BORDER ENVIRONMENT COOPERATION COMMISSION

TOWNSHIP OF HEBER, CALIFORNIA

STEP II DOCUMENTATION

Water Treatment Plant Expansion and Improvements to the Wastewater Collection and Water Distribution Systems

PDF Format

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BORDER ENVIRONMENT COOPERATION COMMISSION

STEP II DOCUMENTATION

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SECTION 1 - EXECUTIVE SUMMARY

Heber, California is a small, rural, unincorporated township located near the Mexican border in southern California. Its population is listed at 2,566, according to the 1990 Census. Estimates place the current population at approximately 3,426 persons. The township of Heber covers an area of approximately 800 acres, with a sphere of influence encompassing approximately 10.3 square miles. The surrounding area consists primarily of large tracts of farmland and the systems needed to maintain them.

The makeup of the township is approximately 70 percent residential homes and 30 percent commercial entities. At this time, there are no heavy industrial wastewater contributors in the system. In general, the wastewater generated by the township would be classified as residential.

The township of Heber is located approximately 117 miles east of San Diego, and 5 miles north of Mexicali, Baja California, Mexico. The location maps are shown in Figure 2-1. Heber obtains its drinking water from the Colorado River via the Imperial Valley Irrigation System.

The Heber Public Utility District is regulated by the water quality standards established by the United States Environmental Protection Agency (EPA) and by the State of California Department of Health Services, Office of Drinking Water. The water treatment system permit number is 04-14-98P-054 (Appendix D).

Formed in 1933, the Heber Public Utility District (HPUD) owns and operates the water treatment facility. Originally, the water treatment plant consisted of settling ponds followed by chlorination. In the early 1970's a 300 gallon per minute clarifier and pressure sand filters were installed. Subsequent upgrades in the early 1980's eliminated the 300 gpm clarifier, replacing it with an unit capable of producing water at 1,150 gallons per minute.

The current facility consists of three raw water sedimentation basins, chemical addition, upflow solids contact clarification, pressure sand filtration, post-chlorination and finished water storage.

The District receives its raw water from the Imperial Irrigation District (IID) via the Central Main Canal and then the Dogwood Canal, Delivery No. 37-A. The Dogwood Canal is periodically taken out of service by the IID for maintenance, typically for 3 days every other month. During those periods, the HPUD uses the raw water stored in the three sedimentation basins, which hold a combined 7.1 million gallons. At current usage rates, this allows sufficient water to supply the District during a 7-day outage.

Finished water storage totals 2.45 million gallons (MG), with one 1.7 million gallon tank and one 750,000 gallon tank. A 250,000 gallon tank is also at the site but is in need of extensive rehabilitation and is currently not in use.

A single pressure zone serves the finished water distribution system. A booster station equipped with variable speed, high service pumps, supplies pressure to the system. With the addition of three new pressure sand filters in 1997, the treatment facility is rated to treat 900 gallons per minute, which is approximately 1.3 million gallons per day. The HPUD is required to notify the California Department of Health Services within 24 hours if this treatment rate is exceeded. However, with downtime for filter backwash, the plant typically produces approximately 1.0 million gallons per day.

The Heber Public Utility District (HPUD) was notified by the State's Department of Health Services (DHS) of their concerns associated with the existing system in a letter and engineering report dated December 8, 1998 (Appendix E). These concerns have caused the DHS to place a moratorium on new connections to the water system. As of this date, no more than 1,000 services are allowed for the HPUD system until the treatment plant is upgraded. The HPUD currently serves approximately 685 metered connections.

The HPUD was ordered to bring their water treatment system into compliance and to submit a compliance schedule for review. A copy of the schedule of milestone dates is included below in Table 2-1. In addition to the water treatment system, Heber has experienced problems with their water distribution and wastewater collection systems. These items will be addressed below. HPUD is seeking certification of this project from the Border Environment Cooperation Commission (BECC) in order to be eligible to obtain funding from the North America Development Bank (NADB) Border Environment Infrastructure Funds (BEIF) to enable the District to make improvements to each of these systems.

Existing Water Treatment Plant

Portions of the existing treatment plant are over 25 years old and have reached their maximum hydraulic treatment capacity, necessitating this proposed expansion. In addition to the hydraulic constraints of the units, some have reached the end of their service life and are in need of replacement due to deterioration.

The banks of two of the three basins are not lined with concrete and show substantial erosion from wind-generated wave action. The basins are not linked together to allow the operators to divert raw to or from any of the three as necessary. The raw water pumps and valves are aged and in need of replacement. The solids contact clarifier is rusting

from the inside and has been patch welded several times. Should this unit fail completely, HPUD would lose its ability to produce potable water at the plant, as no backup treatment unit is available at the plant.

The DHS has directed the HPUD to eliminate the pressure sand filters currently in use at their plant. This is primarily due to concerns over the risks associated with allowing partially filtered water to enter the distribution system immediately following the backwash phase of the filter operation. Other concerns at the plant include the lack of adequate fencing around the perimeter of the facility. The existing barbed wire fencing does not prevent animals from wandering onto the plant site and becoming trapped in the raw water basins.

Four options were examined to upgrade the water treatment/delivery system. These options are:

- *"No Action" Alternative*
- *Expanding the existing water treatment plant*
- *Purchasing finished water from El Centro or Calexico*
- *Installing a new treatment facility at the existing plant site*

The fourth alternative was selected as the most appropriate.

A 10-year planning period was used as the basis of the projections contained herein.

Water Distribution System

Areas of concern also exist within the water distribution system of Heber. Some of these deficiencies are noted in the Water/Sewer Master Plan completed by Waddell Engineering in December 9, 1997, which is included in Appendix C.

As part of the Step II documentation process, Garver Engineers obtained and reviewed existing design plans and as-built drawings for the Heber water system. Those plans were then used to build an extensive Cybernet model to analyze the HPUD distribution system. Cybernet runs within AutoCad, allowing graphical representation of the model results developed, and can analyze complex distribution systems under a variety of conditions. Using the model, we are able to perform steady state and extended period use simulations.

This model computes system pressures for any demand condition. The demand alternatives used for our model were Average Day Demands, Max Day Demands and Peak Hour Demands. A fire flow scenario was also executed for each node in the model. Using max day demands, this scenario models the resultant pressures throughout the system caused by a fire flow demand at a single location. The information gained from the execution of this model was used to determine pipe sizes, pump size requirements, operation and rehabilitation requirements as well as overall master planning efforts. This was done to identify areas within the system that were deficient and that should be upgraded.

While computer modeling of the distribution system provides an excellent representation of what can be expected from an actual system, certain limitations do exist. The exact current demands can not be determined for the system. Therefore, average day demands were computed from past water usage records from the HPUD for the past 32 months.

The maximum day demand multiplier was calculated from these records. Field measurements of tank levels, pump station outputs and fire hydrant flows were taken at various points in the system. The field data was then compared with the average day Cybernet run and the model calibrated accordingly. The water demands must be estimated for future requirements and the water distributed throughout the system based on those assumptions. Also, the program can describe the response of the system for a single set of conditions.

The model conditions were programmed to reflect the "worst case" scenario, such as maximum day, peak hour, and/or maximum day plus fire flow demands. A system that is adequate under these conditions is assumed to also be adequate under normal, less demanding periods. To verify the assumptions made in preparing the computer model, we also used actual field flow test data as a basis for comparison and calibration.

The deficiencies identified within the HPUD system include:

- *Aging, deteriorating distribution lines located throughout the system;*
- *Undersized lines throughout portions of the distribution system;*
- *Insufficient fire hydrant area coverage in several areas throughout Heber,*
- *A lack of working isolation valves at key piping junctions within the system,*
- *No backup emergency generator for the high service pumps that supply the entire pressure zone.*

Of primary concern to the HPUD is the deteriorating condition of several of the older distribution lines throughout their system. These lines tend to leak treated water to the ground surrounding them and can lead to catastrophic failure of the line. In addition to the loss of potable water, the potential for cross-contamination from a leaking/failed line is greatly enhanced, which in turn increases the health risk to the community.

The distribution system lacks working isolation valves on some primary junction lines throughout the District. These valves would enable the Utility to isolate a particular line for repair without having to shut down major portions of the system. One task to be completed includes directing the District's operations personnel to identify which of the valves are operable and which need to be replaced. This valve replacement is part of the proposed improvements project.

The District has no backup emergency power generation on the main high service pumps, which forces the Utility to rely on the backup service pumps, which were part of the original distribution system. These old pumps cannot deliver the required quantities of water, at pressure, throughout the District. A diesel backup unit with automatic switchover powers them. This power generation system is capable of supplying power to the plant and the original distribution pumps but not the main high service pumps. At this time, the system averages three power outages per year.

This proposed improvements project includes the installation of an emergency backup power generation system with automatic switchover to run the main, high service pumps. Should a power outage occur during a catastrophic event, the emergency backup generator would automatically activate, powering the main finished water pumps. This would allow the Utility to continue to deliver water at the required fire flows and pressure throughout the system for an extended period of time.

In summary, the proposed project includes the replacement of 9,600 linear feet of water distribution lines, the installation of 36 new fire hydrants, 25 valves, and 110 service re-connections.

Wastewater Collection System

The wastewater collection system through many of the older parts of Heber has been in place for decades and is in need of upgrade. In addition to extensive discussions with the HPUD operations staff, Garver Engineers analyzed the entire sewer collection and distribution system using EaglePoint software. The modeling module runs within AutoCad, which allows graphic presentations of the collection system plan views, hydraulic profiles, individual sewer profiles, etc. We prepared the sewer model from record drawings of the sewers within the collection system.

The wastewater collection network was examined to identify subbasins surrounding nodes (demand points) in the HPUD water distribution system model. The average day water demand at each node was applied to the downstream reach of the sewer system within that node's subbasin.

The assumption was made that all of the water distributed by the HPUD system is collected within the sewer system. This assumption does lend some conservatism to the modeling, since, obviously, not all of the water consumed by the District is discharged to the sewer system, e.g., water used by lawn sprinklers and in car washing.

A maximum instantaneous flow multiplier was applied to average day sanitary sewage flows to determine peak sanitary flow. The multiplier was computed by the model for each reach of sewer line, based on tributary population. The multiplier formula used is $M = [18+(P)^{0.5}/4+(P)^{0.5}]$*, where P is the population in 1,000's.*

The computer model calculates the population equivalent by determining the average daily flow in each reach (sum of total line flow tributary to the sewer in question) and dividing that total average daily flow by 100 gallons per capita per day.

Pump station discharges to downstream reaches of the gravity sewers were adjusted to match the computer predicted pump station maximum instantaneous inflow or to match the maximum rated pump capacity of the existing pumps, whichever is greater.

The deficiencies identified as a result of this analysis are:

- *Undersized lines in parts of the collection system, which leads to surcharged lines and uncontrolled discharge of raw sewage from manholes.*
- *Two pump stations that are in need of an upgrade. One station is in to be replaced entirely due to its deteriorated condition. At the other station, it is necessary only to alter the pump motors and drive systems to increase the flow.*

In summary, the proposed improvements entail the replacement of 6,070 linear feet of sewer lines with PVC pipe, 10 manholes, 60 manhole connections, the replacement of one of the two pump stations, and the rehabilitation of the second pump station.

The following table summarizes the estimated capital costs of the proposed projects.

Estimated Capital Cost			
ITEM			USD
	Water Treatment Plant Expansion		**$2,620,400**
	Improvements to the Water System		**$764,700**
	Improvements to the Wastewater System		**$957,300**
		TOTAL	$4,324,400

In addition to capital costs, the water treatment plant will have an annual operation and maintenance (O&M) cost of $149,300. The O&M cost of the water distribution and wastewater collection systems will remain practically the same as it is today, or could potentially decrease as the repair requirements will be reduced by the improvements.

