Imperial County Public Health Department
Division of Environmental Health

Onsite Wastewater Treatment Systems

Local Agency Management Program/ Advanced Protection Management Program

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Acronym List

ANSI	American National Standards Institute
BOD	Biochemical Oxygen Demand
BOS	Board of Supervisors
DARs	Daily Activity Reports
EDT	Electronic Data Transfer
FOG	Fats Oils and Greases
IAPMO	International Association of Plumbing and Mechanical Officials
IID	Imperial Irrigation District
LAMP	Local Agency Management Program
LOSS	Large On-Site Sewage Systems
MPI	Minutes Per Inch
MPN	Most Probable Number
NSF	NSF International
OWTS	On-Site Wastewater Treatment System
RV	Recreational Vehicle
RWQCB	Regional Water Quality Control Board
SWRCB	State Water Resources Control Board
TDS	Total Dissolved Solids
TMDL	Total Maximum Daily Load
TSS	Total Suspended Solids
USEPA	U.S. Environmental Protection Agency
WDR	Waste Discharge Requirements

Executive Summary

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This Local Agency Management Program (LAMP) has been designed as a customized management program for On-Site Wastewater Treatment Systems (OWTS) in the County of Imperial. With the chaptering of Assembly Bill 885 (Jackson) in 1999 and the subsequent adoption of a water quality control policy by the State Water Resources Control Board in June of 2012, the County is authorized to develop local standards for OWTS that address conditions specific to its geographic area that are as equally protective of water quality as the State minimum standards.

The County has evaluated its existing regulatory oversight of OWTS discharges and has determined that potential impacts to water quality or to the health and safety of its residents are minimal given current policies. However, the County recognizes the long-term need for a comprehensive OWTS management program, and has sought to codify the new statewide standards into a Local Agency Management Program that can be effectively implemented within Imperial County given its diversity of geology, population, community areas, and future land use planning considerations.

At the direction of the Imperial County Board of Supervisors, the following actions have been taken to adopt a Local Agency Management Program, with an effective date to be thirty (30) days from the grant of approval by the Colorado River Basin Regional Water Quality Control Board:

- *Adoption of Resolution No. 2016-048 authorizing the submittal of this Local Agency Management Program to the State for approval within 36 months of May 13, 2013, and to authorize the Director of Public Health, or his/her designee to implement the approved LAMP program activities; and*

- *Adoption of Imperial County Ordinance No. 1516 to codify the standards and policies described in this Local Agency Management Program, including an Advanced Protection Management Program for impaired water bodies.*

Section I Introduction

The Imperial County Public Health Department, Division of Environmental Health (Division), is the local administering agency for permitting, inspections, and enforcement of on-site wastewater treatment systems within the County of Imperial. As established by Imperial County Ordinance, Title 9, Division 10, Chapter 14, (Section 91014.00 et seq.), the County Health Officer has been granted authority to enforce all provisions of this division and to adopt, promulgate, repeal, and amend uniform and reasonable rules, regulations, and requirements consistent with the laws of the State of California. The Division of Environmental Health is the authorized agent of the Health Officer to implement the regulations of County Ordinance to ensure all discharges from private sewage disposal systems adequately protect water quality and public health.

While the State's regulatory authority extends to individual Onsite Wastewater Treatment Systems under Section 13260 of the California Water Code, the State Water Resources Control Board (SWRCB) and the regional boards have recognized the advantages and efficiencies of regulation of small dischargers by authorized and qualified local agencies. Historically, the Colorado River Basin Regional Water Quality Control Board (RWQCB) authorized the County of Imperial Public Health Department to issue septic system permits provided the regulation of these discharges was consistent with the "basin plan," which was developed to outline water quality objectives within the Colorado River Basin as well as policies and programs to achieve those objectives. A conditional waiver was extended to private sewage discharges provided that an "authorized public agency" assured that these were appropriately designed, constructed, and maintained consistent with the *Guidelines for Sewage Disposal from Land Developments*, published in 1979.

In June 2012, the SWRCB adopted the *Water Quality Control Policy for Siting, Design, Operations, and Maintenance for Onsite Wastewater Treatment Systems* (herein referred to as the State Policy or Policy), which became effective on May 13, 2013 (see Appendix A). This was the first statewide policy in California for the regulation and management of OWTS. In response to the adoption of this State Policy, Section II of the LAMP provides a description of the scope and applicability of local authority and responsibility granted to the Division for regulatory oversight of OWTS discharges within Imperial County.

While the Policy seeks to adopt uniform, minimum statewide standards for low risk OWTS, it also incorporates a risk-based tiered approach for the implementation of the Policy to allow local agencies to develop customized management programs that address the hydrogeologic conditions specific to the particular jurisdiction. Section III of this LAMP identifies where different and/or additional requirements are required to protect water quality consistent with Section 9.1 of the State Policy, giving particular consideration to the degree of vulnerability to pollution from OWTS discharges based on underlying soils and geology, as well as surface and groundwater hydrology within the region.

The County of Imperial acknowledges that Tier 1 prescriptive standards afford an essential level of public health and water quality protection. Accordingly, Imperial County Ordinance No. 1516 for On-Site Wastewater Treatment Systems (see Appendix B) maintains a number of existing provisions consistent with Tier 1 standards of the State Policy. These are outlined in more detail within Section IV of the LAMP. However, in recognition of the purpose and scope of the State Policy to protect water quality objectives consistent with local needs, the County of Imperial is also proposing alternative OWTS standards as authorized under the Tier 2 risk-based provisions of the Policy. These have been described in further depth in Section V of this LAMP, and as codified into County Ordinance.

Furthermore, the County of Imperial recognizes the need to implement an Advanced Protection Management Program for those discharges located near an impaired water body, until such time as the RWQCB adopts a Total Maximum Daily Load (TMDL) implementation plan to address the impairment based on watershed-specific circumstances, and assigns load allocations to OWTS. The provisions for OWTS discharges adjacent to the Alamo River and the Palo Verde Lagoon and Outfall Drain have been described in Section VI beginning on page 31.

The utilization of OWTS must also be consistent and take into full consideration local land use development plans within the unincorporated county to ensure that government services and public sewerage infrastructure are afforded to residents of the county in the most efficient service arrangements available. Therefore, development standards incorporated into the LAMP to address environmental protection and sewer infrastructure planning are included in Sections VII (Sewer District Formation), Section VIII (Land Use Planning), and Section IX (Septage Management).

These sections taken together provide the foundational basis for an Onsite Wastewater Management Plan that serves to inform long-term County land use planning to the benefit of area residents.

Finally, the key components for effective LAMP implementation by the Division of Environmental Health are described in Section X (Education and Training), Section XI (Enforcement), and Section XII (Program Administration).

The Imperial County Division of Environmental Health is hereby providing notification of its Local Agency Management Program prepared pursuant to the State Policy, and respectfully requests that the Colorado River RWQCB consent to the following elements of its local program as established herein. Please note that in the interest of public health and safety, and pursuant to Section 4.3 of the Policy, the County will continue to regulate the discharge of domestic wastes from existing or new individual OWTSs (not to exceed 5,000 gallons per day) under its current local authority until such time as the Local Agency Management Program is formally recognized by the RWQCB.

Section II Scope and Applicability

Septic System Survey

According to the most recently available census data (2010), the County of Imperial contains an estimated 56,067 housing units with a population of 174,528; however, nearly 85 percent of these units are currently connected to city sewer services. Public sewer services are available within the 7 incorporated cities of Brawley, Calexico, Calipatria, El Centro, Holtville, Imperial and Westmorland, as well as within the community service district areas of Salton City, Winterhaven, Desert Shores, Bombay Beach, Heber, Seeley, and Niland. Private septic system utilization, then, is predominately concentrated in the outlying community areas of Ocotillo/No Mirage, Palo Verde, Salton Sea Beach, Vista del Mar, Bard, Walter's Camp/Riverfront, and the rural agricultural areas surrounding the incorporated cities within the central Imperial Valley. It is estimated that 6,608 occupied housing units are serviced by OWTS in Imperial County. And based on most recent permitting data from 2012 to 2014, approximately 50 new or replacement OWTS are constructed each year. However, it may be anticipated that the historical average of 75-100 new systems per year since the early 1990s may be more indicative for future growth trends.

In 2000, Imperial County initiated an electronic database using Microsoft Access to track OWTS permitting and installation records. This tracking process was further expanded in 2009, when the Department undertook a project to locate, characterize, and electronically document septic system records back to the late 1960s. The database was then used as a basis for a Geographic Information System (GIS) project to map the properties in the unincorporated area of the County as an overlay on real property records for Imperial County. All detailed OWTS site and permit design information is maintained in hard files organized by city and site address for ease of identification and location at the request of property owners. Prior to 1970, permit files are incomplete and limited information beyond the owner's name is available to identify the location of the septic system. Approximately 5,175 OWTS permit records (including system repairs and abandonments) are on file since 1970, with an additional estimate of 2,030 records from 1960-69 that have not been incorporated into the County GIS system records. GIS mapping information indicates that septic system concentrations are consistent with general demographic data and population patterns for the county. Geographical areas with the heaviest concentrations of septic systems have been identified within this LAMP, with management standards adopted to specifically address any local areas from a

public health and water quality perspective that may potentially be impacted due to OWTS discharges.

