations and maintenance. Project experience includes monitored natural attenuation studies, environmental site assessments, remedial investigations and feasibility studies, soil and groundwater investigations, and pollution prevention. Civil design experience includes highway, street, bridges and site work for buildings. Design and construction experience includes road widening, new facilities, commercial facility expansion, and design-build. Construction management and Program/Project management of capital improvement projects includes clients such as City of Los Angeles, Port of Los Angeles, Los Angeles County Metropolitan Transportation Authority, California Department of Transportation, City of Pasadena, Marriott International and Federal Highway Administration.

PROJECT EXPERIENCE
California High-Speed Rail Program, Sacramento, CA
Senior Permitting Specialist
Supervised two teams of Regional Consultants (RCs) preparing resource agency permit applications and supporting environmental documentation for compliance with state and federal law Current permit application acquisitions include: Section 2081 of the California Fish and Game Code, and a Biological Opinion under Section 7 of the federal Endangered Species Act. Managed RCs in preparation of environmental documents in support of permit acquisition, including Biological and Aquatic Resource Technical Report. Reviewed scopes of work, provided budgetary oversight (on a task order level), collaborated with other technical and regulatory disciplines to ensure compliance with the California Environmental Quality Act, National Environmental Policy Act, and Section 404 of the Clean Water Act. Coordinated with in-house and outside counsel to support agency permit and supporting work product reviews. Coordinated with in-house and outside counsel to support agency review. This programmatic environmental permit acquisition effort is ongoing.

Environmental Compliance Objectives, Corona, CA
Consultant/Director
Manage a small environmental consulting firm, providing client representation in negotiations with federal and state agencies on regulatory matters. Advocating for projects before Lead Agencies/public hearings, and in administrative proceedings including appeals. Prepare and environmental documents/studies (CEQA, NEPA) and regulatory permits (Clean Water Act §§404, 401; Fish & Game §1600/1602). Provide technical and legal review of environmental documents/studies and permit applications. Successfully negotiated an agreement with the Army Corps and U.S. Fish & Wildlife (ESA §7) for a residential development project in critical habitat saving client over $7 million in mitigation cost. Successfully petitioned the Army Corps of Engineers for removal of several large ground water recharge basins from federal jurisdiction, and negotiated with state agencies to either eliminate or reduce potential mitigation saving client over $10 million. Manage business operations including proposal preparation, contact negotiation, client service agreements, sub-contract agreements, purchasing and consignment agreements.

PAUL MEAD, JD
Senior Permitting Specialist

Michael Brandman Associates, Irvine / San Bernardino, CA
Senior Project Manager / In-house Counsel
Senior Project Manager for an environmental consulting firm. Managing preparation of environmental documents/studies (CEQA/NEPA/Caltrans) and permit applications (CWA, RWQCB, Coastal Act, Endangered Species, etc.). Provide client representation in negotiations with federal and state agencies on regulatory matters. Advocate for projects before Lead Agencies/public hearings and in administrative proceedings including appeals. Provide regulatory training to staff and clients. Negotiate/draft contracts/employment agreements. Successfully, represented client in Administrative appeal (USACE/USFWS) involving impacts to critical habitat and listed species from environmental contaminants. Successfully, represented client in Administrative appeal concerning status of jurisdictional resources within a proposed 1,800-acre residential development. Successfully petitioned the USACE for removal of one of California's largest (non-navigable) watersheds from federal jurisdiction, allowing repair and construction of over 140 facilities without CWA §404 dredge/fill permits. Successfully petitioned USACE to include potentially isolated resources into federal jurisdiction, thereby avoiding the need to process a time consuming and expensive Habitat Conservation Plan (HCP, ESA §10). Led the management team preparing environmental documents (CEQA/NEPA), and individual permit applications 404(b)(1) for a complex groundwater recharge project, involving imported water recharging several board regulated groundwater management zones. Established groundwork for a multi-jurisdictional Regional General Permit covering over 20,000 square miles.

Calscience Environmental, Garden Grove, CA
Senior Project Manager / Manager - Field and Mobile Services Group
Provide regulatory and technical compliance support; advising clients on a wide range of environmental issues including compliance with regional, state and federal laws and regulations. Manage wide range of environmental projects for regulatory compliance involving identification, monitoring and remediation of environmental contaminants in land, air, and ground water resources, including Superfund/NPL sites. Program Manager/Construction Manager.

CURRICULUM VITAE

PAULA SILVA, P.E.