The North American Development Bank (NADB) developed a financial evaluation to determine the amount of grants and loans the District would be eligible to obtain from this institution. These amounts, in addition to other sources of funding, are described in the following table.

Project Financial Structure

Available Funding	Amount ($)	% of Total
Loans		
USDA loan	**1,126,500**	**25.94**
Loans Subtotal	*1,126,500*	*25.94*
Grants		
USDA grant	**1,223,500**	**28.18**
BEIF grant	**1,992,400**	**45.88**
Grant Subtotal	*3,215,900*	*74.06*
TOTAL	$4,324,400	100%

In addition to BEIF construction assistance, NADB analyzed the possibility of providing BEIF transition assistance to allow for a gradual increase in rates, as described in the following section. A total of $152,000 is recommended as transition funds.

Furthermore, the NADB analysis identified the modifications in the rate structure that would be necessary to ensure the financial feasibility of the project. The current water rate for residential users of $21.75 per month includes a 20,000 gallon water allotment. The proposed rate structure is to set a base fee starting at $20 per month with no water allotment. The water usage fee would immediately increase from 35 cents per 1,000 gallons to 36 cents per 1,000 gallons and all water consumed will now be charged. The base fee will then increase $1 per year for the next seven years until it reaches $26 by fiscal year 2005-2006.

Similarly, the current monthly wastewater fee rate of $22 per month will increase by $1 per year for the next seven years, bringing the rate to $29 by FY 2005-2006. This proposed wastewater rate structure includes the rate increase proposed for the upgrade and expansion of the wastewater treatment plant project previously certified by BECC.

As required by the BECC, the project sponsor implemented the public participation process. The process included the development of a public participation plan, the formation of a steering committee composed of respected members of the community, and the distribution of project information door-to-door. The project sponsor held two public meetings, which took place on July 22 and August 5, 1999. The results of the financial evaluation were presented during the second public meeting.

The project is consistent with BECC's definition of sustainable development: "…conservation oriented social and economic development that emphasizes the protection and sustainable use of resources, while addressing both current and future needs, and present and future impacts of human actions."

All environmental parameters have been met and the increase in water demand and use is consistent with local planning documents. The expansion of the water treatment plant coupled with the upgrade of the water distribution and wastewater collection systems will require little in the way of increased institutional capacity, as the proposed treatment technology is very similar to that already in use at Heber. As a complement to this project, the BECC and NADB are providing technical assistance funds to enhance the institutional capacity of the Heber Public Utility District.

The projects comply with all environmental regulations and are consistent with general plan designations and/or zoning.

SECTION 2 - GENERAL PROJECT DESCRIPTION

PROJECT TYPE

Public Sector - Water Treatment Plant Expansion, Water Distribution and Wastewater Collection Systems Improvements

This project consists of the expansion of an existing raw water treatment plant, improvements to the water distribution system and the sewer collection and pumping system. Each of these is a BECC priority area.

PROJECT TITLE

Heber Public Utility District

Water Treatment Plant Expansion and Improvements to the Wastewater Collection and Water Distribution Systems

PROJECT DESCRIPTION

The Heber Public Utility District is proposing improvements to the District's Water Treatment Plant as well as to the water distribution and wastewater collection systems. These improvements are aimed at addressing deficiencies noted by the regulatory agencies that permit this Utility District. The proposed expansion project is designed to accommodate the needs of the HPUD through the year 2010.

PRIMARY APPLICANT INFORMATION

- **Name of Organization: Heber Public Utility District**
- **Name of Contact Person: Manuel Castaneda – Interim General Manager**
- **Address: 1085 Ingram Avenue (P.O. Box H)**

Heber, CA 92249

- **Phone Number: (760) 353-0323**
- **FAX: (760) 353-9951**

PROJECT LOCATION

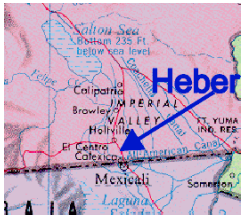
Project Location: California, U.S.A

Site Location: Rural Area

Description of Project Location

The project is located in the township of Heber, California, which is located on Highway 86, approximately 5 miles north of the United States/Mexican border, in southern California. The treatment plant is located on an 2.7-acre site on Ingram Avenue, in Section 28, T16S, R14E of the Heber Quadrangle. Location maps are shown by Figure 2-1.

FIGURE 2-1



PROJECT LOCATION MAP

The topography of the land is extremely flat, sloping approximately five feet per mile to the northwest. The elevation of the surrounding area is at or below sea level. Rainfall totals approximately 3 inches per year. Temperatures vary from the nineties to low one hundreds in the summer (with some days exceeding 120 degrees) to the low 40s in the winter.

The area of impact of this treatment plant expansion is the township of Heber. The surrounding sphere of influence will not be significantly impacted due to the few collection and distribution lines in the area. Although a likely future occurrence, as Heber expands into the sphere of influence, the surrounding area will require additional water produced by the treatment plant, which are included in the overall design by virtue of the population projections used in the plant's design criteria.

PROJECT DESCRIPTION AND WORK TASKS

Project Description

The primary human health and environmental issues to be resolved are the overloaded and deteriorating water treatment facility, inadequate water distribution lines and undersized wastewater collection infrastructure.

The ability of the water treatment system to produce sufficient quantities of high-quality finished water is continuing to diminish as the system ages. The State's Department of Health Services (DHS) has placed a moratorium on new water service connections for the HPUD until the pressure filter system is removed from service and the plant upgraded. The problems associated with the pressure filters are primarily concerns of inadequate filtration of water immediately following the filter backwash cycle.

Also of concern is the solids contact clarifier in use at the plant. This unit is over 15 years old and is deteriorating from the inside out. Should the single clarifier require service for an extended period of time, the township of Heber could conceivably run out of potable water in as little as three days.

Additional items of study include the capacity of the water distribution system to deliver treated water to the District at the required pressure and flow rate to provide fire protection throughout the area. Undersized lines and a lack of properly spaced fire hydrants are of major concern.

With regard to the wastewater collection system, undersized gravity lines are often surcharged, causing overflow conditions in collector manholes and in nearby house service lines. In addition, the sewer lift station near 10th Street and Parkyns is in need of replacement, while the pumps in the lift station near 6th and Heber Road need to be modified to increase its discharge flow rate.

In summary, the proposed improvements include the expansion of the existing water treatment plant by means of a packaged plant. The proposed expansion will bring capacity from 1.3 million gallons per day (mgd) to 2.0 mgd, with provisions for a future expansion to 4.0 mgd. The plant improvements includes the rehabilitation of the berm and bottom of the raw water storage lagoons, replacement of the raw water pumps, removal of the existing water treatment equipment, removal of an abandoned storage tank, construction of an office/laboratory building, a new backup power generation system, and a new package water treatment plant. The package plant will be based on a clarifier/filter, consisting of two units in parallel. Each unit is composed of a solids contact section followed by clarification and rapid-sand filtration. The treated water will then be chlorinated and pumped into the finished water storage tanks.

The improvements to the water distribution system entail the replacement of 9,600 linear feet of water distribution lines, the installation of 36 new fire hydrants, 25 valves, and110 service re-connections. On the other hand, improvements to the wastewater collection system include the replacement of 6,070 linear feet of sewer lines with PVC pipe, 10 manholes, 60 manhole connections, the replacement of one of the two pump stations, and the rehabilitation of the second pump station. As part of this improvement effort, a proposed time schedule is presented in Table 2-1 below. This timeline is subject to revision by the regulatory agencies involved, but establishes a framework for the completion of these improvements.

TABLE 2-1

PROPOSED SCHEDULE OF COMPLIANCE

TASK	BEGIN	COMPLETION
Begin Final Engineering Design for construction of treatment plant and improvements to the water and wastewater collection systems	*November 1, 1999*	*May 1, 2000*
Bidding	*June 1, 2000*	*July 15, 2000*
Construction Period	*August 15, 2000*	*May 31, 2001*
Permit Compliance	*June 1, 2001*	*December 1, 2001*

DESCRIPTION OF THE COMMUNITY

Demographic Information

The population of Heber is currently estimated at 3,426 persons. Heber lies within the Imperial Valley, at its southern end. The Community Economic Profile and the 1990 Census data are included in Appendix F. As noted, Heber is located within Census Tract 113, which is rural and primarily agricultural. The township of Heber itself covers approximately 800 acres, which is the service area of the existing system. Based on the 1990 Census, Tract 113 had a population of 5,359 persons and the Heber townsite had a population of 2,566. This represents 47.9% of the total population of Tract 113.

Given that the 1990 Census is the most recent available, population projections were based on the Southern California Association of Governments (SCAG) figures, which have been projected for Tract 113 through the year 2020. A similar growth rate was assumed for the Heber Township and it is this basis on which the future population figures are calculated. The growth rate for Heber between 1980 and 1990 averaged 1.4% annually. If this same rate were applied to Heber's population through 1998, the current population would be estimated at 2,868 persons.

If the 1990 Census Tract 113's population of 5,359 persons is used along with the SCAG projected population for the area (7,604 persons), the growth rate between 1990 and 2000 averages 3.56% per year. At a starting population for Heber of 2,566 in 1990, the current

population would be 3,394 persons. However, the population projection from the SCAG figure of 3,426 persons will be used throughout this report. A detail of these projections follows in Table 2-2.

TABLE 2-2

SUMMARY OF ULTIMATE POPULATION PROJECTIONS

TOWNSITE OF HEBER

BASED ON SOUTHERN CALIFORNIA AREA GOVERNMENTS (SCAG) DATA

FOR CENSUS TRACT 113

YEAR	CT 113 SCAG PROJECTIONS			HEBER		HEBER POPULATION PROJECTION	
	POPULATION	HOUSEHOLDS	PERSONS PER HOUSE	1990 CENSUS POPULATION	# SEWER CONNECTS	HEBER % OF CT 113	PRORATED/ PROJECTED @ 47.88% OF CT 113 (1)
1990	*5359*	*NA*	*NA*	*2566*	*NA*	*47.88%*	*2,566*
1994	*NA*	*1330*	*NA*	*NA*	*650*	*NA*	*2,996*

1997	*NA*	*NA*	*NA*	*NA*	*NA*	*NA*	*3,318*
1998	*NA*	*NA*	*NA*	*NA*	*680*	*NA*	*3,426*
2000	*7604*	*1769*	*4.3*	*NA*	*NA*	*NA*	*3,641*
2010	*13395*	*3016*	*4.4*	*NA*	*NA*	*NA*	*6,414*
2020	*20647*	*4729*	*4.4*	*NA*	*NA*	*NA*	*9,886*

*** Data taken from Dudek & Associates' WWTP Facility Plan – April 15, 1998*

A demographic analysis was also included in the HPUD Master Plan (1997). This Master Plan examined the 800-acre service area for single and multi-family residential development and for commercial, institutional and industrial development, with estimated infiltration/inflow (I/I) flows included. This information is presented below in Table 2-3.