Local Administering Agency

The California Water Code, Section 13282, allows an authorized public agency (this Division), to permit discharges from individual disposal systems that are adequately designed, located, sized, spaced, constructed, and maintained to protect water quality and prevent pollution. Pursuant to Section 3.1 of the Policy, the Division intends to continue its existing OWTS permitting program, and will make necessary adjustments as described herein to substantially comply with this Policy. The Division will implement the Policy using its local authority to enforce the statewide minimum standards, as authorized by Section 3.6 of the Policy.

If affirmed by the RWQCB, the Imperial County Division of Environmental Health, as the local administering agency, will continue to regulate the discharge of domestic wastes from existing or new individual OWTSs consistent with the alternative Tier 2 standards adopted pursuant to the this Local Agency Management Program, and as authorized by the State Policy.

Section III Water Quality

The County of Imperial is identified within the Imperial Valley, Salton Sea, and East Colorado River Basin planning areas of the Colorado River Basin Region. It is the driest climatic region in California, characterized by mild winters and extremely hot summers with an average annual temperature of 73 degrees and a mean daily high of 108 degrees in July. The typical mean seasonal precipitation within the desert valleys is less than three inches per year, but its distribution and intensity are often sporadic. Localized thunderstorms may contribute to all of the average seasonal precipitation in one storm event, or conversely only a trace of precipitation may be recorded at any locale for the entire season. Little of the rainwater percolates into the groundwater, and almost all is lost to evaporation and evapotranspiration. The major hydrologic feature of the region is the Colorado River, which is the predominant water supply to the region via the All American Canal. It is utilized for irrigation, industrial and domestic water supply purposes. With the exception of the Coyote Wells Aquifer and the Lower Colorado River Basin Aquifer, which are utilized as sources for drinking water, the existing groundwater within the agricultural portions of the Imperial Valley have been identified as having limited beneficial uses based on high total dissolved solids and impacted groundwater quality from agricultural irrigation and its associated seepage. However, due to increasing demand for scarce water resources in southern California, continued interest in shallow groundwater reclamation in these areas has also been identified.

These unique climatic, groundwater, and surface water hydrology features contribute heavily to the regions unique infrastructure planning and development. Therefore, the Local Agency Management Program must appropriately consider different and/or additional requirements that may be necessary to protect water quality within vulnerable areas.

Surface Water Hydrology

Regional agricultural drainage waters from irrigation, surface runoff, and lesser amounts of treated municipal and industrial waste waters within the Colorado West Basin drain through approximately 1,456 miles of drainage ditches toward the Salton Sea, located at the northerly boundary of the Imperial Valley via the Alamo and New Rivers. (The flow in the New River also contains agricultural drainage, treated and untreated sewage, and industrial waste discharges from

Mexicali, Mexico.) As the Alamo River is listed as an impaired water body for bacterial pathogens (in addition to other pesticides and sedimentation/siltation from agricultural return flow) further discussion on the potential OWTS contribution to this impairment is provided on page 16 of this LAMP.

Surface water utilized to supply irrigation, industrial, and domestic water supply purposes within the Imperial Valley Planning Area is delivered through an extensive canal system operated by the Imperial Irrigation District. Colorado River water is distributed to the East Highline, West Main and Central Main canals via the All-American Canal. These and other main canals bound the Salton trough area and serve as the primary drinking water supply source for all seven incorporated Cities, three unincorporated town sites, two State prisons, and a federal naval facility (NAF-El Centro) located within the Imperial Valley. The Imperial Irrigation District canals also provide the water supply to an additional thirty-one (31) small public water systems, which include four (4) elementary schools and a community college (Imperial Valley College).

For delivery to agricultural crops, the IID serves irrigation water through approximately 5,600 delivery gates over 1,438 miles of lateral canals and lined/unlined delivery channels. Although water cisterns at rural homes and businesses also receive canal water for domestic purposes from irrigation supply laterals, the IID requires an alternate source of water for drinking and cooking purposes. A point of entry (or private) water treatment system is required by the County to meet potable water standards to all plumbing fixtures within these homes consistent with the California Plumbing Code. It should also be noted that a similar (but over a much smaller acreage) distribution of irrigation water from the Colorado River through supply canals is also managed by the Palo Verde Irrigation District in the northeast corner of the county, and by the Bard Water District in the southeast corner of the county along the lower stretch of the Colorado River.

The source raw water from the Colorado River that serves the primary water supply canal system in the Imperial Valley is tested annually by the Imperial Irrigation District for compliance with the Safe Drinking Water Act. These and other tests conducted by local public water systems indicate that the canal water does contain high fecal coliform bacteria levels, making it unsuitable for drinking without filtration and disinfection. Further localized impacts from OWTS near public or private water system intakes does remain a concern as this surface water is also vulnerable to sewage

contamination. Therefore, specific setbacks to water supply and irrigation canals have been established in Table I of Imperial County Ordinance No. 1516 included in Appendix B.

Ground Water Hydrology

Within Imperial County, the regional groundwater hydrology that characterizes the largest portion of the populated area is described by the Imperial Valley Groundwater Basin. This basin is generally bounded on the east side by the Sand Hills and on the west by the impermeable rocks of the Fish Creek and Coyote Mountains. The northern basin is bounded by the Salton Sea, which is the discharge point for groundwater flowing northward within the basin. The Imperial Valley Groundwater Basin lies within shallow fine-grained lake sediments and is generally recharged by irrigation return, underflow into the basin, and seepage from unlined canals. Due to tile-drain systems located throughout the Imperial Valley to dewater sediments to a depth below the root zone of crops and to prevent the accumulation of salts near the ground surface, the groundwater is consistently maintained at a depth of approximately 8 to 12 feet below the ground surface, with some localized mounding within clayey soils at shallower depths near the border of Baja California, the Mesquite Lake Area, and at along the northern portion of the Imperial Valley near the Salton Sea, west and north of Niland. Groundwater depths over this larger basin may fluctuate slightly from year to year, but this not typically associated with seasonal precipitation due to its minimal contribution to groundwater recharge. County standards for siting new and replacement OWTS require consideration of localized fluctuations or mounding that may occur due to nearby flood irrigation activities.

As the groundwater within the Imperial Valley Groundwater Basin is of a higher salinity, with total dissolved solids typically ranging between 500 to 3,000 milligram/liter, it is considered unusable for domestic or irrigation purposes without further treatment. However, groundwater storage capacity within the upper unconfined basin is estimated to be considerable; and potential future beneficial uses have been identified. To prevent further degradation of the groundwater quality within the Imperial Valley Groundwater Basin, a minimum separation to saturated soils of five (5) feet will be maintained below the bottom of leaching trenches, and deep gravel pits that have historically been utilized at the distal end of leaching trenches are no longer permissible. This LAMP does recognize that equivalent treatment may be provided in shallower soils with the use of pressure distribution, and alternatives to the minimum separation of five (5) feet are discussed further in Section V.

There are two additional groundwater basin areas within Imperial County that are designated as having beneficial consumptive uses, and have been designated by the county in this Local Agency Management Program as groundwater areas of special concern, the Coyote Wells and Lower Colorado River Basin Aquifers. The minimum OWTS standards for the county, therefore, give consideration to the potential impacts that OWTS may have on groundwater quality in these designated areas, consistent with the policy goals of the Water Element in the Imperial County General Plan and the RWQCB's Colorado River Basin Plan.

The Ocotillo-Clark Valley Groundwater Basin located along the northwestern boundary of the county, south of Highway 78 and west of San Felipe and Fish Creek springs, is not discussed here in detail as limited development has occurred or is expected to occur in this area over the next five year planning period. Local groundwater use in this area is limited to the existing Blu-In Café and RV Park and the proposed Seville Solar Project area sited on the Allegretti farms property.