Integrated Water Resources Management

EDUCATION

MS, Hydraulic Engineering, Land and Water development, UNESCO-IHE, The Netherlands
BS, Mechanic and Electric Engineering (Agricultural Engineering Major), Instituto Technologico y de Estudios Superiores de Monterey (ITESM), Mexico

HIGHLIGHTS

Paula Silva is a water resources engineer and project manager with more than 14 years of experience on water system operation modeling, hydrology studies, integrated water resource management projects and irrigation systems water balance. Her responsibilities have included extensive Central Valley Project and State Water Project system modeling to assess Bay Delta Conservation Plan and California WaterFix operation alternatives, river basins multi-stakeholder coordination and workgroups to investigate water availability and water conservation opportunities (Colorado River Basin) and irrigation water model development to assess system optimization (Merced Irrigation District). Much of her work has focused on achieving equitable and sustainable water solutions in the US and Latin American countries and has gain knowledge of United Nations, World Bank, and other international organizations' policies and expectations.

- An MSc in Hydraulic Engineering-Land and Water Development, which focuses on the development, management, and adaptation of land and water resources for different uses.
- Emphasis on integrated water resources management, basin water supply planning, water availability risk assessment and conservation strategies
- Experience in development and calibration of hydraulic/hydrologic computer models, watershed hydrologic balances and water systems modeling.

PROJECT EXPERIENCE

Water Resources Engineer; Colorado River Basin Study Next Steps; United States Bureau of Reclamation (USBR).
Technical and administrative support to assist Reclamation and Colorado River basin stakeholders in the Colorado River Basin Water Supply and Demand study next steps activities. These activities include the formation of a multi-stakeholder Coordination Team and three multi-stakeholder workgroups to investigate: (1) Municipal and Industrial Conservation and water reuse; (2) Agriculture conservation and water transfers; and, (3) Environmental and Recreational flows. Tasks included the data collection template development, data analysis and documentation for the Municipal and Industrial Conservation and Water Reuse groups

Water Resource Engineer; Great Salt Lake Integrated Water Resource Management Model; Great Salt Lake Advisory Council and partners; Utah.
Development, calibration and documentation of the Great Salt Lake Integrated Model v1.0 and V1.10 (GSLIM) using Goldsim as the modeling platform. This model is expected to be use as an integrated water management tool for the Great Salt Lake watershed to help state agencies characterize and evaluate linkages between the watershed and resources provided by the lake and support the state's mandate for sustainable resource management.

Water Resource Engineer; San Diego Basin Study; Bureau of Reclamation and City of San Diego Public Department; California.
Update and improvement of the GoldSim model originally developed for SDCWA by CH2M in support of the 2013 Regional Facilities Optimization and Master Plan Update to simulate the regional water system. The model was adapted and updated for use in the San Diego Basin Study for the baseline reliability assessment and modeling of Basin Study adaptation options.

Water Resources Engineer and Deputy Project Manager; Bay Delta Conservation Plan; California Department of Water Resources; SAIC and ICF; Sacramento, CA.
Technical support for the development of BDCP Proposed Project through a public process evaluating several options. Task involved the CALSIM II model implementation for the evaluation of the proposed isolated conveyance facility and large-scale habitat restoration areas under current and future sea-level rise conditions. The analyses involved comprehensive water operation analysis analyses of the proposed physical and operational changes in the Delta to quantified water supply impacts.

PAULA SILVA, P.E.

Integrated Water Resources Management

Water Resources Engineer; Queretaro River Hydrologic and hydraulic modeling; Toyota; Guanajuato, Mexico.
Supported the development of Queretaro River hydrologic and hydraulic modeling to determine base flood elevations for the Toyota Motor Manufacturing Assembly Plant. Performed work included field visit for data collection of river physical conditions and control structures, watershed characteristics, existing topographic data and survey, precipitation data, flow monitoring data, and historic flood event data.

Water Resources Engineer; Operations Criteria and Plan; United States Bureau of Reclamation; Sacramento, CA.
Elaboration of CalLite screening tool using GoldSim software. Responsible for the model sections related to the implementation of Delta controls and development of Forecast sub model. Activities also included elaboration of spreadsheets for results analysis, report writing, and scenarios assessment using the model.