TABLE 2-3

SUMMARY OF ULTIMATE LAND USE, EQUIVALENT POPULATION, AND

PROJECTED FLOW

TOWNSHIP OF HEBER. CALIFORNIA

BASED ON ACREAGE AND DENSITY ESTIMATES FROM

HEBER PUBLIC UTILITY DISTRICT WATER/SEWAGE MASTER PLAN

(December 8, 1997)

Land Use	**% of Urban Area**	**Acres**	**Projected Density Pers./Ac**	**Assumed Ultimate Percent Developed**	**Ultimate Number Persons (1)**	**Average Flow (gpcd) (2)**	**Avg. Flow gpd**	**Peak Factor**	**Pk. Hour Dry Weather Flow**
Single Family Residential	*65.00%*	*520*	*16*	*67.00%*	*5,574*	*120*	*668,928*	*See Total Below*	
Multi Family Residential	*5.00%*	*40*	*64*	*67.00%*	*1,715*	*120*	*205,824*	*See Total Below*	
Subtotals:		*560*			*7,290 (1)*		*874,752*		
Commercial, Institutional, Industrial	*30.00%*	*240*	*40*	*67.00%*	*6,432*	*40*	*257,280*	*See Total Below*	
Est. 1 & 1 (25% of above contribution)	*NA*	*NA*	*NA*	*NA*	*NA*	*25%*	*283,008*	*See Total Below*	
Subtotals:		*240*			*6,432*		*540,288*	*See Total Below*	
TOTALS:		**800**					**1,415,040**	**1.79**	**1,760 gpm**

*** Data taken from the Master Plan Document (Waddell Engineers) and the WWTP Facility Plan (Dudek & Associates).*

Of the 800 acres within the service area, 520 acres were assumed to be developed as single-family homes with a population density of 16 persons per acre. Multi-family housing was set at 40 acres with a density of 64 persons per acre. This yields a projected ultimate population of 10,880 at full development, as compared with the SCAG 2020 projected ultimate population of 9,886 persons for Heber.

As noted, the additional equivalent population for the remaining 240 acres of institutional, industrial and commercial developments is assumed to already be included in the base population estimates.

LOCAL ENVIRONMENTAL SERVICES

Water and wastewater service availability and supply are provided for nearly 100% of the community of Heber. These services are provided 24 hours per day.

DESCRIPTION OF PROJECT ALTERNATIVES

Water Treatment Plant Improvements – Project Alternatives

Several project approaches were examined as part of this scope of work. These alternatives include:

- *"No Project" Alternative.*
- *Expanding the existing water treatment plant.*
- *Purchasing finished water from El Centro or Calexico.*
- *Installing new water treatment equipment at the existing site.*

Option 1 - "No Project" Alternative

One option would be to take no action whatsoever and to operate the treatment plant as it is currently configured. The existing plant is operating at its maximum capacity. This situation, coupled with the State's requirement to eliminate the pressure sand filtration, is the driving force behind the plant improvement process. The State Department of Health Services, Drinking Water Division, has placed a limit on the number of services (1,000) HPUD can serve. As noted in the December 9, 1998 report from the State, this limit will remain in effect until additional treatment capacity is provided (Appendix E).

This alternative would require HPUD to continue to run their plant at its maximum capacity and would not address the deteriorating condition of several of the units within the treatment plant system. As Heber continues to grow, these conditions will simply continue to worsen to the point of creating a very real health hazard to the community. This approach will not address any of the issues associated with this project; therefore selection of the "No Project" alternative is simply not feasible.

Option 2 - Expanding the Existing Water Treatment Plant

The existing plant is hydraulically overloaded at times but still consistently produces a high quality finished water. This plant has operated well for nearly 20 years and the HPUD personnel assigned to it are familiar with its requirements. However, the filtration technology currently being used by the HPUD is not acceptable to the State DHS. Therefore, the installation of additional pressure sand filters is not an option at this facility. Furthermore, the existing solids contact clarifier is deteriorating and is due for replacement. Therefore, this option is not considered to be a viable alternative.

Option 3 - Purchasing finished water from El Centro or Calexico

As part of the master planning process, Garver Engineers examined the possibility of abandoning the existing treatment facility and purchasing water from either El Centro or Calexico. As part of that effort, the costs associated with construction of a connecting pipeline and booster pump station were calculated. The pipeline from El Centro to Heber would be approximately 4 miles long, while a line from Calexico to Heber would be approximately 3.5 miles in length.

The estimated costs for each option are included in Appendix M. These costs were compared, on a present worth basis, with the cost of constructing a new treatment facility at the existing plant site in Heber.

Each cost comparison assumed the following:

- *The cost of potable water purchased from El Centro ($1.20/1000 gallons) and from Calexico ($1.48/1000 gallons) would not rise over the life of the project. These rates correspond to those that large water users are currently charged by the respective municipalities (See Appendices K and L).*
- *The costs associated with producing water by the HPUD ($0.76/1000 gallons) would not rise over the life of the project.*
- *The costs were calculated using a flow rate of 2.0 million gallons per day for all three alternatives.*
- *An interest rate of five (5) percent was assumed.*
- *A design life of 20 years was assumed.*

As noted, the results of the present worth analyses are as follows:

- *Present Worth of purchasing finished water from Calexico: $15,235,200*
- *Present Worth of purchasing finished water from El Centro: $12,909,600*
- *Present Worth of producing water at proposed HPUD WTP: $9,605,800*

The complete tables showing the present worth analyses and the criteria used can be found in Appendix M. In addition to the assumptions made previously, it is also assumed that a contract agreement between the HPUD and either El Centro or Calexico could be reached in a timely manner. This agreement would require extensive negotiations between both parties to reach a consensus regarding the cost of finished water, the allocation of plant capacity to Heber, the method by which future expansions are funded, and the priority given to the different large use customers connected to the system. Each of these alternatives assumes El Centro or Calexico would be willing to provide water to Heber at a reasonable price and that they have the capacity to do so.

Given the condition of the existing plant at Heber and the long lead time required for this type of negotiation, the possibility exists that an agreement cannot be reached by the time HPUD's existing facility experiences failure of the treatment unit.

One concern is that should negotiations between the governing bodies of the entities involved begin in earnest and not result in an agreement for the purchase of water by HPUD, the District would then be forced to then pursue the construction of their own treatment system. The HPUD would then be "behind the curve" in the design and construction of their plant, which will further increase the chances the existing plant would fail before a new facility can be completed and brought online.

Given the higher present worth costs of purchasing finished water from either El Centro or Calexico and the uncertainty of successful purchase contracts being developed, this option was not considered to be the most viable.

Option 4 - Installation of a new treatment facility at the existing plant site

As noted by both the HPUD Master Plan (Appendix C) and the Department of Health Services' Engineering Report (Appendix E), the existing plant is at its maximum capacity and cannot produce additional amounts of potable water. Additional problems center on a filtration system that is not acceptable to the DHS and a main clarification unit that is deteriorating.

One alternative to improve the existing treatment capabilities of the HPUD is to construct a new water treatment facility on the existing plant site, using technology that is similar to that already in use and that is acceptable to the State Health Department. The proposed plant would consist of packaged treatment units that are relatively simple to install and that meet the State's requirements for type and effectiveness of a treatment system.

The proposed treatment technology is similar to that already in use, is well developed and well suited for Heber. As noted previously, the present worth cost of this option is lower than that of the purchased water alternatives and allows Heber to maintain control of their water production system (Appendix M). This option, therefore, is the preferred alternative.

Water Treatment Plant Upgrade - Project Justification

As noted above, the existing water treatment plant is currently deficient in terms of hydraulic capacity and filtration method. At the direction of the State Health Department, the HPUD has been ordered to upgrade their treatment plant to bring it into compliance. The treatment equipment is aged and deteriorating to the point of imminent failure. Continued operation using existing equipment poses a health risk to the human health and well being of the township's inhabitants.

The basis for determining the water usage expected through the life of this study period was developed by Garver Engineers from HPUD's current use records. This data was then correlated with the existing population data and extrapolated through the life of the project. These future flow requirements were then used to size the water treatment plant equipment. The future water requirements calculated for this project closely mirror the Master Plan completed in December 1998 for the HPUD by Waddell Engineering.

The construction of a new water treatment plant, as described above, is the best solution to this problem, as it is the most cost-effective option and eliminates the problems that must be addressed, as indicated by the regulatory agencies. In addition to new treatment units, other improvements are anticipated for the District's plant, including lining the bottoms of all three raw water basins with concrete to facilitate regular cleaning and installing a perimeter security fence to keep stray animals from entering the plant site. Often, animals will fall into the raw water basins and drown. This occurrence, while not representing an imminent health hazard to the public, should be avoided as a standard of good practice.

Water Distribution System Improvements - Project Alternatives

The alternatives associated with this phase of the project include:

- *"No Project" Alternative*
- *Installation of properly sized lines and appurtenances*

Option 1 - "No Project" Alternative

One option would be to take no action whatsoever with regard to the water distribution system. The primary reason for upgrading the size of the distribution system lines is to replace the aging, deteriorated lines located throughout the system with properly sized pipes and working valves. The human health risks associated with cross-connection contamination resulting from failing water lines are of major concern. Improvements to the distribution system will reduce the loss of potable water through leaks and would help to ensure that an adequate supply of safe, non-contaminated water is available to the residents within the community.

Improvements to the distribution system would also enable the high service finished water pumps to deliver water flows to the system that are adequate for fire protection. In addition to undersized, deteriorated water lines, there are an inadequate number of fire hydrants within the system grid to yield adequate coverage. As taking no action would not address any of the issues associated with this phase of the project, selection of the "No Project" alternative is simply not feasible.

Option 2 - Installing properly sized lines and appurtenances

This alternative involves installing properly sized water distribution lines and looping lines as required throughout the system. This upgrade in delivery capacity will allow the existing high service pumps to deliver sufficient water throughout the HPUD system. In conjunction with this upsize in delivery lines, additional fire hydrants will be installed so that adequate coverage is attained throughout the township. In most cases, hydrants will be installed where none previously existed. In other instances, new hydrants will replace undersized, inoperative hydrants that cannot deliver adequate fire flow of 1,250 gallons per minute.

The benefits gained from properly sized water lines and properly space fire hydrants are substantial, both in terms of human safety and property protection. The disadvantages associated with this type of upgrade are practically non-existent. Thus, this alternative is the preferred option chosen.

Water Distribution System Upgrade – Project Justification

Upgrade of the water distribution system will allow the township of Heber to deliver sufficient water throughout the District. Portions of the existing system are deteriorated and losses due to leakage are a consideration. Leaking, deteriorating distribution pipes present a possible venue for cross-connection and contamination of the potable water system. This health hazard can be significantly reduced if the water lines are upgraded.

Several of the water distribution lines within the older portions of the Heber system are made of cast iron. These lines have been in service for forty to fifty years and are in poor condition. The accumulation of scale on the pipe interior, coupled with general deterioration from years of service, necessitate the replacement of these piping sections.

The existing piping layout includes several dead ends, which limits the delivery capability of the system. These pipes will be looped to improve the water pressure and delivery within the distribution piping.

The installation of buried service valves on key junction lines throughout the system will allow the HPUD to isolate a particular water line for repair or replacement. This flexibility is especially important should an emergency line break occur, a result of either aged lines or an unintentional excavation. The broken line can be repaired more quickly with less water loss, a reduced chance of cross-connection contamination (and the health risks associated therein) and less loss of service to nearby connections.

The addition of an automatic switchover/emergency backup generator driving the main high service pumps will allow the HPUD to continue to deliver water throughout the distribution system at the flow and pressures required for fire protection. This will help Heber to maintain water service should a catastrophic event, such as a severe earthquake, disrupt electrical service for an extended period of time.

Wastewater Collection System Improvements

Project Alternatives

The alternatives associated with this phase of the project include:

- *"No Project" Alternative*
- *Installing properly sized collection and distribution lines and upgrading existing pumping stations.*

Option 1 – "No Project" Alternative

Portions of the existing sanitary sewer lines in Heber are old and in need of rehabilitation. Primary problems include undersized and/or broken lines and inadequately sized pump stations. The undersized lines are often surcharged due to lack of capacity. This causes raw sewage flows to back up within the system. This condition often results in discharges of raw sewage onto the ground around the upstream manholes and into adjacent residences. This creates a serious health hazard and can damage property.

This option would involve taking no action at all, thus allowing the sewer surcharge/overflow conditions to continue unabated. Continued exposure of the citizens to this condition was deemed to be unacceptable. Therefore, this "no action" alternative was rejected.

Option 2 – Install properly sized sewer collection and distribution lines and upgrading existing pumping stations as required.