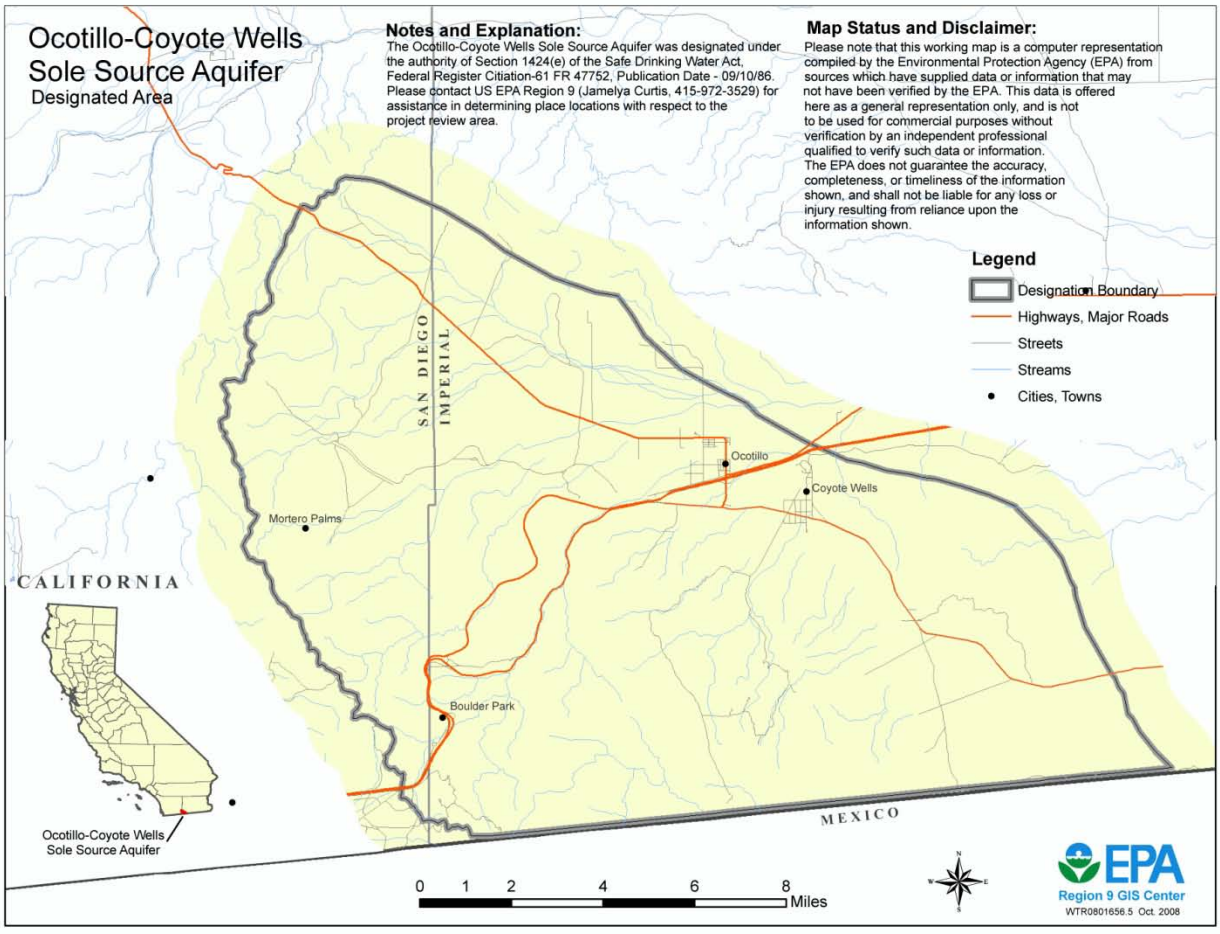
Coyote Wells Groundwater Basin

The Coyote Wells Hydrologic Subunit is located within the federally designated Ocotillo-Coyote Wells Sole Source Aquifer at the southwest corner of Imperial County near the unincorporated townsite of Ocotillo (see Figure 1). As designated in the federal register, this aquifer is the sole or principal source of drinking water for Ocotillo, Nomirage, Yuha Estates, Painted Gorge, and Coyote Wells. The unconsolidated sediments reach up to 650 feet thick, with water-bearing zones most productive between 100 and 300 feet below ground surface. Primary recharge to the basin occurs through percolation of precipitation and ephemeral runoff from the surrounding mountains. However, the aquifer has been described to be in a state of overdraft, characterized by declining groundwater levels since the 1970s. Static groundwater levels are generally found at approximately 90 to 150 below the ground surface in the town site area of Ocotillo, but can be as shallow as 15-25 feet in some localized areas. Groundwater quality varies over the basin associated with the hydraulic gradients and thickness of the alluvium deposits through the area. Higher water quality with lower total dissolved solids is typically found near or around Ocotillo, with higher TDS and mineral constituents (particularly elevated fluoride) to the south and east of this community. As the soils in this alluvial area consist of highly permeable sands and gravelly sands, the potential degradation from OWTS discharges are of concern in this area. Pressure distribution in the dispersal bed will be

required unless twenty (20) feet of separation to groundwater can be maintained consistent with the Policy for these soil types.

It should be noted that nitrate levels in the town site of Ocotillo have been historically low due to the low density of residences in this community (ranging from 7 to 13 mg/L Nitrate as NO_3). Therefore, supplemental treatment for nitrates has not been proposed for new or replacement OWTS; but continued monitoring of water quality data from the community water wells of Coyote Mutual and Ocotillo Mutual will be included as part of the local Groundwater Ambient Monitoring and Assessment Program as described in Section VI to evaluate the effectiveness of the water quality protection afforded by this alternative management program.

Figure 1.



Source: USEPA, Region 9, Sole Source Aquifer Program. http://epa.gov/region9/water/groundwater/ssa.html.

Lower Colorado Aquifer Basin

The Lower Colorado Aquifer Basin extends outward along the Colorado River flood plain along the lower reaches of the river bounding Imperial County in California and Yuma and La Paz Counties in Arizona. The groundwater within the lower Colorado basin is apportioned for consumptive use as part of the Colorado River Compact of 1992. However, the groundwater quality does vary considerably with distance from the flood plain basin recharge areas and between the upstream and downstream portions of the river within Imperial County. The groundwater within the Palo Verde and Cibola Valleys is generally high in total dissolved solids and inorganic constituents (i.e. Iron, Manganese, and Fluoride). Limited groundwater wells are used for direct consumptive use in this agricultural valley as residential development is predominately within the community of Palo Verde, which is serviced by community water wells adjacent to the Colorado River located approximately 1.5 miles south of the town site. Groundwater quality is likely also impacted in this area due to agricultural returns in drains, as well as seepage from the Palo Verde Lagoon and Outfall Drain, which is listed as an impaired surface water body.

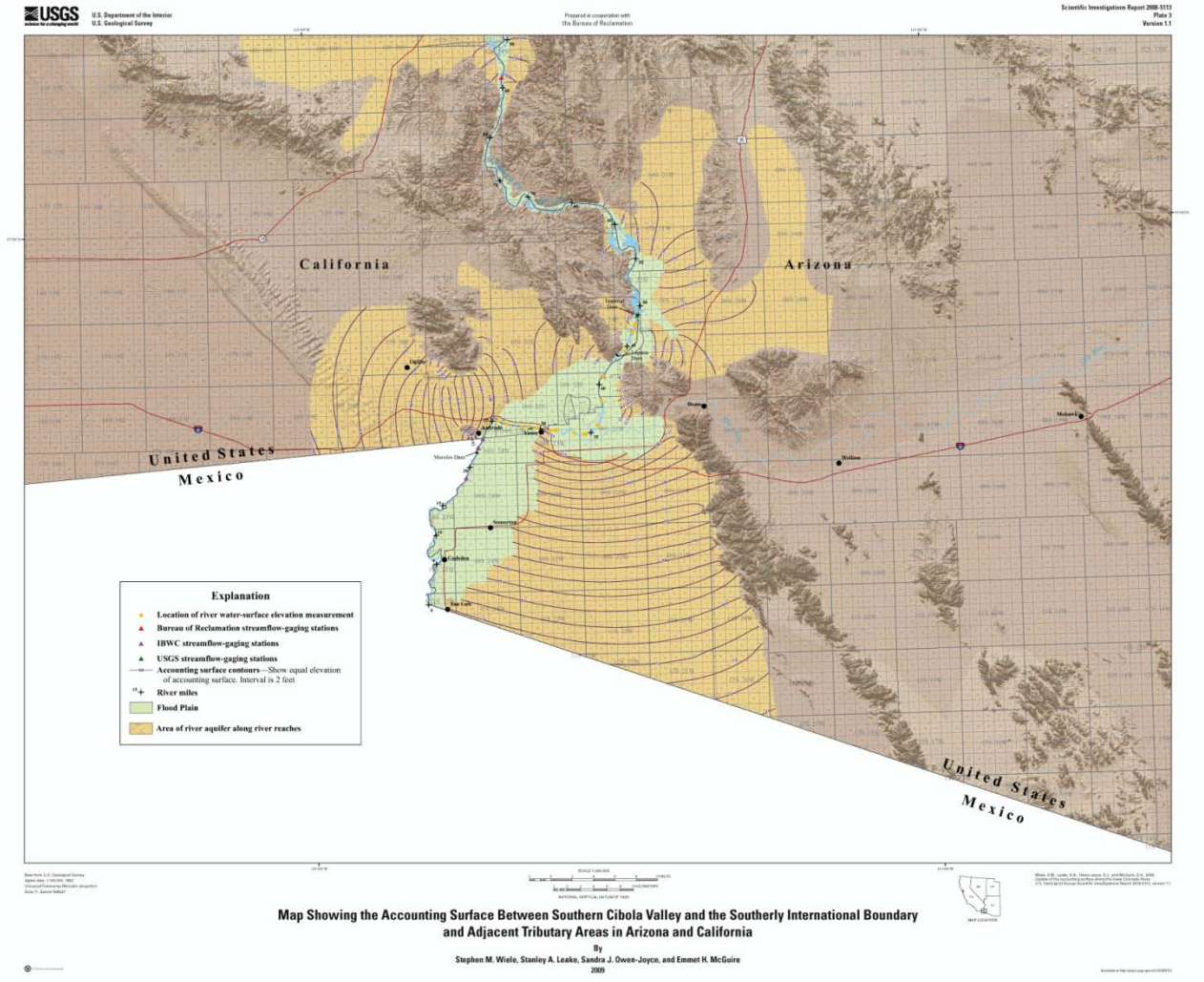
Further south along the Palo Verde Outfall Drain near its return discharge to the Colorado River in the Walter's Camp area are several seasonal mobile home and RV parks (i.e. Walter's Camp and Mitchell's Camp), private seasonal homes along Old River Road, and the recent Riverfront subdivision that rely on public groundwater wells adjacent to the river. It is likely that the minimal density of OWTS on existing parcels will not impact groundwater resources in this area provided minimum vertical and horizontal setbacks are maintained. Direct groundwater recharge from the nearby river is anticipated. A two hundred (200) foot setback for any new or replacement OWTS has been established to the Colorado River in county ordinance.