Water Resources Engineer and Project Manager; Sacramento-San Joaquin Bay Delta issues for the Sacramento Valley Water Management Agreement; Metropolitan Water District of Southern California; Los Angeles, CA.
On-call contract, task included CVP and SWP operation modeling with CALSIM II to support the evaluation of Bay Delta Conservation Plan Proposed (BDCP) Project Adaptive Ranges and to improve understanding of the relationship between its diversion facility sizing, operations, and north and south of Delta additional storage management. Also, CALSIM II simulations were performed to evaluate BDCP alternatives as part of their Integrated Resources Planning process. Other technical support included CALSIM II Simulation of California Water Fix (CWF) Baseline under existing climate condition with more restrictive 2008 USFWS BiOp's RPA Action 1 and the development of the Delta Operations Recent Year Analysis spreadsheet tool to assess CWF project impacts on Delta exports under different operation criteria during recent years (2006-2015).

Water Resources Engineer and Assistant Project Manager; Water Resources and Water Quality Analysis for the Sacramento Valley Water Management Agreement; Metropolitan Water District of Southern California; Los Angeles, CA.
On-call contract task included the development of a screening tool linked to Artificial Neural Network (ANN) to assess Delta export impacts on the SWP and CVP operations by State Water Resources Control Board (SWRCB) decisions over the recent historical period. Additional task included CALSIM simulation of Wagner's Old Middle River (OMR) requirements and gate operation to maximize exports. Other technical analysis included CALSIM II modeling for the evaluation of water supply impact of remedy for the 2008 USFWS Biological Opinion proposed by Deriso and Fall X2.

Water Resources Engineer and Assistant Project Manager; State Water Project Modeling Agreement; Metropolitan Water District of Southern California; Los Angeles, CA.
Evaluation of long-term water supply and water quality effects of eliminating agricultural use of selected Delta Islands. Activities included CALSIM simulation, spreadsheet post-processing results, analysis, and elaboration of final presentation report.

Water Resources Engineer; Irrigation Water Balance Model; Merced Irrigation Water District.
Development and calibration of historic and future irrigation water model for the Merced Irrigation Water District using the GoldSim platform. The model has been used as a tool that allow to better understand and manage irrigation water supplies and demands at the basin scale. The goal of the historic model is to establish system loss factors and calibrate the operation model to system and operation data. The output for the future model is to determine MID water demands and losses under different cropping patterns.

Associate Engineer; Administración de las Obras Sanitarias del Estado [State Sanitation Works Administration] (OSE) Risk Framework; World Bank, Latin American and the Caribbean region; Montevideo, Uruguay.
Short-term consultancy work to support the concept development of the investment project to be funded by the WB and be implemented during the period April 2012 – April 2017. The goals were to identify approaches to incorporate climate change adaptation measures into OSE planning process and develop guidance to conduct a qualitative risk assessment.

Associate Engineer, San Cristobal and Santa Rita Hydroelectric Project Due Diligence; Hunt; Guatemala.
Review of existing hydrology study to assess the viability of the hydroelectric project. Elaboration of hydrology and water resources chapter due diligence report based on existing hydrology study review, watershed and hydrology setting research and water availability assessment.

Staff Engineer; Imperial Irrigation District (IID) Selenium Assessment; IID; Imperial, California.
Elaboration of summary from the Efficiency Conservation Definite Plan related to water savings potentials, general considerations, conservation measures and incentive programs at on-farm and system level. The summary document objective was to have a general understanding of the conservation alternatives to assess the Selenium impact on the Salton Sea.

CURRICULUM VITAE

RODOLFO CURIEL GOMEZ
Legal Advisor

EDUCATION
University Panamericana México City (IPADE)
- Bachelor of Arts Philosophy & Literature 1992
- Graduate- Businees at Law 1991
University in International affers S.C /Bufete Internacional de intercambio S.A. C.V
- Diploma 1992
- South Western College San Diego Ca
- International business law Marketing 1995

HIGHLIGHTS
My background is in International Commercial, Sales, Marketing, Business, Areas. With over 24 years experience in creating Jonint Ventures Between U.S. /Canada /Central And South America. I have developed skills that can be immidiately valuable for any Internation business / Companies Growing global Impact. I have experince in Management, Personnel , Team Work, Contracts & Compliance, Leadership / Coaching Activities /Disability / Evaluation/Benefits/determination for workers compensation specially in Commercial Areas. The enclouse resume will provide you with imformation regarding my background. As you will note I am fluently bilingual in Spanish/Emglish. I have moved easily throughout of the Continent on behalf of Business Ventures. The relationshops I have created With Private and Public Institutions have eased the goals of a multitude of Partners, Costmers and Employee Management, I have extensive training in the Comemercial/ Legal Aspects of International Business and I have the Skills to Developed / Review / Evaluate rules and Policies and Procedures/ Goals and Plans. Evaluation/ BUdgets/ Complex Contractual Agreements or any International & Commercial /Legal Aspects.