As part of the scope of work, Garver Engineers conducted an extensive modeling program of the existing sewer system using EaglePoint software. By integrating water usage data in a particular area, the sewer flow rates can be calculated. The sewer model is then constructed and run to highlight deficient sections of the sewer collection system. Upgrading these deficient sewer lines will alleviate the surcharge conditions often encountered by the residents in these areas.

The other key component of this system is the pumping stations located throughout the District. Of the stations operated by the HPUD, only two require any upgrade at this time. One station will be replaced entirely, as it has deteriorated and is no longer reliable, failing at times and allowing raw sewage to back up into nearby residences. The other station is in good condition but the pumps in use are undersized for the current flow conditions. This results in line surcharges upstream of the station.

The implementation of this option would be relatively simple to accomplish and would alleviate the existing surcharge conditions of the wastewater collection system. Therefore, it is recommended that this option be pursued.

Wastewater Collection System Upgrade – Project Justification

The existing wastewater collection system in Heber has problems with sewer line surcharges and subsequently, sewage overflows. This often leads to exposing the nearby residents to raw sewage. The line replacement program proposed above should increase the flow capacity of the gravity collector lines and the pump station improvements anticipated will move this wastewater onto the treatment plant more efficiently. This combination should eliminate the incidences of sewer line surcharges currently taking place within the system.

The pump station upgrade at 10th and Parkyns will eliminate the last dry pit pump station in service at Heber, replacing it with an aboveground, suction lift pump station. The pump station upgrade at involves the replacement of sheaves, pulleys and motors on the existing pumps. This modification will increase the capacity of the existing pump station so that it will have sufficient pumping capacity to handle the incoming sanitary sewage waste flows.

TABLE 2-4

ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COSTS

HEBER PUBLIC UTILITY DEPARTMENT

WATER TREATMENT PLANT IMPROVEMENTS

ITEM	QTY	UNIT	PROBABLE UNIT INSTALLED COST	TOTAL
RAW WATER PUMPS	2	EA	$16,800	$33,600
VALVES AND PIPING	1	LS	$5,600	$5,600
2 MGD TREATMENT UNIT	1	EA	$675,000	$675,000
FINISHED WATER PUMPS	2	EA	$16,800	$33,600
FINISHED WATER PUMP STATION WET WELL	1	LS	$4,200	$4,200
VALVES AND PIPING	1	LS	$5,600	$5,600
BACKUP GENERATOR SET	1	LS	$60,000	$60,000
NEW LAB BLDG.	2500	SF	$70	$175,000
DEMOLISH ABANDONED 250,000 GAL STORAGE TANK	1	LS	$15,000	$15,000
DEMOLISH OLD TREATMENT PLANT EQUIPMENT	1	LS	$25,000	$25,000
PERIMETER 6' SECURITY FENCE	2900	LF	$11	$31,900
CONCRETE LINING RAW WATER BASINS	2980	CY	$200	$596,000
CONCRETE SEALANT	42000	SF	$1	$42,000
12" DIP WATER LINE	1	LS	$9,000	$9,000
BUILDING FOR CHLORINATION EQUIP. AND MCC	1	LS	$10,000	$10,000
MCC & VFD FOR PUMP STATION	2	EA	$47,400	$94,800
CHLORINE FEED EQUIPMENT	1	LS	$8,000	$8,000
BLAST AND RE-COAT EXISTING 750,000 GAL. TANK	25000	SF	$5	$125,000
MISCELLANEOUS CHEMICAL FEED EQUIPMENT	1	LS	$5,000	$5,000
SHELTER FOR TREATMENT PLANT EQUIPMENT	1	LS	$50,000	$50,000
ELECTRICAL CONTROLS - WATER TRMT. PLANT	1	LS	$62,000	$62,000
RAW WATER PIPING AND VALVES	1	LS	$30,000	$30,000
PROBABLE CONSTRUCTION COST SUBTOTAL				$2,096,300
ENGINEERING/CONTINGENCIES (25%)				$524,100
TOTAL PROBABLE CONSTRUCTION COST				$2,620,400

TABLE 2-5

ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COSTS

HEBER PUBLIC UTILITY DEPARTMENT

WATER DISTRIBUTION SYSTEM IMPROVEMENTS

ITEM	QTY	UNIT	PROBABLE UNIT INSTALLED COST	TOTAL
8" PVC WATER LINE	*9600*	*LF*	*$25.00*	*$240,000*
SERVICE CONNECTIONS	*110*	*EA*	*$400.00*	*$44,000*
CAST IRON FITTINGS	*4*	*TON*	*$6,000.00*	*$24,000*
4" X 4" TAPPING SLEEVE AND VALVE	*6*	*EA*	*$1,310.00*	*$7,860*
6" X 6" TAPPING SLEEVE AND VALVE	*6*	*EA*	*$1,660.00*	*$9,960*
8" X 8" TAPPING SLEEVE AND VALVE	*1*	*EA*	*$2,310.00*	*$2,310*
10" X 4" TAPPING SLEEVE AND VALVE	*4*	*EA*	*$2,360.00*	*$9,440*
10" X 6" TAPPING SLEEVE AND VALVE	*3*	*EA*	*$2,600.00*	*$7,800*
10" X 8" TAPPING SLEEVE AND VALVE	*1*	*EA*	*$3,125.00*	*$3,125*
12" X 8" TAPPING SLEEVE AND VALVE	*1*	*EA*	*$3,120.00*	*$3,120*
8" GATE VALVE	*3*	*EA*	*$1,100.00*	*$3,300*
CONNECTIONS TO EXISTING MAINS	*1*	*EA*	*$4,430.00*	*$4,430*
CONNECT EXISTING F.H. TO NEW MAIN	*12*	*EA*	*$1,200.00*	*$14,400*
NEW FIRE HYDRANTS	*36*	*EA*	*$3,000.00*	*$108,000*
ASPHALT STREET REPAIR	*1300*	*SY*	*$45.00*	*$58,500*
SURFACE REPAIR FOR NON-PAVED SURFACES	*900*	*SY*	*$5.00*	*$4,500*
20" DIA. STEEL ENCASEMENT (BORED)	*100*	*LF*	*$220.00*	*$22,000*
ISOLATION VALVE REPLACEMENT	*30*	*EA*	*$1,500.00*	*$45,000*
PROBABLE CONSTRUCTION COST SUBTOTAL				*$611,745*
ENGINEERING/CONTINGENCIES (25%)				*$152,955*
TOTAL PROBABLE CONSTRUCTION COST				*$764,700*

TABLE 2-6

ENGINEER'S ESTIMATE OF PROBABLE CONSTRUCTION COSTS

HEBER PUBLIC UTILITY DEPARTMENT

WASTEWATER COLLECTION SYSTEM IMPROVEMENTS

ITEM	QTY	UNIT	PROBABLE UNIT INSTALLED COST	TOTAL
8" PVC SEWER PIPE (>-6' DEPTH)	*847*	*LF*	*$37.50*	*$31,763*
10" PVC SEWER PIPE (> 6' DEPTH)	*2790*	*LF*	*$43.00*	*$119,970*

12" PVC SEWER PIPE (> 6' DEPTH)	*748*	*LF*	*$52.00*	*$38,896*
18" PVC SEWER PIPE (> 6' DEPTH)	*1685*	*LF*	*$78.00*	*$131,430*
MANHOLES (0' - 6' DEPTH)	*10*	*EA*	*$1,500.00*	*$15,000*
CONNECTIONS TO EXISTING MANHOLES	*60*	*EA*	*$500.00*	*$30,000*
ASPHALT STREET REPAIR	*6300*	*SY*	*$45.00*	*$283,500*
SURFACE REPAIR FOR NON-PAVED SURFACES	*4550*	*SY*	*$5.00*	*$22,750*
24" DIA. STEEL ENCASEMENT (BORED)	*300*	*LF*	*$175.00*	*$52,500*
NEW PUMP STATION AT PARKYNS AVE.	*1*	*LS*	*$37,800.00*	*$37,800*
REPLACE PUMP MOTORS AT 6TH STREET PUMP STATION	*1*	*LS*	*$2,250.00*	*$2,250*
PROBABLE CONSTRUCTION COST SUBTOTAL				*$765,859*
ENGINEERING/CONTINGENCIES (25%)				*$191,441*
TOTAL PROBABLE CONSTRUCTION COST				*$957,300*

Suitability of Proposed Improvement Sites

The site of the proposed plant expansion is ideally suited for this purpose. Sufficient space for the treatment plant expansion exists within the boundaries of the existing facility. As noted on the preliminary construction plans the site can accommodate all of the additional treatment units required. This plant site has been in use for over 60 years and continued utilization of this type will not adversely affect the surrounding area.

The existing raw water basins will continue to be of service to the HPUD. Basins 2 and 3 will be improved with the addition of concrete on their side slopes for wave protection. The bottom of all three basins will be concrete lined to allow easier, more frequent removal of sediment. Interconnection piping between the basins will be installed to improve the operational flexibility of the influent water handling system. The existing finished water storage tanks will remain in service, as will the variable speed high-service pumps delivering water to the system. To the extent possible, the HPUD will continue to use existing equipment and structures.

The areas of new line installation for both the water distribution and the wastewater collection systems are also well suited for this project, as the new lines would be lain adjacent to the existing pipes. This will help to minimize the amount of street repair required for the project.

The project is to be completed in a single phase, with the construction taking place within the confines of the existing plant site. As noted earlier, the expansion consists of the addition of new flocculation/clarification/filtration equipment as well as improvements throughout the plant. Line replacement, both water and sewer, as well as installation of fire hydrants and upgrades to the sewer lift stations, will be accomplished so as to minimize disruption of service to the customers. A half-sized set of 30% complete preliminary construction plans is included in Appendix A.

CONFORMANCE WITH INTERNATIONAL TREATIES AND AGREEMENTS

It is believed that none of the proposed system upgrade projects will affect any international treaties or agreements with either the United States or Mexico.

SECTION 3 - HUMAN HEALTH AND ENVIRONMENT

Human Health and Environmental Need

This project will accomplish the following:

- *Increase the capacity and improve the operation of the water treatment plant located in the township of Heber. As noted in the State Department of Health Services Engineering Report (Appendix E), the District was cited in 1995 for exceeding the allowable turbidity levels in their finished water. The DHS noted at the time that the plant was aging and that the corrosion of the clarifier and other equipment would soon necessitate a new system.*
- *Improve the quality of the distribution piping system, replacing lines that are undersized, deteriorating and leaking. This will reduce the health risks associated with cross-connection contamination.*
- *Improve the capacity of the water distribution system so that sufficient fire flow is available and properly spaced fire hydrants are in place to allow the delivery of that water.*
- *Improve the collection and transportation capacity of the wastewater system. This will decrease the incidence of sewer overflows and improve pump station capabilities, which will reduce the chances of exposure of raw sewage to the residents of the community. These sewer system improvements, coupled with the replacement of sub-par water lines, will help to reduce the potential for cross-connection incidents, and the human health risks associated therein.*

Failure to improve these systems within the HPUD infrastructure can impact human health and environment, as the system problems include:

- *Stated concerns of the State Health Department over the pressure filters in use at the plant.*
- *Concerns over the deteriorating condition of the sole solids contact clarifier in use at the plant.*
- *Raw water sedimentation basin bank erosion.*
- *Raw water pumping equipment, piping and valves in need of replacement.*
- *Lack of backup power generation for the main high service pumps.*
- *Line upsize needed in areas of inadequate fire flow, in addition to installation of properly spaced fire hydrants.*
- *Lack of main line isolation valves on the water distribution system.*
- *Sanitary sewer pump station replacement and rehabilitation.*
- *Sanitary sewer collection lines in need of replacement to eliminate surcharge and overflow conditions currently occurring.*

Therefore, the benefits derived from this project include:

- *Compliance with State Department of Health Services permit requirements.*
- *Provides the Heber PUD with a projected 10-year water treatment capacity.*
- *Provides a plant that is similar to the existing facility, thus easing the operations personnel's learning curve for the new facility.*
- *Expandability at the present site that will meet any future capacity requirements.*
- *The ability to sequence the project so that the existing plant can remain in operation during construction of the new plant*
- *Increases in the reliability of the treatment and distribution system.*
- *Improved water distribution system will enhance fire protection capabilities.*
- *The elimination of sewage surcharge conditions will reduce the exposure of local residents to health hazards associated with contact with noxious material.*

ENVIRONMENTAL ASSESSMENT

System improvements such as those proposed for Heber generally require the completion of the California Environmental Quality Act (CEQA) documentation. Since this project may be partially funded by the U.S. Environmental Protection Agency (EPA) through the NADB, it is also subject compliance with the National Environmental Policy Act (NEPA) requirements.