The Lower Colorado Aquifer Basin downstream of the Imperial Dam, and stretching westward across the Bard Valley, Winterhaven, Felicity, and to the Gordon's Wells area (see Figure 2) has direct consumptive importance for the region's development. As such, this aquifer area has been designated as an area of special groundwater concern since it is primary source of drinking water, and it will be included within the local Groundwater Ambient Monitoring and Assessment Program. Groundwater, particularly within the Bard and Winterhaven area, is shallow within unconsolidated sandy loam or sandy soils, and may be impacted by OWTS discharges from private residential developments. Due to the small parcel size of many pre-existing lots developed with 50 foot setbacks between OWTS and

shallow domestic water wells (including sand point wells), many of these lots would be unable to install a conforming OWTS upon failure of their existing systems. Pressure distribution will be required if a waiver is necessary for a reduced setback on an existing lot. Furthermore, disinfection and periodic sampling of the on-site well for nitrates and bacteria will be established as an ongoing mitigation measure to ensure private groundwater wells are not being impacted by OWTS installations.

In other areas of this basin to the west, the parcel sizes are substantially larger based on the underlying zoning of open space (S-2) and no additional requirements will be required for new or replacement OWTS in these sandy soils provided a minimum twenty (20) foot setback to groundwater is maintained below the dispersal system, and adequate horizontal setbacks to domestic or public water wells can be maintained.

Figure 2.



Source: USGS, Scientific Investigation Report. 2008. http://pubs.usgs.gov/sir/2008/5113/

Geology and Soils

The predominant geology that characterizes the region is the Salton Trough, a large structural depression in the Colorado Desert resulting from tectonic boundary adjustments between the Pacific and North American plates. The Salton Trough is presently occupied by the Salton Sea and the Imperial Valley, bounded by the San Andreas Fault system and the peninsular mountain ranges in the west. The Imperial Valley was originally created as a northward land extension of the Gulf of California that was isolated by the Colorado River delta approximately 4.4 million years ago.

Subsequently, under desert conditions, the inland sea dried up and the trough was filled later with lacustrine deposits by intermittent filling of the fresh-water Lake Cahuilla.

The soils along the basin floor of the Imperial Valley are typically described as nearly level, deep, and moderately well drained to well drained silty clay loam and clay loam soils. However, the typical profile may vary considerable depending on sediment formations, with variable thicknesses of silty clays with high shrink-swell potential and slow permeability within the central portion of the valley (particularly near Calexico, Imperial, and Calipatria within the Imperial silty clay soil unit), and well drained sandy loam and loams along the eastern and northwestern portions of the valley. The Imperial-Holtville-Glenbar soil group encompasses the largest percentage of the valley area and consists of nearly level, moderately well drained silty clay, silty clay loam, and clay loam soils. These soils are typically deeper (to greater than 60 inches) and suitable for OWTS installation, but dispersal fields may require special design considerations to account for the slow permeability of underlying clayey soils. Due to the variability of clayey soils within the irrigated areas of the valley, a minimum leach field design of one hundred ninety-five (195) lineal feet will be required for any residential OWTS.

Along the edges of the lacustrine basin area and the low alluvial fan deposits of the Imperial Valley, the soils are well drained with fine sandy loam, loam and silt loams overlying silty clays at variable depths. The Meloland-Vint-Indio soil complex is generally suitable for OWTS installation, but consideration must be given to stratified layers that may include limiting clay lenses at shallow soil depths ranging between 24 and 40 inches below the ground surface. The Holtville loam unit is also found in the well drained areas along the Alamo River near the City of Holtville, and it is characterized by a deep, well drained loam/silt loam with a depth of more than 80 inches to the water table. This area is suitable for conventional gravity OWTS, and requires no special design considerations for septic systems. The geology and soils are also similar in the Bard valley near Winterhaven, an area characterized by alluvial deposits along the flood plain of the Colorado River which bounds the Indio-Lagunita-Ripley complex on the east and the drainageways extending south from the Chocolate Mountains and Picacho Peak to the north. The typical soil profile of the area is a silt loam overlying very fine sandy loams or excessively well drained Lagunita loamy sands to a depth of greater than 60 inches. Shallow groundwater is typically the limiting design consideration for OWTS in this area.

Near the northern boundary of the county, the saline soils along the edges of the Salton Sea are poorly drained silty clays and are unsuitable for OWTS installation; however, the soils found higher in elevation along the mesas adjacent to the old Lake Cahuilla basin are well drained and somewhat excessively drained sand, fine sand, and silt loams of the Rositas and Superstition units. These soils are also characteristically found along the West Mesa out to the Imperial Sand Dunes and are suitable for OWTS installation provided that the percolation rate is not excessively rapid (below 1 MPI).

Rapid infiltration through excessively gravelly sands is also often a limiting factor in the southwestern portion of the county south of the Coyote Mountains near the town of Ocotillo, where the geology is characterized by deep alluvial deposits of highly permeable fine to medium sands from weathered rock that may be classified as gravelly to extremely gravelly. This region is bounded by fault activity and subject to flash flooding along washes and drainageways. As the soils are excessively permeable, design considerations for OWTS to prevent the potential degradation of groundwater are necessary in this area.

Impaired Water Bodies

The State Policy (in Attachment 2) identifies impaired water bodies within California where: (1) it is likely that operating OWTS will subsequently be determined to be a contributing source of pathogens or nitrogen and therefore it is anticipated that OWTS would receive a loading reduction, and (2) it is likely that new OWTS installations discharging within six hundred (600) feet of the water body would contribute to the impairment. Specifically, Table 5 within the State Policy identifies the Alamo River and the Palo Verde Outfall Drain and Lagoon as two water bodies within Imperial County that are subject to Tier 3 requirements due to impairment from pathogens. The Policy does not further differentiate the source of pathogens since a Total Maximum Daily Load (TMDL) attributing reductions on specific contributing sources to these water bodies are not scheduled for completion until 2017. However, the State Water Board has specifically identified these impaired water bodies based on the current 303(d) listing status under the federal Clean Water Act. The *State Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List* (adopted September 30, 2004) provides the listing/delisting data procedures to identify streams whose water quality is impaired (affected by the presence of pollutants or contaminants).

Alamo River

The Alamo River has been designated as an impaired water body based on exceedances of the water contact and noncontact water recreation bacterial objectives. Fecal coliform (*Enterococcus*) and E. coli (*Escherichia coli*) bacteria are used as indicator organisms to evaluate the presence of pathogenic microorganisms. Thirteen (13) water samples were collected between a period of May 2002 and April of 2003, with a minimum of five (5) water samples exceeding the Basin water quality objectives for surface water bodies. Although the water body-pollutant levels of these bacteria exceed the applicable water quality standards, the various sources will not be attributed until the TMDL is completed.

Residential development along the Alamo and New Rivers is minimal; however, it is estimated that the impairment designation may impact up to approximately fifty-five (55) existing residences that currently discharge from OWTS within six hundred (600) feet of the Alamo River, with a potential to restrict development on up to five hundred and seventy (570) land parcels that border the Alamo River as it traverses northward through the Imperial Valley (County BOS Presentation, May 13, 2013). Although the large majority of this land is designated and used solely for agricultural crop production, rural residences on these properties will be subject to the Advanced Protection Management Program developed under this LAMP (see Section VI).