QUALIFICATIONS
- Fluently Bilingual Spanish/ English
- Expertise in drawing up/reviewing /evaluating / international Multi Year contracts.
- Ensured impecable Import-Export Custums documentation.
- Strong ability to influence team outcomes / impact staff performance/generate loyalty / effective coaching / employee development skils.
- Introduce control programs to micro-manage expenses/ Track revenues sources / Identify profit streams.
- Established innovative training programs on costumerservice/leadership &quality service/Food standards.
-Designed incentive / bonos plans to motivate staff delivered immediate feedback / initiated 3 month reviews to encorage Peak Performance.
- Technical Skills Lotus 123 / Internet Excel / Windows / Power Point / Word perfect / Microsoft system/ fax / Scanner/ Skype

PROFESSIONAL EXPERIENCE
International Marketing and Sales
- Utilized thorough knowledge of NAFTA/ Multicultural expertise to identify appropiate products/Services to initiate.
- Lucrative Joint Ventures,Prominent negotiations and interpersonal skills, Launched aggresive capaingns to bróker
- Establish ventures between unexpected partnersfor joint enterpeises tracked /stoks to assess areasfor investmments
- Business development projects /acted as liaison to ensure impecable relation/anticipated Concerns/Negotiate hurdles
- Developed ties to gain high risk international financing for unusually export programs of Sulffur/Copper/Flowers/ Coffe.
- Opened avenueswith Mexican Government for private companies desiring oil /Mining / Investment Oportunities

High Performance Marketing & Sales Leader
- Generated 76% growth of intrnational consulting Company in one Year.
- Developed business / Marketing & Sales Plans aimed at profitable / Partnerships ....Exceed expectations of Investors
- Determined pricing / Product projects /Product Spuply/ Sales Contracts.
- Reasearch International Marketsto clarify directions / Targets / Presentation / Sources / Financing/Sales and Marketing process / Import -Export and trade regulations/ Invesment Restrictions.
- Negotiated Complex Contracts wth global partners requiring specific Knoweledge of expectations / liability / Risk / International Law / Contracted with growers / brokers/ carriers / end Users.
- Guide Coffe Companies 70% on Mexican Market in 3 years based on new tipe of coffee companies.
- Performance of plans for team workers in each negotiation/Management/Programming team Works goals and skills
- Terms and conditions / commission / payment plan / evaluation / motivation programs / coaching / Compensation Budgets.
- Management of more tan 50 employees included supervisors / sales representatives / account executives and service staff.

CURRICULUM VITAE

ROBERTO PRIMELLES GINGELE
Partner

EDUCATION
August 1979- June 1983
American High School Foundation/ High School Degree
January 1984 - May 1988
Trinity University/ Mechanical-Electronic Engineering. San Antonio, Texas, USA. Bachelor of Science Degree

COURSES
Course on selection and maintenance of reciprocating dosing pumps in Leonberg, Germany at LEWA Herbert Ott GmbH: Nov. 1988
Course on selection and maintenance of sealess centrifugal and positive displacement pumps in Gundelfingen, Germany at Hermetic Pumpen GmbH: Nov. 1988
Twelve week training in the operation of anaerobic systems in the Ecatepec, México:Jun 90–Aug 90
Course on activated sludge systems at Von Nordenskjöld Verfahrenstechnik GmbH, in Münster, Germany: Nov. 95
Course on biological and filtration systems at Parkson Corp., Ft. Lauderdale, FL: Feb. 96
Course on Advanced Concepts in Engineering Administration given by Technology Training Corporation, Mexico City, Mexico: Oct. 1997

PROFESSIONAL EXPERIENCE
TERRABRIO S.A.P.I. DE C.V.
Partner
2013 – Present
Involved in evaluating and executing new investments in Hydroelectric power, Infrastructure Projects, Forestry farms and Real Estate developments.