In response to those requirements, a joint environmental assessment has been conducted on these project sites. A copy of the report, entitled "Environmental Assessment for Class II Action", is included in Appendix B. This document satisfies both federal and state requirements.

This assessment concluded that there are no long-term environmental impacts associated with this project. There were no sensitive areas found within the project areas and the only impacts noted were those associated with construction activities during the project's installation. These impacts will be minimal and short-term, confined primarily to minor noise and air quality issues associated with construction.

The CEQA analysis was completed and the resulting "Negative Declaration" is enclosed within this assessment. Although the environmental assessment noted no significant impacts from this project, mitigation efforts for two items will be incorporated into the plans and specifications.

These are as follows:

Seismicity

The concern is that strong shaking could damage the treatment plant facilities. The mitigation efforts involve:

- *Incorporating the Uniform Building Code requirements for the zone, which includes Heber, into the treatment plant plans and specifications.*
- *Submitting the geotechnical studies for the treatment plant to the Imperial County Planning and Public Works Department for review and approval.*

Hazardous Materials

The water treatment facility will utilize chlorine gas for disinfection. This gas is toxic and there is a possibility of its accidental release.

Accordingly, the following mitigation measures will be taken:

- *The design will incorporate the procedures of the County Fire Department, the Chlorine Institute and OSHA with regard to the safe handling, transport, storage and use of gaseous chlorine and sulfur dioxide.*
- *Plant operations personnel will be trained in the storage and use of chlorine gas.*
- *The Fire Marshall may require the development of a Risk Management Prevention Plan.*

Based on the joint Environmental Assessment document, the Environmental Protection Agency (EPA) issued a Finding of No Significant Impact on August 30, 1999.

TRANSBOUNDARY ASPECTS

The project is not believed to involve any negative transboundary environmental impacts and will contribute to a reduction of the potential health risks associated with an aging water treatment plant operating at capacity and water distribution system and wastewater collection systems that are undersized and lack sufficient carrying capacity. The entire project lies within the United States.

COMPLIANCE WITH APPLICABLE ENVIRONMENTAL AND CULTURAL RESOURCE LAWS AND REGULATIONS

Regulatory Agencies with jurisdiction over the HPUD Water Treatment Facility, the Water Distribution System and the Wastewater Collection System:

- *California State Department of Health Services*

This agency will review and comment on the proposed water treatment plant, water distribution system and wastewater collection system design at 60%, 90% and 100% completion. The DHS will also have the opportunity to evaluate the projects' impact on the community, the local environment and the human health of the surrounding area.

As part of the environmental assessment, a biological and archeological survey was completed. The biological survey was conducted on April 23, 1999 and concluded that none of the habitats encountered along the alignment of the various routes and work sites contain any significant native flora or fauna. No impacts to biological resources are expected from implementation of the project. The archeological survey was conducted on June 30, 1999 and concluded that there are no prehistoric or historic sites that the proposed project would likely impact. Copies of these documents are included in Appendix B.

The Heber Public Utility Department currently holds the following permit:

- *Water Treatment Plant Permit No. 04-14-98P-054*

A copy of the current permit is in Appendix D. The existing environmental permit currently in force for this facility will apply, with modifications for flow and disinfection requirements, for the new, upgraded plant. The current permit expires at the end of 1999. It is anticipated that an interim permit will be issued to the HPUD until such time as the new plant can be constructed and brought on line. Upon completion of the project, the final permit will be issued.

The contacts for this agency are:

Mr. Roger Berger, Sanitary Engineer or Ms. Toby Roy, District Engineer

Department of Health Services

Drinking Water Field Operations Branch

1350 Front Street, Room 2050

San Diego, CA 92101

Phone: (619) 525-4159

Facsimile: (619) 525-4383

SECTION 4 - TECHNICAL FEASIBILITY

APPROPRIATE TECHNOLOGY

The alternative analyses indicates the construction of a new water treatment facility at the existing site is the most attractive, cost-effective option. Furthermore, the preliminary engineering investigation included computer analyses of both the water distribution system and the wastewater collection system. The water distribution system improvements can be accomplished by increasing the water line sizes as needed to allow the delivery of fire flows throughout the system and by the installation of fire hydrants throughout the older sections of town. Similarly, the wastewater collection system will also be improved with the installation of larger collector gravity lines and upgrades to two sewer lift stations. The 30% preliminary engineering design has been completed and is included in Appendix A.

Water Treatment Facility

One phase of this project focuses on efforts to correct the deficiencies detailed by DHS related to the water plant's current condition, especially with regard to capacity restrictions and filtration methods being used (Appendix E). The main effort will be to install improvements aimed at maintaining the quality of the treated water produced by the plant, increase the treatment plant capacity and improve the infrastructure of the plant itself.

The technology proposed for use in this project is similar to the treatment system that has been used by the HPUD for the past 25 years. Type of treatment includes chemical addition, clarification, filtration and chlorination. The technology currently in use at Heber, which is similar to that proposed for the plant upgrade, is extremely well recognized as a conventional treatment method and very well suited for this application. It is effective in treating the surface waters received by the HPUD and is appropriate for use there. The plant personnel are very familiar with the operation of this type of facility and its operation and maintenance requirements.

The treatment plant proposed consists primarily of two package treatment units each capable of processing up to 2 (two) million gallons per day. This will ensure that the HPUD can deliver sufficient potable water to the system even with one unit out of service. These units consist of a solids contact section followed by clarification and rapid-sand filtration. The treated water will then be chlorinated and pumped into the large storage tanks at the plant site. The treated water will then be routed to the distribution system in Heber via the high service pumps.

The primary advantages associated with installing a packaged treatment unit are lower unit costs, ease of expansion, ease of operation and smaller area required for installation. As the HPUD system grows, their treatment capability can also expand. Installing two 2-mgd units now will give Heber a minimum of 2 million gallons per day of firm treatment capacity. Should future expansion of the water treatment plant become necessary, another 2-mgd package unit can be installed with a minimum of construction. This would then give HPUD a firm treatment capacity of 4 million gallons per day, which should serve this community into the foreseeable future.

The treatment technology employed by this type of system is well established within the water treatment industry and is acceptable to the California State Department of Health Services. In fact, one of the driving forces behind this water treatment plant improvements project is the State's requirement that HPUD eliminate their use of pressure sand filtration and move toward gravity driven, rapid sand filtration to produce finished water. These packaged units employ just this type of technology.

Additional improvements to be made at the water treatment plant include the construction of a new finished water lift station. This station will feed finished water flowing from the treatment units to the ground storage tanks. The raw water pumps are to be replaced as well, along with the raw water piping and valves. Both the raw and finished water pumps will be controlled by the water levels in the finished water storage tanks. Other improvements include a new laboratory/maintenance shop at the plant site as well as security fencing around the perimeter of the site. If required by the State DHS, a chlorine scrubber will be installed on the disinfection system at the plant site.

Further improvements involve regrading the eroded inner slopes of raw water sedimentation basins 2 and 3, followed by concrete lining of the slopes for wave protection. In addition, the bottom of all three raw water basins will be lined with concrete to facilitate more frequent removal of the sediment. The connecting pipe network between the basins will be lowered to allow full use of the basin's depth, especially after the accumulated sediment is removed. The filter backwash will continue to be routed to the existing backwash basin as currently operated.

An emergency backup generator will be installed to power the main high service pumps during electrical outages. This unit will allow the HPUD to continue to supply Heber with potable water even if the power outage lasts for several days. Since the treatment plant itself is currently powered by the existing backup generator, and will continue to be so supplied, HPUD can produce and deliver potable water to the community regardless of a power outage.

The treatment technology proposed for Heber is very similar to that already in place and being used by the District. The technology is used at scores of treatment facilities across the nation and is readily accepted by the regulatory agencies. The existing operations personnel at Heber are familiar with the type of treatment plant being proposed and should have no difficulty becoming familiar with its operation and maintenance with a minimum of training.

The design engineer, upon the completion of the plant's construction, will prepare an Operations and Maintenance manual. This manual will include data on each of the treatment process units and their operation and maintenance. Also included in this effort will be plant personnel training, as required, to ensure the system is operated properly and as designed.

Water Distribution System Improvements

The approach to improving water distribution is basically to replace those water lines that have deteriorated or failed within the HPUD system. As indicated by the HPUD operations personnel, and confirmed by the flow models employed on this project, those lines that are not capable of delivering adequate flow to the users are to be replaced. This replacement will consist of the excavation of a trench adjacent to the existing pipe and the installation of a new line. The service connections to the adjacent meter will be made to the new pipe and will be implemented to minimize the disruption of service to the user.

The methods and materials used to effect these improvements will be in accordance with the State's requirements and are appropriate to this application.

Wastewater Collection System Improvements

The improvements to the sewer collection system are similar to those anticipated for the water distribution system, in that undersized collection lines will be replaced with lines that are capable of handling the incoming flows without surcharging the adjacent manholes. The existing lines will be replaced in accordance with good standard practice.

Two pump stations within the collection system are to be improved as part of this project. The sole remaining dry pit pump station will be replaced with suction lift pumps that are similar to those used throughout the District. This type of pump station is easily maintained and is appropriate for this application. The pump motors and drive system in the second station will be modified so that the pump station will have sufficient capacity to handle the incoming wastewater flows.

APPLICABLE DESIGN REGULATIONS AND STANDARDS

The following requirements are being met so that this project may progress.

- *Environmental Assessment – Included in Appendix B.*
- *Water Permit – A copy of the existing permit is included in Appendix D.*
- *The State's Department of Health Services, and other stakeholders in this project will review both the Facility Plan and the final Plans and Specifications for this project. Their comments and concerns will be addressed by the design engineer in the final design.*

Contact person for the State Department of Health Services:

Mr. Roger Berger, Sanitary Engineer or Ms. Toby Roy, District Engineer

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OPERATION AND MAINTENANCE PLAN

The operation and maintenance plan for the water distribution system, the water treatment plant and the sewer collection system at Heber is similar to that already operated by the Utility's personnel. The system improvements use equipment that, while not necessarily identical, is similar in nature and operation to that already in place.

Over the past several years, the water plant was not well maintained. This lack of constant attention gave rise to several items that required repair. An intensified maintenance program was put into place in late 1997 with the hiring of a new general manager. This program originally focused on correcting the most critical items within the plant itself. However, as those items have been addressed, the focus has shifted toward the operation of the facility and the on-going, long-term maintenance of the system components.

Operation and maintenance manuals for each piece of equipment are maintained at the plant site. These manuals contain the specifications and cut sheet drawings for each system component. Additional information includes maintenance schedules for each item and a replacement parts list. The manuals contain a schedule for equipment checkups and routing maintenance that is followed by each operator.