Palo Verde Outfall Drain and Lagoon

The Palo Verde Outfall Drain and Lagoon are located in the Palo Verde Valley that lies in the northeastern portion of the county along the Colorado River. Agricultural runoff from irrigation provided by the Palo Verde Irrigation District is drained by a system of open drains that discharge into the Palo Verde Outfall Drain, which extends southward through the valley and into an old channel of the Colorado River for approximately 17 miles in total distance within Imperial County. The Outfall Drain enters the present river channel at the Cibola National Wildlife Refuge in the Walter's Camp area. Along the northern border of Imperial County, in the center of the agricultural valley, is the community of Palo Verde, which was built around a lagoon fed by water off of the Outfall Drain. The designated beneficial uses of the Palo Verde Outfall Drain and Lagoon are water contact and water non-contact recreation, warm freshwater habitat, and wildlife habitat that support rare, threatened or endangered species. The water quality standards established for these beneficial uses have not been met for bacterial pathogens based on water sampling events conducted between May

2002 and October of 2004. Bacterial exceedances were documented for both fecal coliform (*Enterococcus*) and E. coli (*Escherichia coli*) bacteria; however, no point or non-point sources have been identified, nor have load reductions been attributed to any potential sources to date.

The impairment designation of this water body has substantial impacts on the town site of Palo Verde, which is comprised of 124 residences, a service station, a mobile home park, and several small businesses located directly adjacent or nearby the Palo Verde Lagoon that discharge to existing OWTS within six hundred (600) feet of the lagoon. Replacement or new OWTS on individual parcels with supplemental treatment for pathogen reductions to meet the Advanced Protection (Tier 3) standards of the Policy would likely be overly cost prohibitive to residents of the seriously economically disadvantaged community. Moreover, many of the parcels are insufficiently sized (less than 1,500 square feet) to accommodate the installation of an OWTS meeting the minimum setbacks to the lagoon and minimum dispersal field sizing requirements. Given these factors, a community sewer system for the existing and undeveloped land parcels within the town site of Palo Verde may be necessary to ensure ongoing water quality objectives are met in this area (see Section VII). Other scattered residences and special occupancy parks (Coco Palms and Two Palms Mobilehome Parks) near the Palo Verde Mesa off Stallard Road would also be subject to the Advanced Protection (Tier 3) standards for any replacement OWTS.

Other potential impacts by existing OWTS to the Palo Verde Outfall Drain include seasonal residences along Old River Road, and special occupancy parks along the lower segment of the drain near its discharge into the Colorado River. Mitchell's Camp is operated under Waste Discharge Requirements (Order No. 94-067) and Walter's Camp is located on federal Bureau of Land Management property and its discharge is authorized under Waste Discharge Requirements (Order No. 84-55). These facilities will be subject to RWQCB requirements adopted pursuant to the State Policy. Due to the seasonal nature of residences along Old River Road and the close proximity to outfall of the Palo Verde Drain to the Colorado River (3,500 feet), the Advanced Protection Management Program in Section VII specifies alternative provisions for OWTS in this area. Within the Walter's Camp area, new or replacement OWTS will not require supplemental treatment for pathogen reductions provided that the minimum two hundred (200) foot setback to the drain and/or Colorado River can be maintained as an equivalently protective measure against surface water quality impairments.

Section IV Existing System Requirements

Local Ordinance

The Imperial County Division of Environmental Health currently regulates the construction, alteration, or replacement of OWTS, and the permitting of such, pursuant to Imperial County Ordinance, Title 9, Division 10, Chapters 4, and 11-14. In addition to the codified ordinance of Imperial County, the California Plumbing Code (2010) is adopted by reference in Imperial County Ordinance Section 91004.00, including its construction and siting standards found in Appendix K (Private Sewage Disposal Systems). The County has also administratively implemented policies and procedures with respect to *Pressure Distribution Standards (Feb 2012)*; *Uniform Policy and Method for Soils Evaluation, Testing, and Reporting; Distribution Boxes;* and *Chambered Leach Fields*.

As provided for in Section 6.0 of the State Policy, owners of existing OWTS that have been sited, designed, constructed, and maintained in accordance with local ordinance may continue to operate these OWTS as permitted. Unless otherwise subject to corrective action or deemed failing, there are minimal proposed local regulatory changes for these Tier 0 systems. County ordinance will be amended as described herein to clearly identify those OWTS that are failing or require corrective action to prevent impacts to groundwater quality or to pose a potential health threat to humans (see Appendix B).

Existing Functioning Onsite Wastewater Treatment Systems (Tier 0)

Existing OWTS that are being utilized as designed and permitted are of limited risk to impair local groundwater or nearby surface water bodies. The discharge of conforming OWTS are, therefore, covered under a waiver of discharge requirements provided by the State Policy if they continue to meet the following requirements:

- The existing OWTS is defined as a "conforming system" under Imperial County Ordinance Section 8.80.030, which specifies that the system has been approved, installed, and continues to operate in accordance with the regulations pertaining to onsite wastewater treatment systems under which the system was permitted;

- The existing OWTS is being used to discharge only domestic wastewater (or sewage), which specifically excludes wastewater from industrial processes, high strength wastes, or wastes from RV dump stations or other non-residential sources;

- The cumulative design flow to existing OWTS(s) on a lot or parcel is maintained at less than 5,000 gallons per day;

- The existing OWTS is not otherwise considered a "failing system" under Imperial County Ordinance Sections 8.80.180(C)-(D); and

- The existing OWTS is not located within a geographic Area of Special Concern that is subject to supplemental treatment and monitoring requirements under the Advanced Protection Management Program described in Section VI due to identified impacts to an impaired water body or protected groundwater aquifer.

Minor Repairs

The life expectancy of an existing OWTS will often depend on a number of factors, including septic tank pumping frequency, use, soil conditions, cover and construction materials, climate, and proximity to nearby trees or irrigation systems. For an existing OWTS that is older than 20 years, it highly recommended that the owner consider budgetary planning for its eventual replacement and/or consider preventative maintenance or minor corrective actions that may be permitted by the Division to further prolong the life expectancy of the septic system. Minor repairs may include the replacement of a distribution box, septic tank baffles, or broken transport pipes to prevent a complete system failure.

The installation of monitoring equipment, such as observation ports in the leach lines or access risers on the septic tank, is also recommended for all owners of existing OWTS, and would not require a permit by this agency. Other remedial actions, such as regular pumping of the septic tank, reducing daily wastewater flows, minimizing the use of a garbage disposal, spreading out loads of laundry throughout the week, or installing low flow plumbing fixtures may prolong the service life of an existing OWTS to avoid the need for major repairs. Please note that the use of chemical additives or

enzymes have not been shown to be beneficial, and in some cases may be detrimental to the function of the septic system.

Failed Onsite Wastewater Treatment Systems (Tier 4)

Imperial County currently maintains a voluntary service and maintenance program for owners of existing OWTS. Any OWTS owner of record is legally responsible for properly operating and maintaining their existing OWTS in a manner consistent with the State Policy to ensure continued coverage under the waiver of discharge requirements, including the employment of a registered septic tank pumper to periodically remove septage from the tank when the level of solids and scum indicates that removal is necessary. Consistent with the State Policy, Imperial County finds that it is essential for owners of existing OWTS to periodically inspect the septic system in order to identify conditions that may indicate an early warning that the OWTS is failing so corrective actions may be taken.

Any OWTS that has pooling of sewage and/or sewage effluent on the surface of the ground, has sewage leaking from a failed tank, backing up into plumbing fixtures, or causing a human health or public nuisance condition, or is otherwise discharging to surface water directly or by means of a drainage ditch, or impacting groundwater to a degree that makes it unfit for drinking or other uses, is considered to be failing pursuant to Imperial County Ordinance Section 8.80.180(C). Additionally, Imperial County recognizes that certain conditions are prima facie evidence of pollution that may impact human health or the environment, including the use of a cesspool, sewer wells, seepage pits, pit privies, metal or wood septic tanks, dispersal systems that are located within fifty (50) feet of surface water or a water supply well, or that are located within one hundred and fifty (150) feet of a public water supply well.

Major Repairs

If an existing OWTS is deemed a failing system, an owner must immediately abate the condition. Corrective actions for an OWTS failure may include 1) connection of the residence or facility to a public sewer, if available within two hundred (200) feet of the property; or 2) obtain a permit from this Division to repair or replace the failing OWTS or the failed septic tank or treatment component to conform to standards adopted as part of the Local Agency Management Program. As

with the installation of a new system, all major repairs or replacement of an existing OWTS must be designed and installed by qualified professionals.

If an owner of the failing OWTS is not able to repair or replace the system to comply with current regulations due to insufficient lot size or unsuitable soils, the Division may permit a non-conforming repair meeting Imperial County Ordinance to the maximum extent permitted by the site. Supplemental treatment may be required if necessary to provide treatment equivalent to the adopted standard. Moreover, any owner who receives a non-conforming repair permit shall record a notice with the Imperial County Clerk Recorder of the presence of a non-conforming repair on the property. The notice shall specify operation and maintenance requirements and any limitations on the use of the property that are related to the presence of a non-conforming repair.