TECNOLOGIA INTERCONTINENTAL S.A. DE C.V.
May 1993-2013
Projects Director November 1994 – 2013
- Engineering - Successfully created the Engineering Department
- Construction - Successfully created and implemented the Mechanical Installation and Construction Division.
- Metal Fabrication Shop – In 2010 successfully implemented own fabrication shop in order to reduce costs and speed up fabrication times. Eventually, also the design and fabrication of in house equipment.
- In charge of the Engineering, Construction, Start-up and Operation of the following municipal plants:
  - City of Tuxtla Gutierrez Municipal Wastewater Treatment Plant
  - City of Tampico/Madero Municipal Wastewater & Advanced Treatment Plant
  - City of Celaya Municipal Wastewater Treatment Plant
  - City of Lerdo Municipal Wastewater & Advanced Treatment Plant
  - City of Reynosa Municipal Wastewater Treatment Plant
  - City of Cuernavaca Municipal Wastewater Treatment Plant
  - City of Tecoman Municipal Wastewater Treatment Plant
  - City of Colima Municipal Wastewater Treatment Plant
  - City of Morelia Municipal Wastewater Treatment Plant

- In charge of the Engineering, Construction & Start-up of over 100 Treatment Plants which include the following industrial plants:
  - 5 Anaerobic/Aerobic WWTP's for Tequila Distilleries
  - 3 Anerobic/Aerobic WWTP's for Hershey's
  - Aerobic WWTP for Cargill in Friona, TX
  - 20 Anaerobic/Aerobic WWTP's for Modelo Brewery
  - 2 Aerobic WWTP's for Wm. Wrigley Jr. Company in the Phillipines and St. Petersburg, Russia.
  - 4 Anaerobic/Aerobic WWTP's for Grupo Alfa (Petrochemical)
  - 5 Anaerobic/Aerobid WWTP's for Arancia-CPC (Corn Products)
  - 24 Aerobic WWTP's for Coca-Cola Bottling Plants in Mexico, Costa Rica and Honduras
  - 2 Aerobic WWTP's for Kimberly Clark

ROBERTO PRIMELLES GINGELE
Partner

- Project Engineer Wastewater Division: April 90 - November 1994
In charge of coordinating the Engineering & Construction of the following plants:
- 4 Aerobic WWTP for Coca-Cola
- Aerobic WWTP for a Maltery and a Brewery for Modelo Brewery
- Anaerobic WWTP for Imexa (Yeast)
- Instalation & Operation of several anaerobic and aerobic pilot plants.
- Manager, Equipment Division: March 89 - April 90
- Technical Sales, Equipment Division: May 88 - March 89

11.

REFERENCE DOCUMENTATION

Reference Documentation

Bureau of Reclamation, Attachment B. Salton Sea Accounting Model, January 21, 2000: average 1950-1997

Bureau of Reclamation, Attachment B. Salton Sea Accounting Model, January 21, 2000: Between 5.75 and 5.92 ft/y

Hazard's Toll 2014 (Pacific Institute): Surface 350 square feet = 224,000 acres

Hazard's Toll 2014 (Pacific Institute)

The Salton Sea Authority, October 3, 1997

Bureau of Reclamation, Attachment B. Salton Sea Accounting Model, January 1, 2000: Between 43,000 and 45,000 ppm

Estimated based on the forecast of the Hazard's Toll 2014 (Pacific Institute)

Bureau of Reclamation, Attachment B. Salton Sea Accounting Model, January 1, 2000: For 1,346,000 acft/yr (1985-1995), salt concentration 2,800 mg/L, 5,124,370 ton salt/yr

Hazard's Toll 2014 (Pacific Institute)

Hazard's Toll 2014 (Pacific Institute): since 2007 to 2017

Hazard's Toll 2014 (Pacific Institute): since 2017 to 2027

Guia MIA-Regional, Semarnat: 2014

Conagua-Avaiable Information related to water use and permits

Inegi-Geographic and Statistics Information (Cartography).

Conabio- Social, Biodiversity and environmental published information related to Gulf of Cortez

Bureau of Reclamation, Salton Sea Study Status Report, January 2003

Translation Guide of Water Terms Spanish-English, CONAGUA, SEMARNAT

Update of Average Annual Water Availability in the Mexicali Valley Aquifer, CONAGUA, April 20, 2015

Update of Average Annual Water Availability in the San Luis Rio Colorado Valley Aquifer, April 20, 2015

Sonora Cost Ecological Management Program, DOF, August 15, 2009

California Gulf Marine Management Program, DOF, December 15, 2006

Baja California Ecological Management Program, DOF, July 03, 2014

Colorado River Delta and Gulf of California Biosphere Reserve Conservation and Management Program, CONANP, 2007

12.