Start-up Operation Plan

Traditionally, both the contractor and the equipment supplier conduct the initial start-up of plant equipment. This helps to ensure that the equipment is installed correctly and that starting the equipment improperly does not void the warranty. This procedure helps protect the Owner (HPUD) from claims by the manufacturer that the equipment was not installed or started up properly.

Detailed information on each piece of equipment chosen for this project will be submitted for review by the project engineer. This is done in the form of shop drawings and determines if the equipment meets the requirements of the specifications. Equipment that does not meet the intent of the specifications is rejected and the contractor is required to submit a suitable unit.

However, some defects in the equipment are not obvious and are thus not caught during the shop drawing review phase of the construction project. These problems will normally become apparent either during start-up or within the warranty period of the equipment. If the equipment fails to operate properly either at start-up or during the warranty period, the manufacturer and the contractor is responsible for removing and replacing the equipment with a satisfactory unit. This work is normally undertaken at no additional cost to the Owner.

If the warranty period has expired for a particular piece of equipment, it is normally the responsibility of the Owner to arrange for its repair and/or replacement, including the costs associated with removing the unit from service.

The construction of the new plant is to be accomplished while the existing plant remains in operation. Prior to the start of construction, the contractor will submit a sequencing plan to the District and the engineer for approval. This plan will account for the continued operation of the current treatment facility and will address any environmental concerns of the construction.

Contingency Plan

The contractor will be required to submit an emergency response and contingency plan upon the issuance of contract award notice. This plan will detail actions to be taken should an emergency arise during the construction or start-up of the plant. This plan will include emergency numbers, contact personnel, and evacuation procedures.

This information will be updated and maintained by HPUD after construction and start-up is completed so that should an emergency occur during normal operation, a response plan is in place and can be implemented quickly. The operations personnel will be trained in emergency response procedures.

Safety Plan

An operational safety program will be developed and implemented for use by all District personnel involved with plant operation or maintenance. This plan will be reviewed periodically for relevance and updated as required for currency. Necessary safety equipment will be obtained and maintained at the plant site for use by the operators.

Quality Assurance Plan

The primary course to ensure that the quality of the project's output meets the predetermined standards is to review the engineering design. This review would focus on the type of treatment system proposed and the determination that the design is based on generally accepted engineering criteria. The responsibility for this determination lies with the design engineer on the project. As the proposed plant is similar to the existing facility that has operated well for over 18 years, it is reasonable to assume that the new facility, which is based on widely applied technology that has been proven over the years, will operate as required as well.

Pollution Prevention Plan

The only materials normally stored at the plant that could be considered a pollutant would be the chlorine gas used in the disinfection process. This gas is stored in 150-lb cylinders in the chlorine room at the plant. Any concentration of gases that could cause a hazard to the plant operator will trigger an alarm condition within the storage room.

Should a leak occur the ventilation fans located within the storage rooms would operate as designed to dispel the concentrated gases. Given the relatively small quantity of gas contained by the cylinders, once the gas is vented to the outside atmosphere, they should disperse with little risk to the surrounding population. In the event of any type of release, the safety plan outlined above will be implemented and the applicable contingency plan will be activated.

SECTION 5 - FINANCIAL FEASIBILITY

The long-term feasibility of the Heber Water Treatment Plant Improvements Project will be ensured by the subsidized construction of additional treatment capacity. This additional capacity will serve both existing and future customers within the service area.

Financial Statements - Historical

Audited financial statements for the past nine years (1990-1998) are submitted in Appendix H. As required, each contains a balance sheet, income statement, statements of the sources and uses of the funds collected as well as the auditor's report.

Financial Statements - Pro Forma

Pro forma financial statements with income projections are submitted in Appendix J - Subsection 1. The statements reflect constant values and includes a source and use statement.

Financial Structure of the Project

Table 5-1 below details the amounts of loan and/or grants as well as their source.

TABLE 5-1

PROJECT FINANCIAL STRUCTURE

Available Funding	Amount ($)	% of Total

Loans		
USDA loan	**1,126,500**	**25.94**
Loans Subtotal	*1,126,500*	*25.94*
Grants		
USDA grant	**1,223,500**	**28.18**
BEIF grant	**1,992,400**	**45.88**
Grant Subtotal	*3,215,900*	*74.06*
TOTAL	$4,342,400	100%

Capital Improvement Plan

Tables 5-2 and 5-3 below illustrate the capital improvements plan, including both initial capital as well as fixed and variable costs.

TABLE 5-2

PROBABLE OPERATION AND MAINTENANCE COSTS

WATER TREATMENT FACILITY

Unit Process or Item	**Estimated Annual Cost**
Treatment & Disinfection Chemicals	*$10,000*
Supplies	*$12,000*
Repairs	*$15,000*
Salaries, Wages and Benefits	*$76,000*
Power	*$35,000*
Laboratory	*$1,300*
TOTAL	*$149,300*

TABLE 5-3

ESTIMATED CAPITAL COSTS

WATER TREATMENT FACILITY, WATER DISTRIBUTION & WASTEWATER COLLECTION SYSTEM IMPROVEMENTS

Proposed Improvement	**Estimated Capital Cost**
Water Treatment Plant	*$2,620,400*
Water Distribution System	*$764,700*
Wastewater Collection System	*$957,300*

TOTAL	*$4,342,400*

Operations and Maintenance Budget – Historical

Copies of the most recent nine-year period (1990-1998) operation and maintenance budgets are presented in Appendix H.

Operations and Maintenance Budget – Pro Forma

The pro forma O & M budgets extending through the term of the loan are found in Appendix J – Subsection 1.

Sensitivity Analysis

Upon receipt of preliminary amounts of loans versus grant monies, various scenarios related to the financing of this project will be developed. These illustrate the impact that changes in interest rates, population projections, inflation, etc. will have on the viability of the project. The most critical variables appear to be the amount of funding from grant sources and secondarily, the prevailing rate of interest used throughout the life of the loan. These scenarios are included in Appendix J – Subsection 3.

Financial Break-Even Analysis

Given the grant and loan amounts from the different funding agencies, the revenue level at which this project will just recover total costs has been calculated. This is included in Appendix J – Subsection 2.

DEMOGRAPHIC AND ECONOMIC INFORMATION OF THE PROPOSED SERVICE AREA

The Community Economic Profile and the 1990 Census data are included in Appendix F. This information is based on the 1990 Heber Census and shows a median household income of $20,306. The township of Heber is included in the Imperial County labor market area, of which the largest industry is agriculture. Based on the October 1998 estimate, the unemployment rate in the county is 30%. Nearby cities of El Centro and Calexico have unemployment figures of 29.1% and 38.7% respectively (data is not seasonally adjusted). As an unincorporated township with a population less than 6,000 at the time of the Census, Heber is not polled individually.

Heber is located within Census Tract 113, which is rural and primarily agricultural. The township of Heber itself covers approximately 800 acres, which is the service area of the existing system. Based on the 1990 Census, Tract 113 had a population of 5,359 persons and the Heber townsite had a population of 2,566. This represents 47.9% of the total population of Tract 113.

Given that the 1990 Census is the most recent available, population projections were based on the Southern California Association of Governments (SCAG) figures, which have been projected for this tract through the year 2020. A similar growth rate was assumed for the Heber Township and it is this basis on which the future population figures are based. The growth rate for Heber between 1980 and 1990 averaged 1.4% annually.

If this same rate is applied to Heber's population through 1998, the current population would be 2,868 persons. If the 1990 Census Tract 113's population of 5,359 persons is used along with the SCAG projected population for the area (7,604 persons), the growth rate between 1990 and 2000 averages 3.56% per year. At a starting population for Heber of 2,566 in 1990, the current population would be 3,426 persons. Table 2-2 (shown previously) details these projections.

FEE/RATE MODEL

Historical Fee/Rate Schedules

Refer to Appendix G, which shows the water rate fee schedule for the HPUD. The old rate applied through April 1998, when the latest rate increase took effect. Comparisons between billing and collection indicate the efficiency of collection averages 94 percent.

Pro-Forma User Fee Structure

Analysis will be completed by the NADB and will include an evaluation of the current rate-based revenues from the HPUD's customers. Using the analysis supplied by NADB, the final rate schedule will be developed.

PROJECT MANAGEMENT

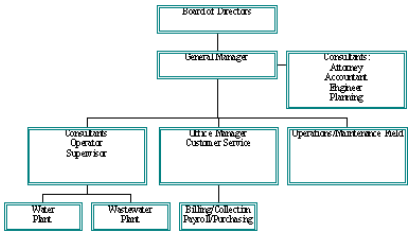
Organizational Structure

The organization chart below (Figure 5-1) for the Heber Public Utility District illustrates the positions of key management and functional department heads, as well as the lines of authority among the positions. These positions include the General Manager, Operations Personnel, Office Manager and Field O&M Personnel.

FIGURE 5-1

HEBER PUBLIC UTILITY DISTRICT

ORGANIZATION CHART



The job functions, responsibilities and lines of communication for each is provided herein. Below is a brief description of the management personnel for the District.

Heber Public Utility District Interim General Manager- Mr. Manuel Castaneda

Line of Communication:

- *Reports to the Board of Directors.*

Responsibilities:

- *Responsible for general management and administration of all aspects of the water and sewer utilities.*
- *Responsible for parks maintenance, street lighting and solid waste services.*
- *Recommends policy additions and modifications for board consideration.*
- *Ensures Board compliance with applicable laws governing utilities.*
- *Interacts with other governing boards and agencies, private developers, bi-national federal and state agencies, and utility customers.*

Experience and Qualifications:

Over 23 years of comprehensive supervisory and management experience with water and sewer utility operations and maintenance.

Qualifications:

- *Grade V Water Treatment Plant Operator License*
- *Grade V Wastewater Treatment Plant Operator License*

HPUD Office Manager – Ms. Rafaela M. Sanchez

Line of Communication:

- *Reports to the General Manager*

Responsibilities:

- *Assists General Manager with preparation of the budget.*
- *Works closely with independent auditor in preparation of annual audit.*
- *Supervises office personnel and office operations.*
- *Performs a variety of administrative and clerical duties.*
- *Attends Board meetings.*
- *Processes daily mail.*

Qualifications:

- *A.S. Degree in Bookkeeping – Imperial Valley College*
- *Excellent public relation skills.*
- *Excellent record keeping ability.*
- *Good typing skills.*
- *Bilingual – Fluent in English and Spanish.*

HPUD Secretary/Bookkeeper – Ms. Raquel R. Carrillo

Line of Communication:

- *Reports to the General Manager and the Office Manager*

Responsibilities:

- *Customer Service*
- *Monthly Utility Billing*
- *Accounts Receivable*
- *Accounts Payable*
- *Payroll*
- *Daily Accounts & Bank Deposit Preparation*
- *Working with old, new and delinquent accounts*
- *Writing work orders*
- *General Secretarial Duties*
- *Attends Board meetings when required.*

Qualifications:

- *Business courses – Accounting, Typing, Computer, Bookkeeping, Records Management Imperial Valley College*
- *Clerical Office Training - Campesions Unidos Clerical Program*
- *Bilingual – Fluent in English and Spanish*

HPUD Wastewater Treatment Plant Operator – Mr. Jesse Nunez

Line of Communication:

- *Reports to the General Manager*

Responsibilities:

- *Operation and maintenance of all components of the water treatment plant*
- *Performs daily laboratory testing to determine condition of the treatment plant.*
- *Perform daily inspection of all units within treatment plant.*
- *Maintain testing laboratory.*

Qualifications:

- *Grade II Water Treatment Plant Operator License*
- *Grade I Wastewater Treatment Plant Operator License*

INSTITUTIONAL CAPACITY AND LEGAL FRAMEWORK

The Heber Public Utility District has the authority to provide services to the community, which include, but are not limited to water and wastewater utilities. Heber's traditional service area includes approximately 800 acres. The HPUD sphere of influence for long-term utility services is defined by the Local Area Formation Commission (LAFCO) sphere of influence for the District.