Abandonment Standards

An existing OWTS that is no longer used or that is no longer functioning represents a health and safety hazard to the public. In particular, the top and lids of a septic tank deteriorate over time and may collapse unexpectedly leading to serious injury or death. Moreover, an abandoned excavation, such as a septic tank or cesspool, may otherwise pose as a direct safety hazard to minors legally on the premise. Therefore, the Division makes it a priority to ensure that these structures are properly abandoned by the owner of the property. An abandonment permit and inspection from this Division is required to ensure that the health and safety hazard has been abated.

An existing OWTS or a portion thereof shall be properly abandoned when a residence or structure is demolished and no replacement structure is proposed, when the structure is connected to public sewer, or upon the discovery of a cesspool, sewer well, pit privy, or seepage pit. The abandonment standards for Imperial County are derived from the California Plumbing Code, and include pumping the tank or pit to remove all contents, removing the tank entirely (required for plastic or fiberglass tanks) or removing the top of the concrete tank in its entirety and filling it with an inert material such as clean soil, sand or cement. Leach lines composed of gravel and pipe may be abandoned in place.

Building Permit Reviews

Existing functioning OWTS that would otherwise be expected to continue to function properly may become overloaded when homes or businesses are remodeled or expanded in a manner that increases the sewage flow or changes the characteristics of the sewage generated. When an expansion or change of use is proposed, the existing OWTS must be evaluated to determine whether the proposed use (or anticipated wastewater flows) can be received and treated reliably by the septic system. Examples of changes that would indicate an increased flow to the system and result in the need to alter or modify the existing OWTS include the addition of a bedroom, an increase in the number of employees, or the installation of additional plumbing fixtures. A change in the characteristics of the sewage generated may also require the existing OWTS to be altered or modified to include supplemental treatment.

Additionally, it is recognized by Imperial County that improvements on the property without proper review or oversight may encroach upon the location of the existing OWTS or its required 100% replacement area, impacting the function of the system or precluding the ability to replace the system with a conforming OWTS in the future. Moreover, owners of existing OWTS that have no record of approval are often unable to accurately identify the installed location of the septic tank and dispersal field, which may lead to the unanticipated failing of an existing OWTS due to these unforeseen encroachment impacts.

To minimize OWTS failures for public health protection, and to protect current and subsequent owners from the unanticipated expense of abating a condition of pollution, the County of Imperial implements a coordinated review process for building permit applications to protect the OWTS and replacement area from: 1) cover by an impermeable surface; 2) encroachment by a building structure or swimming pool; 3) soil compaction by vehicular traffic; or 4) impacts from surface or stormwater drainage. Also importantly, the building permit review by this Division ensures that the quantity and waste strength of sewage entering the OWTS will remain at or below the approved design. For those existing OWTS with no record of approval, an evaluation and certification of the system by a qualified professional is required to determine whether any system modifications will be needed to support the proposed building project.

Section V Requirements for New or Replacement OWTS

For any new or replacement OWTS, minimum siting and construction standards consistent with Tier 1 of the Policy, or that provide equivalent or greater protection of water quality within existing local ordinance or the California Plumbing Code, will be utilized by the Division for a period not to exceed 60 months from the effective date of the State Policy on May 13, 2013, or until the effective approval date of the Local Agency Management Program. Upon approval of the Local Agency Management Program, the Tier 2 alternative standards as codified in County Ordinance and described herein will become effective upon local Board adoption.

State Minimum Standards (Tier 1)

The State Policy specifies that any new or replacement OWTS meet the low risk siting and design requirements of Sections 7 and 8 (Tier 1) where alternative standards have not been approved as part of a Local Agency Management Program. If there is a direct conflict between the applicable minimum standards and local codes or ordinances, the more restrictive standards will govern. However, once a Local Agency Management Program is approved, it shall supersede Tier 1 and all future OWTS decisions will be governed by the Tier 2 Program described below until it is modified, withdrawn, or revoked.

Alternative Standards (Tier 2)

In order to protect water quality and public health in Imperial County, as well as address unique local hydrogeologic conditions and areas of special concern, alternative standards have been incorporated in Imperial County Ordinance No. 1516 located in Appendix B. Justification for the locally adopted alternative standards has been provided in Section III of this LAMP document. It should be noted that the Local Agency Management Program for Imperial County does not authorize any of the conditions described in Section 9.4 of the State Policy. A summary of the alternative minimum standards that the Division intends to implement consistent with its local authority under the State Policy are as follows.

Minimum Site Evaluation and Siting Standards

- Site evaluations in the County will remain consistent with the Imperial County *Uniform Policy and Method for Soils Evaluation, Testing and Reporting* without additional soil profile excavations; but will include a mandated measure of groundwater depth through a soil boring at the site, along with a general description of soil type and any limiting conditions encountered at the site during the test boring. A site specific evaluation of the soil conditions to determine that adequate suitable soil depth is present will be required for all new and replacement OWTS. *(See Sections 7.1-7.3 of the State Policy)*

- The minimum percolation test result in the effluent disposal area for new or replacement OWTS shall not be slower than two hundred forty minutes per inch (240 MPI). An extended site evaluation by a qualified professional to evaluate the suitability of the soils will be required for all soils slower than sixty minutes per inch (60 MPI). *(See Section 7.4 of the State Policy)*

- The minimum horizontal setback from any irrigation supply canal located upstream of a surface water intake for a public water system shall be no less than one hundred (100) feet. Additionally, the minimum setback to the effluent dispersal system of one hundred (100) feet shall be maintained to the All-American, Westside Main, Central Main and East Highline canals. Setbacks to lined supply laterals or unlined delivery channels used only for agricultural irrigation will be twenty-five (25) and fifty (50) feet, respectively. The permitting agency will provide notice to public water systems for comment prior to issuance of a permit to install an OWTS within 1,200 feet of an intake point for a surface water treatment system as required. *(See Sections 7.5-7.6 of the State Policy)*

Minimum OWTS Design and Construction Standards

- A qualified professional will be required to design all new OWTS and modifications to existing OWTS where the treatment or dispersal system will be replaced or expanded if the minimum soil depth cannot be maintained, gravity dispersal cannot be utilized, or if the soil percolation rate is slower than sixty minutes per inch (60 MPI), or if the OWTS is to service a non-residential structure. A qualified professional may be an individual that is currently

licensed in the State of California as a professional engineer or professional geologist, or an individual that possesses a registered environmental health specialist certificate. *(See Section 8.1.1 of the State Policy)*

- The design of a new or replacement OWTS shall be based on the expected influent wastewater quality with a projected flow not to exceed 5,000 gallons per day, the characteristics of the site and the required level of treatment for protection of water quality and public health. If the proposed OWTS use is such that the cumulative waste discharge to existing and/or new OWTS exceeds 5,000 gallons per day, a Report of Waste Discharge must be submitted to the RWQCB to obtain an individual waste discharge permit. *(See Section 8.1.3 of the State Policy)*

- The design of a new or replacement OWTS shall ensure that the minimum depths to groundwater for the site specific soil characteristics will be maintained to provide sufficient protection of groundwater quality, as described below: *(See Section 8.1.5 of the State Policy)*

  - The minimum depth to groundwater from the bottom of the dispersal system will remain at five (5) feet for conventional gravity dispersal (i.e. soil percolation rate > 5 MPI and ≤ 90 MPI).

  - As pressure distribution of septic tank effluent distributed uniformly through the entire dispersal field within the upper aerated soil horizons has been broadly demonstrated to provide improved wastewater treatment, a minimum soil depth of two (2) feet will allowed between the highest anticipated groundwater and the bottom of the dispersal field, unless otherwise specified for proposed discharges within groundwater areas of special concern. All pressure distribution systems will be designed by an engineer consistent with this Division's *Pressure Distribution Standards (Feb 2012)*, or any subsequent document revision.

  - Soils with percolation test results slower than ninety minutes per inch (90 MPI), but faster than two hundred forty minutes per inch (240 MPI), will be mitigated by the use of pressure distribution to uniformly distribute the wastewater throughout the dispersal system.

- Soils with percolation test results faster than five minutes per inch (5 MPI) will be mitigated by the use of pressure distribution in the dispersal bed unless twenty (20) feet of separation to groundwater can be maintained consistent with the Policy.[1] In areas of special groundwater concern, supplemental treatment may be required prior to dispersal.