ACRONYMS

Acronyms and Abbreviations

Abbreviations & Acronyms	Explanations
ACM	Asbestos-Containing Materials
ACS	American Community Survey
ADT	average daily traffic
Af	acre-feet
AFY	acre-feet per year
APE	area of potential effects
APN	Assessor's Parcel Number
AQMD	Air Quality Management District
ASR	Archaeological Survey Report
ASTM	ASTM International (formerly known as the American Society for Testing and Materials)
ATP	Archaeological Treatment Plan
BETP	Built Environment Treatment Plan
BMP	best management practice
Btu	British thermal unit
BOR	Bureau of Reclamation
C&D	construction and demolition
C.F.R.	Code of Federal Regulations
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAISO	California Independent System Operator
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCR	California Code of Regulations
CDFA	California Department of Food and Agriculture
CDFW	California Department of Fish and Wildlife
CDMG	California Division of Mines and Geology
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CGS	California Geological Survey
CIA	Community Impact Assessment
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
COG	Council of Government
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CUPA	Certified Unified Program Agency
CVFP	Central Valley Flood Protection Board
CWHR	California Wildlife Habitat Relationship System
dBA	A-weighted decibel(s)
dBA Leq	A-Weighted Decibels Equivalent Continuous Noise Level
DOC	California Department of Conservation
DOGGR	California Department of Oil, Gas, and Geothermal Resources
EA	Environmental Assessment
EDR	Environmental Data Resources, Inc.
EIR/EIS	Environmental Impact Report/Environmental Impact Statement
ESA	Environmental Site Assessment
FCC	Federal Communications Commission
Fed. Reg.	Federal Register

Abbreviations & Acronyms	Explanations
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
FSZ	Farmland Security Zone
GHG	Greenhouse Gas
GIS	Geographic Information System
GWh	gigawatt-hour
HASR	Historic Architectural Survey Report
HCM	Highway Capacity Manual
HPSR	Historic Property Survey Report
HV	High Voltage
Hz	hertz
IEEE	Institute of Electrical and Electronic Engineers
in/sec	Inches Per Second
IS	Initial Study
KVP	key viewpoint
Ldn	day-night sound level, dBa
LEDPA	Least Environmentally Damaging Practicable Alternative
LEP	limited English proficiency
Leq	Equivalent Sound Level, dBa
LOMR	Letter of Map Revision
LOS	level of service
LWCF	Land and Water Conservation Fund
mG	milligauss
MMBtu	million British thermal unit
MMEP	Mitigation Monitoring and Enforcement Plan
MOA	memorandum of agreement
MPE	maximum permissible exposure
MSAT	mobile-source air toxics
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act of 1966
NOA	naturally occurring asbestos
NOD	Notice of Determination
NOI	Notice of Intent
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSR	Noise Study Report
O&M	Operations and Maintenance
OEHHA	California Office of Environmental Health Hazard Assessment
OHP	California Office of Historic Preservation
OHWM	Ordinary High Water Mark
PA	programmatic agreement
PCB	polychlorinated biphenyls
PEC	potential environmental concern
PEPD	Preliminary Engineering for Project Definition
PG&E	Pacific Gas and Electric

Abbreviations & Acronyms	Explanations
PIM	public information meeting
PPV	peak particle velocity
PRMMP	Paleontological Resource Monitoring and Mitigation Plan
PRS	paleontological resource specialist
PTE	permission to enter
RF	radio frequency
RFI	radio-frequency interference
ROD	Record of Decision
ROW	right-of-way
RTP	Regional Transportation Plan
SB	(California) Senate Bill
SEL	sound exposure level
SFHA	Special Flood-Hazard Areas
SHPO	State Historic Preservation Office(R)
SIL	Significant Impact Level
SJVAB	San Joaquin Valley Air Basin
SJVAPCD	San Joaquin Valley Air Pollution Control District
SR	State Route
SSJVIC	San Joaquin Valley Information Center
STB	Surface Transportation Board
SVP	Society of Vertebrate Paleontology
SWPPP	Stormwater Pollution Prevention Plans
SWRCB	State Water Resources Control Board
TAC	toxic air contaminants
TATR	Transportation Analysis Technical Report
TCP	traditional cultural property
TMDL	total maximum daily load
TOD	transit-oriented development
TPSS	traction power substation
TSP	tubular steel poles
TWG	Technical Working Groups
U.S.	United States
U.S. DOI	United States Department of the Interior
U.S. DOT	United States Department of Transportation
U.S.C.	United States Code
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEO	United States Executive Order
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USSOI	United States Secretary of the Interior
VdB	vibration velocity level
VMT	vehicle miles traveled
VOC	Volatile organic compound