This area was specified in the resolution submitted to LAFCO, dated April 27, 1998. The District has the authority to provide utility service needs for the projected sphere of influence. As illustrated by the Opinion Letter in Appendix N, the HPUD has the legal authority to enter into agreements of public easements and rights of way, and will obtain the permits to construct, operate and maintain the proposed wastewater plant improvements. A copy of the sphere of influence documentation is included in Appendix I. The improvements proposed for the water treatment plant, the wastewater collection and the water distribution systems are consistent with the Heber Urban Area Plan compiled by the Imperial County Planning Department. A copy of this report is included in Appendix O.

The water treatment plant's capacity requirements are based on existing and projected population contributions within the service area of the HPUD. These projections are based on the Southern California Area Government (SCAG) population projections detailed in Appendix F and include the sphere of influence contribution.

The District is authorized to adopt utility rate adjustments by resolution, thus giving itself the authority to impose rates, fees and charges on persons using the water treatment and distribution system. The HPUD revenue stream is based on fees and charges to their users, rather than a tax-based origin. There are California State constitutional and statutory limitations on expenditures and taxes that could exert an effect on the availability of certain utility revenue sources. On June 6, 1978, an amendment to the California Constitution added Article XIII A. This article affects the valuation of real property for the purpose of taxation.

On November 4, 1986 Proposition 62 was adopted by California voters. This proposition requires that any special tax imposed by a local governmental entity be approved by two-thirds of the voters. Proposition 218 was subsequently adopted by voters in November 5, 1996 and added Article XIII C and D to the California Constitution. These articles impose certain limitations and voter requirements on new or increased taxes, assessments, as well as property related fees and charges.

The District's funding is to be self-supporting from the fees and charges levied against their users. Some of these charges may be ultimately determined to be "property related". If so, the provisions of the articles listed above could adversely affect the financial condition of the District, as their sources of revenues could be reduced and/or eliminated. The final disposition of the articles established by Proposition 218 will be determined in the courts at a later date. Their final disposition and the effect of this determination on the District's finances are not possible to predict at this time.

WATER SYSTEM EXPENSE INFORMATION

A detailed description of the forecast O&M and capital improvement costs for the existing plant are detailed in Appendix J – Subsection 1.

The forecast associated with the additional debt to be incurred by the proposed project is included in Appendix J – Subsection 2.

CURRENT DEBT AND GENERAL INFORMATION

The following information is detailed in the Audited Financial Statements contained within Appendix H.

- *Reports to the Board of Directors.*
- *Audited financial statements for 1990-1998.*
- *Current and next 7-year forecast of outstanding debt for the water and wastewater facilities.*
- *Debt repayment obligations held by the HPUD that are not included in the debt repayment obligations associated with the water and wastewater system.*
- *The interest rates, loan periods, payment schedule and reserve requirements for all existing debt.*

This information is contained in Appendix G.

- *Average water and wastewater rates for each user category.*
- *Number of water and wastewater accounts.*

The HPUD's policy regarding O&M, capital improvements and debt service is not formally established due to a lack of reserve funds in past fiscal years. The availability of O&M, capital improvement and debt service reserves is estimated by the HPUD General Manager to be approximately $150,000 during the current year. As this reserve fund becomes a viable entity, a formal policy will be established.

SECTION 6 – PUBLIC PARTICIPATION

Comprehensive Public Participation Plan. The objectives of the Comprehensive Public Participation Plan (Plan) are to ensure that the community understands and supports the environmental, health, social, and financial benefits and costs of the project, as well as any changes in user fees. The Heber Public Utility District (HPUD) and the local steering committee presented to the BECC on June 19, 1999 a public participation plan. The Plan comprises the following activities: develop a steering committee to lead the implementation of the plan, identify and meet with local groups and organizations, hold two public meetings and develop and final report documenting public support for the project. The activities carried out in fulfillment of this Plan are detailed below.

Steering Committee: The HPUD began its public participation program in early June by inviting representatives and leaders of local organizations to become part of the steering committee. On June 18th a steering committee was formed with Israel Velasquez, Chair; Manuel Alvarez, Vice-Chair; Danny Soto, Business Representative; Tino Ruiz, School Board of Directors representative; Jose Coronado, Filemon Camarena, and Margarito de la Torre, Church representatives; Alberto Padilla, Volunteer Firefighter; and Carmen Borjon and Oscar Beltran as Community representatives. Steering committee members were given a tour of the water treatment plant on in order to acquaint them with the problems of the plant and the need for the project.

The committee worked with the HPUD in developing the Plan and was responsible for ensuring the disseminating of project information and scheduling the public meetings. Committee members met on six occasions: June 18 and 24, July 8, 15, and 22 and August 5, 1999 to follow-up the public information campaign and related activities. Committee members contacted individual community residents to inform them about the project, about the steering committee and public meetings as well as to review the project information. The committee will continue to meet after the certification of the project to keep the community informed of the construction, maintenance and operation phases of the project.

Local Organizations: The project sponsor and Committee members met with representatives of local organizations to ensure public support for the project. These organizations include the Heber Community Club, Heber Soccer Club, Little League Association, Sacred Heart Events Committee, Door Religious Group, Heber Elementary School District Board, Business Leaders Association and Veterans Club. Announcements were made at the Sacred Heart Catholic Church services three times per week regarding the project and upcoming meetings from June 19 to August 1st. Letters of support for the project were received from the Heber Soccer Club, Sacred Heart Church Catholic Mission, Heber Elementary School District Board.

Public Information: The Water Project proposal submitted to the BECC was advertised in the public meeting notice as available for public review at the HPUD offices. Public information was delivered to each household and business by mail and hand delivery. The outreach strategy was discussed from the first steering committee meeting and by June 24th steering committee members began handing out invitations to the upcoming public meeting.

On July 6, invitations were mailed to every customer and by July 8th the entire town was divided into areas and assigned to each steering committee member and personnel of the HPUD. Between July 16th to 20th hand delivery (door to door visits) of invitations to the July 22nd and August 4th public meetings and an invitation to people to review the project proposal were made. At the beginning of August follow-up invitations were sent with the water bill to each connection. A total of 1500 flyers were distributed this way, through the mail and provided to walk-in traffic at the HPUD offices. Two hundred and fifty posters-flyers were posted throughout the community at several locations such as the HPUD offices, Kennedy's Market and the Post Office to encourage participation at the public meetings. Handout information was in English and Spanish. In addition to this information, on July 6th each account (about 750) received by mail an information package which included:

- an introductory letter;

- a schedule of upcoming steering committee and public meeting dates

- and a detailed explanation of problems of the water plant and the need for the project.

An additional 100 packages were distributed to walk-in traffic at the HPUD office. Hours prior to the public meetings on July 22nd and August 5th a vehicle with a loud speaker system made several rounds through the community reminding residents of the public meetings and encouraging the public to attend. The Imperial Valley Press ran an advertisement for 10 days inviting the community to the public meetings and another ad was published in *El Sol del Valle (La Voz de la Comunidad Hispana)* newspaper. These ads ran in both languages.

Public Meetings: Two public meetings took place on July 22nd , with proper 30 days notice in the Imperial Valley Press. The second meeting was held on August 5th .

First public meeting, July 22nd, 1999.

Approximately 80 people attended the meeting. This meeting included a thorough technical presentation by the project consultant. Translation was provided by the Interim General Manager of the HPUD. Members of the steering committee and HPUD Board were present to answer questions. Questions about fees and costs of the project were central to those attending the meeting. They wanted to know how the fees of the wastewater project related to the fees for this project and how much hook-up fees would cost for the new housing section being built. Some residents were concerned about growth and if the project could sustain it. The answer was that these fees were for this water project and had nothing to do with the wastewater project certified last March. Hook-up fees for the new housing section would run about $800 which include water and wastewater, and these were fees negotiated years ago which is why the new rates don't apply. And regarding capacity, the reoly was that the project had the capacity to support growth for the next 20 years. After the question and answer period, the presenters added that much more detailed information on financial impacts could not be provided at the moment but would be presented at the final public meeting scheduled for August 5th .

Second public meeting, August 5th, 1999.

Over 60 people attended the second meeting. The financial analysis of the NADB was presented as well as a presentation by a representative of the Department of Health Services Office of Drinking Water. Steering committee members, consultant Garver Engineers' staff and HPUD Board and staff were also present.

The NADB representative provided financing costs on the water expansion project. It is estimated that 75% of the upgrade costs will be paid from grants and the remaining 25% will be paid back by the ratepayers. The analysis indicates an increase in the base water rate of approximately $1.00 dollar a month per year for the next seven years. The rate study which is expected to be completed in October suggests a base water fee of $20 dollars and charging $0.35 per thousand gallons and up to $0.40 over the next seven years.

The Department of Health representative explained that the existing treatment plant is over 25 years old and had not been properly maintained. To demonstrate this about 25 slides were shown detailing the conditions of the plant's past and present stressing that the plant is nearing the end of its useful life and needs upgrading.

After a lengthy discussion in which the public weighed the pros and cons of the fee increases versus higher fee increases without the proposed NADB and USDA grants and loans the steering committee president Israel Velasquez called for a vote from the public to support the water expansion project. The count showed that 49 of the 60 were supportive of the project. Steering committee president and vice-president, Manuel Alvarez, recommended to the HPUD Board they accept the NADB financial analysis and community support for the project. On August 26th the HPUD Board voted unanimously to accept the Water Expansion Steering Committee recommendations to accept the financial analysis presented by the NADB and the community's support for the Water Treatment Plant, Distribution and Collection System / Upgrade Project.

SECTION 7 - SUSTAINABLE DEVELOPMENT

DEFINITION AND PRINCIPLES

Projects must follow the definition and principles of sustainable development:

Conservation oriented social and economic development that emphasizes the protection and sustainable use of resources, while addressing both current and future needs, and present and future impacts of human actions as defined in the Border XXI environmental program developed by U.S. and Mexican authorities.

Principle 1 of the Sustainable Development Criteria indicates that a project must produce a benefit for human health. The project fulfills this principle as detailed below.

- *The project will provide the residents of Heber with a safe and reliable water treatment facility that will meet the State of California Department of Health Services Standards.*
- *The replacement of distribution lines will reduce the loss potable water and the potential for cross-connection contamination from a leaking/failed line, which represent a health risk to the community.*
- *The replacement of sewer lines will provide residences an upgraded sewer collection system that will not surcharge, avoiding uncontrolled discharges of raw sewage from manholes that pose a serious health hazard, especially if they occur inside nearby residences.*

Principle 2 states that a project must be implemented in a way that provides equitable development both in the present and in the future. The project fulfils this principle as discussed below.

- *The project will not directly promote growth. The water treatment upgrade is necessary to bring the plant into compliance with public health standards. However, the upgrade to the plant is proposed to accommodate projected growth to the year 2010.*
- *Water conservation is enhanced through improved water delivery piping, which will decrease the amount of potable water lost to leakage.*
- *The Heber Public Utility District (UPUD) will change its water rate structure. It will shift some of the cost burden from the low water users to those that consume the most water, and will encourage customers to use only that water necessary for their needs.*

Principle 3 indicates that a project must have an integrated component of environmental protection. The project contemplates the following.

- *The replacement of undersized sewer lines will avoid the overflows and/or wastewater infiltration that lead to the pollution of water bodies.*

In order to fulfill the objectives of sustainability, several alternatives to solve the existing water treatment problems that the City is facing must be developed and analyzed.

The alternatives considered were the following:

- *"No Project" Alternative.*
- *Expanding the existing water treatment plan.*
- *Purchasing finished water from El Centro or Calexico*

- *Installation of a new water treatment facility at the existing plan site.*

"No Project" Alternative

A "no project" alternative results in the community's continuous reliance on inadequate and potentially unhealthy water treatment services. This alternative is not a viable option in the presence of public health issues.