- The leach field shall be designed based on the bottom area only. However, a maximum twenty (20) percent reduction in leach field sizing based on sidewall infiltration may be requested if a minimum of 18 inches of rock is utilized under the gravel pipe. Size reductions of up to thirty (30) percent for IAPMO certified gravel-less chamber products will be authorized in accordance with the County's *Chambered Leach Fields* policy, although no reductions will be provided below the minimum leach field area of one hundred ninety-five (195) lineal feet for residential OWTS within the irrigated farm areas of Imperial Valley. A one hundred (100) percent replacement area will be required based on the non-reduced leach field sizing requirements. *(See Sections 8.1.6 and 8.1.11 of the State Policy)*

- No dispersal system shall exceed a depth greater than four (4) feet as measured from the ground surface to the bottom of the trench. For any new or replacement OWTS, the dispersal system shall not exceed a maximum depth of three (3) feet from finished grade, unless written authorization is provided by the Division. A lift station designed by a qualified professional may be necessary on some replacement OWTS to ensure that the dispersal of septic tank effluent is within the aerated upper zones of the soil horizon to maximize treatment and evapotranspiration. *(See Section 8.1.7 of the State Policy)*

- Design flows – The minimum design flow for purposes of sizing hydraulic components of a new or replacement OWTS will be 250 gallons per day of wastewater. For single-family dwellings, the minimum design flow for each additional bedroom will be 125 gallons per day. Design flows for accessory residential structures will be based on the number of plumbing fixture units as determined from Table 7-3 of the California Plumbing Code, expressed in terms of the load-producing effects on the plumbing system by different kind of plumbing fixtures. Drainage fixture units and/or the estimated waste/sewage design flow rate may be

[1] It should be noted that while the Vista del Mar and Ocotillo/No Mirage areas have historically exhibited soil percolation rates between 1 and 5 MPI, the minimum depth to groundwater typically exceeds 20 feet consistent with minimum groundwater protection standards of the State Policy.

used for all other non-residential building occupancies, whichever provides the most reasonable calculation of anticipated flows as determined by a qualified professional. *(See Section 8.1.3 of the State Policy)*

- Maximum loading rates – The maximum design loading rates for purposes of sizing the dispersal area of a new or replacement OWTS shall be based on the underlying or receiving soil characteristics at the proposed construction location as determined by both the stabilized percolation rate and the soil texture or structure determination as provided in Table 1 below, whichever provides the most conservative long term soil application rate. *(See Section 8.1.6 and Tables 3-4 of the State Policy)*

Table 1. Soil Loading Rates for OWTS.

Maximum Hydraulic Loading Rate For Residential Sewage[1,2,3]			
Soil Type	**Soil Textural Classification**	**Percolation Rate (mpi)**	**Loading Rate (gal./ft.²/day)**
1	Coarse sands, Medium sands	1-4	0.8
2	Fine sands, Loamy sands	5-10	0.8
3	Sandy loams	11-20	0.7
	Loams	21-30	0.6
4	Silt loams, that are porous and have well-developed structure	31-60	0.45
5	Other Silt loams (weak) and sandy clay loams	61-90	0.3
6	Clay loams, Silty clay loams	91-120	0.2
Marginal	Sandy clays, Clays & Silty Clays of low clay content (<45%) with moderate or strong structure	121-240	0.1

[1]Compacted soils, cemented soils, and/or poor soil structure may require a reduction of the loading rate or make the soil unsuitable for the installation of an on-site wastewater treatment system. Supplemental pre-treatment may be required prior to dispersal in marginal soils.

[2]The maximum hydraulic loading rate for the soil type listed is to be used for calculating the drainfield area required.

[3]Due to variable clayey soils of marginal quality and irrigation impacts within the Imperial Valley, a minimum leach field area of one hundred ninety-five (195) lineal feet will be required for any residential OWTS.

Alternative Wastewater Treatment Systems

Alternative wastewater treatment systems are OWTS utilizing dispersal field designs consisting of components other than conventional gravity or pressure distribution within standard rock and pipe trench disposal configurations, such as "mound", "at grade", "evapo-transpiration bed," or "sand-lined trenches". "Subsurface drip systems" are also a special category of pressure distribution that have specific design considerations and require pre-treatment prior to wastewater discharge to drip lines. Alternative systems may be utilized to mitigate limiting soil conditions such that the minimum standards for separation to groundwater, or so that horizontal setbacks may be maintained equivalent to a conventional dispersal system. The use of alternative wastewater systems is limited to those components or dispersal technologies for which there have been technical standards adopted by the Division and/or the RWQCB. A proprietary treatment device must be certified by an independent third party laboratory and be included on the list of approved systems or devices maintained by the Department prior to its consideration for use. Due to the technical design information necessary to evaluate alternative wastewater treatment systems, any OWTS incorporating alternative treatment or dispersal field components must be designed by a qualified professional in conformance with the Local Agency Management Program, and include a site specific operation and maintenance manual for the owner of the alternative OWTS.

Prior to final construction approval, the property owner will be required to record a notice stating that an alternative system has been installed on the property. This "Notice to Property Owner" shall run with the land and will act as constructive notice to any future property owner that the property is served by an alternative wastewater treatment system with regular maintenance, monitoring and reporting requirements. A copy of the recorded document shall be provided to the Department prior to final system approval. The Division will document the location and types of alternative OWTS installed, and submit record of such installation in its annual report to the RWQCB.

To ensure that the system continues to function properly, it is should be inspected at least annually by a qualified professional. Inspection reports should be submitted to the Division of

Environmental Health detailing the findings of the inspection within thirty days of its completion so that routine inspections are tracked and required maintenance can be assured.

Large On-Site Sewage Systems

Although not currently proposed, the Division may revise the Local Agency Management Program in the future to establish local regulatory oversight of large on-site sewage systems (LOSS) that discharge to on-site subsurface drip systems or leach fields, or to evaporation ponds following wastewater treatment. For purposes of this program, a LOSS would be defined as any large on-site sewage system with a design flow greater than five thousand (5,000) gallons per day up to ten thousand (10,000) gallons per day for which waste discharge requirements have been issued by the Regional Water Quality Control Board, but that ongoing primary administrative authority has been granted by written agreement from the RWQCB to Imperial County. The minimum operation, design, and treatment requirements would be dictated by the State issued permit; however, routine inspections and annual operational permits would be issued by the local health agency.

The potential benefits of a LOSS program for the RWQCB may include more frequent inspections of small dischargers, higher assurance of certified operator oversight, improved coordination with owners, and accessibility to local technical assistance. Currently, the Division also regulates drinking water systems through its Local Primacy Agency, and conducts annual inspections at facilities that discharge to LOSS systems (e.g. RV and Mobilehome Parks, energy production plants, fuel stations, irrigation district facilities, or county parks). State or federal facilities would be specifically excluded from local permitting under this delegation program.

Section VI Advanced Protection Management Program

The State Policy identifies impaired water bodies (the Alamo River and Palo Verde Outfall Drain and Lagoon) within Imperial County that may be further impacted from discharges by existing, new or replacement OWTS (see Section III). In the absence of Total Maximum Daily Load (TMDL) reductions established by the RWQCB for OWTS discharges, or special provisions contained within a Local Agency Management Program to protect impacts to these impaired water bodies, the minimum requirements of the Advanced Protection Management Program (Tier 3) of Section 10.0 of the State Policy would apply, initially to any new or replacement OWTS within six hundred (600) feet of the impaired water body. However, until such time that the RWQCB attributes specific reductions on contributing sources of pathogens to OWTS discharges for new or existing OWTS, the Advanced Protection Management Program to be implemented in Imperial County will include ***special provisions*** within its Local Agency Management Program to address potential water quality impacts of OWTS on the impaired water bodies. These special provisions have been described below, and consider the nature and extent of potential pathogen impacts that OWTS may contribute based on the characteristics of development adjacent to the specific impaired water body.

Furthermore, the Division also recognizes that there are Areas of Special Concern within Imperial County where groundwater quality may be detrimentally impacted by OWTS if special provisions under an Advanced Protection Management Program are not established for new and replacement OWTS. These special provisions, along with the associated Groundwater Ambient Monitoring and Assessment Program to monitor ongoing groundwater quality are also described in this Section.

Advanced Protection Program for Impaired Areas (Tier 3)

The Advanced Protection Program for Impaired Areas (Tier 3) has been incorporated into this Local Agency Management Program and specific standards for implementation will be codified into County Ordinance. For new, replacement, and existing OWTS in the Advanced Protection Management Program, no special provisions are established that are not otherwise covered by the State Policy's waiver as authorized in Section 10.6. It is recognized that these minimum standards are essential to minimize the potential impacts of OWTS near impaired water bodies.

Moreover, the Division recognizes that all new or replacement OWTS utilizing supplemental treatment and other mitigation measures to protect impaired water bodies will require periodic monitoring and inspections to ensure that these mitigation measures continue to be effective, consistent with Sections 10.11 – 10.15 of the State Policy (see p. 39 of Appendix A for specific details). The ongoing operation and monitoring standards are necessary to ensure that OWTS utilizing supplemental treatment continue to meet the established performance requirements for these systems. In part, each OWTS system will be designed by a qualified professional to meet applicable treatment standards, including the use of specific pretreatment and/or disinfection components that have been tested by an independent third party testing laboratory (i.e. NSF[2] or IAPMO listing). A service contract with a qualified provider will be necessary to monitor the system in accordance with the operation and maintenance manual for the OWTS, and no less frequently than quarterly. Testing of wastewater effluent samples for those OWTS designed to meet the pathogen disinfection requirement of Treatment Standard 1 (see below) must also be taken by the service provider and analyzed by a State certified laboratory on a quarterly basis. Each owner of an OWTS with supplemental treatment will be responsible to maintain an annual health permit to cover the cost of services to review the operation and maintenance of these systems.