Other Acronyms and Abbreviations Used in Mexico

Abbreviations & Acronyms	Explanations
CONAGUA	National Water Commission
EVIS	Social Evaluation and Impact Study.
ETJ	Estudio Tecnico Justificativo para uso de suelo Forestal.
EIS	Environmental Impact Assessment.
IBWC	The International Boundary and Water Commission.
MIA	Environmental Impact Manifest.
ONG	Non governmental Social groups.
ZOFEMAT	Federal Maritime Zone.
PPM	Parts per million.
SAGARPA	Ministry of Agriculture, Livestock, Rural Development, Fisheries and Food
SEMARNAT	Ministry of the Environmental and Natural Resources
SSA	Ministry of Health
SEMAR	Ministry of Navy
SEDESOL	Ministry of Social Development
CONABIO	National Commission for the Knowledge and Use of Biodiversity
CONAFOR	National Forestry Commission
CONANP	National Commission for Protected Areas
CDI	National Commission for the Development of Indigenous Peoples
SENER	Ministry of Energy
CFE	Federal Commission for Electricity
CILA	International Boundary and Water Commission
SRE	Ministry of Foreign Affairs
SEGOB	Ministry on the Interiror
SCT	Ministry of Communications and Transport
SE	Ministry of Economy
INEGI	National Institute for Statistics and Geography
INECOL	National Institute of Ecology
PROFEPA	Attorney General's Office for Environmental Protection
IMTA	Mexican Institute of Water Technology
DOF	Official Government Gazette
NOM	Official Mexican Standard
ZOFEMATAC	Federal Land Maritime Zone and Coastal Environment
CENAPRED	National Disaster Prevention Center
SST	Total Suspended Solids
STD	Total Dissolved Solids
MSNM	Meters above sea level
LAN	National Water Law
LFD	Federal Duties Law
ICA	Water Quality Index
DBO5	Five-day Biochemical Oxygen Demand
DQO	Chemical Oxygen Demand
COTAS	Technical Groundwater Committee
SEDATU	Secretaria de desarrollo agrario, territorial y urbano.
RAN	Registro Agrario Nacional

13.

APPENDIX - PERIMETER LAKE

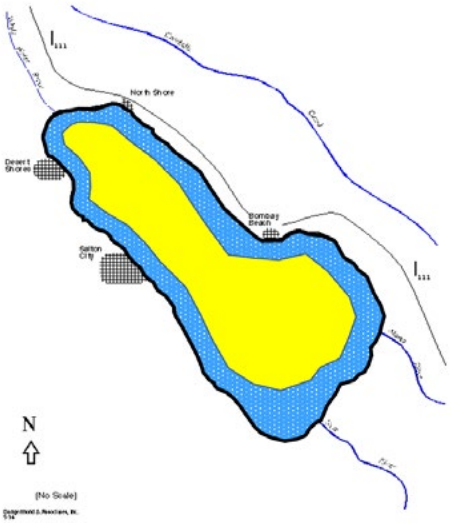
Apendix A: Perimeter Lake Alternative

Two critical objectives of the Salton Sea Importation Project are to provide habitat for migratory birds and to develop a constant level water feature that can keep the playa submerged and stimulate local investments. A perimeter lake fed by the Sea of Cortez would meet these objectives by providing a continuous source of clean sea water for the sole purpose of maintaining a given level and controlling salinity concentration. The quantity of water required would be based on losses due to evaporation, contributions due to surface water and precipitation, and salinity concentration. A portion of water would be transferred to the center lake so that the perimeter lake water would be constantly replenished with fresh, oxygen saturated water from the Sea of Cortez.