Expanding the existing water treatment plant

This plant has operated well for nearly 20 years and the HPUD personnel assigned to it are familiar with its requirements. However, the filtration technology currently being used by the HPUD is not acceptable to the State DHS. Furthermore, the existing solids contact clarifier is deteriorating and is due for replacement. Therefore, this option is not considered a viable alternative.

Purchasing finished water from El Centro or Calexico

This alternative would eliminate the need to replace the water treatment plant. An 18" supply pipeline would be constructed 4 and 3.5 miles in length for El Centro and Calexico respectively. The off-site pipeline could be installed within the existing pavement and public rights of way. No impact to biological or cultural resources would occur. Temporary noise and dust associated with the construction is expected to occur.

However, no long-term effects from the pipeline construction are expected. This alternative will have a significantly higher present worth cost that the recommended alternative, and thus was not selected (see Table 6-1 below).

Installation of a new water treatment facility at the existing plan site.

This alternative considers the construction of a new water treatment facility on the existing plan site, using technology that is similar to that already in use and that is acceptable to the State Health Department.

The "No Project" alternative and the "Expanding the existing water treatment plant" alternative, are eliminated for further analysis because are not considered viable solutions for technical reasons. The estimated costs of the remaining alternatives are compared as detailed below.

Each cost comparison assumed the following:

- *The cost of potable water purchased from El Centro ($1.20/1000 gallons) and from Calexico ($1.48/1000 gallons) would not rise over the life of the project. These rates correspond to those that large water users are currently charged by the respective municipalities (See Appendices K and L).*
- *The costs associated with producing water by the HPUD ($0.76/1000 gallons) would not rise over the life of the project.*
- *The costs were calculated using a flow rate of 2.0 million gallons per day for all three alternatives.*
- *An interest rate of five (5) percent was assumed.*
- *A design life of 20 years was assumed.*

These costs were compared on a present worth basis as shown in table 6-1.

TABLE 6-1

COMPARATIVE ANALYSIS

ALTERNATIVE	*PRESENT WORTH*
Purchasing finished water from El Centro	*$12,909,600*
Purchasing finished water from Calexico	*$15,235,200*
Producing Water at proposed HPUD water treatment plant	*$ 9,605,800*

The construction of a new treatment plant, as shown above, is the most cost effective alternative and eliminates the problems that must be addressed, as indicated by the regulatory agencies. Furthermore, the alternatives of purchasing water from El Centro or Calexico may require two or more years to obtain an agreement with either of the cities and to complete the associated construction.

The long-term needs of the Heber community have been identified and established by the recent Master Plan development undertaken by the HPUD (See Appendix C). This plan is based on the long-term population growth expectations for the area and the demands placed on the water treatment, water distribution and wastewater collection systems within the service area and, to a lesser extent, the overall sphere of influence. The community growth projected by the planning authorities anticipates increased growth on the California side of the border and the rapidly expanding population of Mexicali, in the Baja, California region.

The project will improve the quality of life in the community by ensuring the water produced by the treatment plant is properly treated prior to its release to the community. Another consideration involving the quality of community life affected by this plant is the reduction of sewer overflows in the collection system near the facility. These overflows create a health hazard, especially if they occur inside the nearby residences.

Water conservation is enhanced through improved water delivery piping, which will decrease the amount of potable water lost to leakage. Another conservation impetus may be a change in the water rate structure within the HPUD. Currently, a residential customer pays the same water bill whether he uses 4,000 gallons or 20,000 gallons per month. A shift toward a billing structure that establishes a minimum charge for 4,000 gallons and then a prorated charge for each 1,000 gallons above that level would accomplish two goals simultaneously. It would shift some of the cost burden from the low water users to those that consume the most water while also encouraging customers to use only that water necessary for their needs.

Underlying these considerations is the requirement by the regulatory agencies overseeing this Utility that HPUD comply with the water quality parameters detailed in their discharge permit. Continued violations of this permit will likely result in the levying of fines, the issuance of additional consent administrative orders and a mandated schedule for compliance that may not coincide with either the availability of funding to HPUD or a realistic construction schedule of mandated plant improvements.

Given the opportunity, it is much more advantageous to the community to develop this project on the current schedule than to ignore the current condition of the treatment plant or of the water distribution and wastewater collection systems. Allowing the status quo to continue as it has will likely force the regulatory agencies into the position of initiating an enforcement action against Heber.

The township of Heber has conducted the required town meetings aimed at explaining the requirements of this improvements project and its effect on the community. The community's needs, its projected growth, and the costs, impacts and benefits of the project were detailed at these meetings.

The Local Agency Formation Commission (LAFCO) has defined the Township's sphere of influence and the Southern California Area Government's (SCAG) population projections, along with information from the Master Plan, were all used for projecting water production for the service area. Therefore, the requirement that the District coordinate their efforts with the appropriate institutions in order to achieve a balanced planning effort and to utilize the available resources wisely has been addressed.

Institutional and Human Capacity Building

The improved water treatment plant, water distribution and wastewater collection systems will be operated, maintained and expanded as required to serve the community of Heber. Heber Public Utility District personnel have operated and maintained these systems within the community for several years. The staff of the Utility is both qualified and experienced in the operation and management of this system and is well equipped to implement the improvements project being presented by the HPUD.

Current operations and maintenance staff are deemed sufficient to adequately handle the requirements of the proposed treatment system. However, as the new plant is brought on line, the water treatment plant operator will likely be required to devote his entire attention to the plant's operation. This is in contrast to the current work assignments for the treatment plant operators, as they are occasionally called upon to assist collection system personnel with point repairs and installations.

Therefore, the long term staffing needs may be filled by the advancement of qualified existing personnel within the Utility or by the hiring of personnel experienced in treatment plant operation from outside sources. Potential employee pools lie to the west in San Diego, California, to the east at Yuma, Arizona and immediately adjacent to Heber in El Centro, California.

The advancement of administration and operations personnel is supported by local training programs, such as those offered by the Imperial Valley Community College in Imperial, California. The institutional and human capacity building within this parameter is centered around the staff training programs conducted by the Heber Public Utility District, workshops conducted by the State Department of Health Services and the California/Arizona/Nevada American Water Works Association's annual short school training sessions. These training options are offered to each of the operation and maintenance staff and their utilization is encouraged by the Heber administration.

Additional capacity of the infrastructure will allow Heber the flexibility of continued system expansion without the constraint of an overloaded, deteriorating treatment facility. This translates into the ability to serve an increased client base, which in turn generates greater revenues for the Utility and the community through user charges and an increased tax base.

The funding requirements associated with the construction of the proposed wastewater treatment plant improvements project affords HPUD the opportunity to investigate and possibly reconfigure their rate structure to allow for a more equitable distribution of charges to their users. It is possible that rather than the flat user charge now levied, a tiered rate structure that allocates the charges based on usage can be implemented. This approach to the rate structure is the logical first step towards implementing programs

aimed at encouraging water conservation throughout the District. The use of a tiered billing system will encourage users to use only the water that they really need.

The existing rate structure, which involves a flat rate for the first 20,000 gallons of water, regardless of actual use, encourages the end user to use water in excess of that required. A tiered rate structure could be set up with a minimum charge to each customer with a an additional set charge per 1,000 gallons of water purchased.

This would help to bring a more equitable distribution of water charges among the District's customers, as those who use the most water would pay the most. Those that conserve water will see the results of that effort on their monthly water bill.

Conformance with Applicable Local and Regional Conservation and Development Plans

The Heber Public Utility District has attempted to conform to all local and regional guidelines as well as state and federal regulations associated with the treatment of the raw water delivered to the plant.

Contact person for the State Department of Health Services:

Mr. Roger Berger, Sanitary Engineer or Ms. Toby Roy, District Engineer

Department of Health Services

Drinking Water Field Operations Branch

1350 Front Street, Room 2050

San Diego, CA 92101

Phone: (619) 525-4159

Facsimile: (619) 525-4383

As the final project design and construction has not yet been completed, it is not possible at this time to determine its conformance with the treatment requirements. Proof of conformance, in the form of a project performance report, will be submitted within one year of facility start-up.

The expansion of this plant will take place on a site already owned by the District and will not require the acquisition of additional property. The land is currently used as a treatment site and thus will not require any changes in the zoning laws to accommodate the expansion.

The water treatment plan expansion and improvements to the wastewater collection and water distribution systems are part of the Heber Water/Waster Master Plan, which complies with the Heber Urban Area Plan.

The Heber Urban Area Plan serves as the primary policy statement by the Board of Supervisors for implementing development policies and land uses in the Heber area.

The Heber Urban Plan Area includes considers several Goals and Objectives. The Water/Wastewater Master Plan complies with the following goals and objectives:

Community Vision

Goal 6: Achieve balanced economic and residential growth while preserving the Community's character and natural resources.

Objective 6.1 Maintain and improve the quality of life, the protection of property and the public health, safety, and welfare of the Heber Urban Area.

Objective 6.2 Ensure that future growth and development is orderly and safe.

Objective 6.4 Coordinate planning activities with the Imperial Irrigation District, Heber Public Utility District, Caltrans and other County Departments.

Objective 6.6 Ensure that there is adequate sewer and water capacity to meet the needs of future growth.

The Heber Urban Area plan shall be consistent with the Imperial County General Plan.

Natural Resource Conservation

Currently the water treatment plant is nearing its rated capacity and has several components in need of rehabilitation. While not in violation of its permit, the DHS is requiring the District to implement improvements to the treatment and filtration systems within the existing plant.

According to the Heber Water/Sewage Master Plan, the average gallons per capita per day (gpcd) consumed by the population is in excess of 200 gallons, which is twice what other similar, small communities in the area experience. As an example, the Seeley County Water District averages 85 gpcd.

The existing rate structure, which involves a flat rate for the first 20,000 gallons of water, regardless of actual use, encourages the end user to consume water in excess of that required. A tiered rate structure could be set up with a minimum charge established. The water used then would be sold in increments of 1,000 gallons. All users would pay a set rate per 1,000 gallons, thus they pay only for the water they use. This would help to bring a more equitable distribution of water charges among the District's customers, as those who use the most water would pay the most. Those that conserve water will see the results of that effort on their monthly water bill.

The changes contemplated in the rate structure and the replacement of aging water distribution lines will optimize the usage of the water within the District, reducing the average gallons per capita and the loss of water due to leakage.

Community Development

The project will improve the quality of life in the community by ensuring the water produced by the treatment plant is properly treated prior to its release to the community. Another consideration involving the quality of community life affected is the reduction of sewer overflows in the collection system and the incidence of cross-connection contamination from leaking /failed line. Additionally, the new rate structure allows a more equitable distribution of water charges among the users.

Imperial County, in which the township of Heber is located, has historically experienced high levels of unemployment, with the October 1998 report showing a rate of 30 percent unemployed. This is due in part to the seasonal nature of the agricultural economy that dominates the Imperial Valley. While difficult to define, increases in the capacity of the infrastructure within a community is the first step towards attaining real growth within the community itself.

As a community grows, the tax base and revenues generated by this growth increases the services made available to the citizens. This increase in services tends to attract new businesses, which further increases the revenue stream within the community through payrolls, taxes and additional housing requirements. The long-range socioeconomic development of a community is extremely dependent on the infrastructure available within the community and its condition. Therefore, expansion of the water treatment plant is the first step towards this infrastructure development.

Yet another positive impact of the plant construction is the protection of the community health from improperly treated water. Negative social impacts of the plant expansion are limited primarily to the possible changes in the charges for water treatment that are levied on the system users.

END OF REPORT

Certification by Heber Public Utility District

I hereby certify that all information provided in this application is current and correct to the best of my knowledge.

Signature _____

Title _____

Date _____