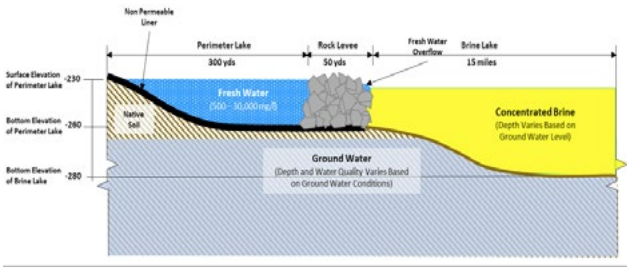
Perimeter Lake
The perimeter lake would be constructed along the outer portion of the lake in order to submerge the playa, create habitat, and provide an opportunity for economic (water front property) development. The water source would be the Sea of Cortez and would be used to continuously replenish the perimeter lake in order to maintain a constant elevation and water quality. The overall configuration of the Perimeter Lake may vary based on cost, economic impact, and habitat needs. However, based on depth of 10 ft and the water elevation of -235 ft the perimeter lake would comprise approximately 5.5% of the total lake surface area and less than 1% of the total lake volume.

A cross section of the proposed perimeter lake is delineated in the following figure to show the depth and width relative to the center portion of the lake. The depth of the lake could vary depending on habitat needs as well as potential recreational needs. A temporary inflatable dam could be used for proof of concept once the water source is established.

Perimeter Lake Alternative

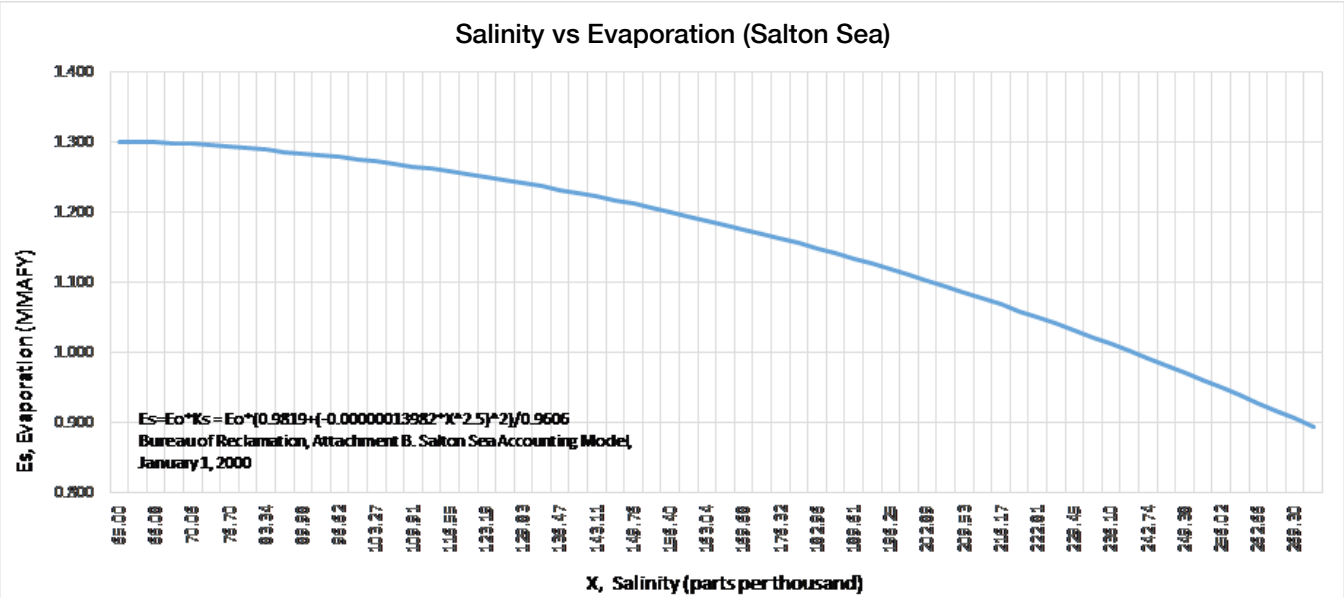


Perimeter Lake Alternative - Section



Center Lake
The salinity concentration of the center lake would be impacted by evaporation and the contribution of water from surface run-off, perimeter lake overflow, and precipitation. However, without desalination, the salinity concentration will increase over time. Based on research conducted by the Bureau of Reclamation (January 1, 2000), increased salinity will actually decrease evaporation as shown in the figure below.

Based on our analysis, the Center lake would reach a salinity concentration of 260,000 ppm in about 85 years and would reach a salinity concentration of 350,000 ppm (similar to the Dead Sea) in around 300 years.



Salinity vs Evaporation (Salton Sea)	
X, Salinity (ppm)	% Evaporation decrease
65,000 0	.00
103,266	2.12
153,077	7.19
202,888	15.18
252,700	26.11
269,304 3	0.35