As proposed, Imperial County Ordinance establishes a performance standard for treatment consistent with the State Policy. Any OWTS discharging within the geographical area of the Advanced Protection Management Area for pathogen impaired water bodies must be designed to provide sufficient pre-treatment of the wastewater so that effluent being discharged to the dispersal system does not exceed a thirty-day average of less than thirty (30) milligrams per liter of biochemical oxygen demand (five (5) day BOD_5), and thirty (30) milligrams per liter of total suspended solids (TSS), with pathogen reduction to a thirty (30) day geometric mean of less than two hundred (200) Most Probable Number (MPN) of fecal coliform bacteria per one hundred (100) milliliters. In order to meet the pathogen reduction standards as established by State Policy, a disinfection system will be necessary prior to disposal, in addition to secondary or advanced treatment of the residential sewage.

[2] Listing standards include, but are not limited to: NSF Standard 40 (Residential: Onsite Systems), NSF Standard 41 (Non-Liquid Systems), NSF Standard 245 (Nitrogen Reduction), NSF Standard 350 & 350-1 (Onsite Water Reuse), and NSF Standard 46 (Components and Devices).

As this treatment performance standard is a costly alternative to a conventional OWTS, and specific load allocations have not been attributed to OWTS by the RWQCB, special provisions have been proposed for each of the areas discharging near the water bodies listed as being pathogen impaired.

Special Provisions for Impaired Water Bodies

Water quality impacts from pathogens may be negligible for OWTS discharges beyond a reasonable transport distance to a surface water body provided that sufficient unsaturated soils are present below the dispersal field. Waste-borne bacterial pathogens are effectively filtered within the soil profile immediately below the dispersal trenches. While it should be noted that human enteric viruses may persist in the soil for much longer periods of time, the removal of virus pathogens still relies on adsorption and inactivation in the soil environment, with the fastest inactivation occurring in soils with decreased water content. Some virus filtration may also be provided in soils with very fine pore sizes (i.e. clays or silty clays).

These are the ideal pathogen removal conditions that may be expected for properly sited OWTS along the Alamo River, which transverses through the Imperial Valley largely confined to a river basin that is approximately 200 to 300 feet from bank to bank. Aerial overlays of parcel data using the county's geographic information system (GIS) suggest that the establishment of a prescriptive two hundred (200) foot setback from the ordinary high water mark of the Alamo River would generally maintain all new or replacement OWTS discharges above and beyond the river basin, providing sufficient separation for effective treatment of pathogens from OWTS discharges in the native soils underlying the dispersal fields. The following ***special provisions*** are therefore established for the Alamo River until such time as the RWQCB adopts a TMDL for pathogens reductions in this listed water body:

- No new or replacement OWTS discharge may be sited within two hundred (200) feet of the ordinary high water mark of the Alamo River unless the discharge meets the performance standard of Treatment Standard 1 established for the Advanced Protection Management Program of this LAMP. A minimum setback of one (100) feet is required to any surface water body.

- Existing OWTS within six hundred (600) feet of the Alamo River will not be subject to the Advanced Protection Program until such time as a TMDL and its implementation program have been established by the RWQCB for the Alamo River. However, any failing OWTS subject to corrective action will be subject to the special setback and/or treatment provisions established for this water body.

As described in Section III of this LAMP, the Palo Verde Lagoon and Outfall Drain are geographically located such that potential impacts to the bacteriological load of this water body from OWTS must be distinctly addressed within the Advanced Protection Management Program. Therefore, special provisions have been established to be protective of both stretches of this impacted water body with consideration to the density of OWTS discharges and the hydrogeology of the surrounding areas. In particular, the lower stretch of the Palo Verde Outfall Drain has different policy options for water quality protection than does the Palo Verde Lagoon located in the community of Palo Verde, given existing parcel sizes and the historic development patterns of the area.

The following ***special provision*** has been identified for new and replacement OWTS within the geographic areas of the Palo Verde Outfall Drain:

- Within the geographic area extending no more than one (1) mile upstream from the discharge point of the Palo Verde Outfall Drain into the Colorado River, no new or replacement OWTS discharge may be sited within two hundred (200) feet of the ordinary high water mark of the Outfall Drain unless the discharge meets the performance standard of Treatment Standard 1 established for the Advanced Protection Management Program of this LAMP. This is consistent with the minimum setback of two (200) feet that is currently required for any OWTS discharges along the Colorado River south of the drain in the Riverfront subdivision area.

The impairment designation of the Palo Verde Lagoon has substantially greater economic impacts on the town of Palo Verde, a severely disadvantaged community located directly adjacent or nearby the lagoon. Moreover, due to the presence of rapidly draining sandy soils and small parcel sizes, the water quality protection options for pathogen loading from OWTS discharges are severely limited. Both new and replacement OWTS within six hundred (600) feet of the lagoon will be subject

to the Advanced Protection Management Program, provided other centralized sewerage options remain unavailable. As discussed in Section VII of this LAMP, the formation of a sewer district for this community may provide an additional option for owners of OWTS subject to the ***special provisions*** as described below:

- Owners of OWTS that are constructed and operating, or permitted, on or prior to the effective date of the State Policy will not be subject to the Advanced Protection treatment standards for OWTS discharges, provided that:

  - The owner has committed by way of a legally recorded document with the County Recorder's Office prior to May 13, 2017 to connect any existing building structures with plumbing to a centralized wastewater collection and treatment system regulated through Waste Discharge Requirements issued by the RWQCB; and

  - The specified date of connection to a centralized community wastewater collection and treatment system is no later than May 13, 2021.

- Owners of existing OWTS will also not be subject to the Advanced Protection treatment standards for OWTS discharges until such time as the RWQCB adopts a TMDL implementation plan specific to the Palo Verde Lagoon and any necessary revisions to the LAMP have been incorporated. However, no expansions to the occupancy or building structures will be approved by the County such that the OWTS discharge is increased or available area for a replacement OWTS system meeting the minimum setbacks to the Palo Verde Lagoon is diminished.

It should be noted that these special provisions may be implemented by the County following the formation of a sewer district for the service area through the Imperial County Local Agency Formation Commission (LAFCO). The permitting and construction timelines for a centralized wastewater collection system would be coordinated with the RWQCB to ensure adequate water quality protections are implemented prior to May 13, 2021 or to the adoption of specific TMDL implementation policies requiring pathogen load reductions from OWTS discharges, whichever is sooner. In the absence of a sewer district, those existing and new OWTS that are subject to the Advanced Protection Management Programs of this LAMP may need additional financial assistance to

comply with the supplemental treatment requirements of the State Policy. Financing options vis-á-vis a low interest loan program administered by the County utilizing Clean Water State Revolving Funds consistent with Section 14.0 of the Policy are discussed further in Section VIII of this LAMP.

Areas of Special Concern

As discussed in Section III (Water Quality), the Division has identified two groundwater basin areas – the Coyote Wells Aquifer and the Lower Colorado River Basin Aquifer – which are utilized as primary sources of drinking water that may be detrimentally impacted by OWTS discharges if special provisions under an Advanced Protection Management Program are not established for new and replacement OWTS. The special provisions, along with the associated Groundwater Ambient Monitoring and Assessment Program to monitor ongoing groundwater quality, are described here, and have been codified in Imperial County Ordinance Sections 8.80.150 and 8.80.160. These provisions may be revised and/or expanded within the LAMP to protect groundwater quality as necessary based on ongoing groundwater quality monitoring data compiled by the Division.

As it is likely that the improper siting and operating of an OWTS may subsequently be determined to be a contributing source of pathogens or nitrogen, such that beneficial consumptive uses of these groundwater aquifers are impacted, the Division recognizes the importance of water quality protections and ongoing monitoring in these areas. In particular, without careful planning, nitrate loading from higher density residential OWTS discharges may impact groundwater supplies over time. Nitrates, an acute drinking water contaminant, are readily soluble and not reduced or removed with standard OWTS siting or design. Therefore, the cumulative impacts of nitrate loading from OWTS are typically mitigated by either minimizing discharges through sewering or by the establishment of maximum allowable densities (or minimum lot sizes). Supplemental treatment devices may also be incorporated to reduce nitrate loading to the dispersal field and into groundwater at pre-existing parcels if minimum setbacks to water wells or vertical separation to groundwater cannot be established for replacement OWTS.

Given this, the following ***special provisions*** have been identified as necessary for these designated areas of special concern for groundwater protection:

- The minimum parcel size for any new minor subdivision or residential lot division within the Ocotillo/Nomirage Community Area Plan shall be one dwelling unit per two and one half (2.5) acres consistent with the low density residential land use character of the community, unless public water and sewer services are available for connection. An exemption for a second dwelling may be allowed for an existing residential parcel upon approval of a conditional use permit if the lot maintains a minimum population density of one (1) dwelling unit per acre and the site is suitable for placement of an additional septic system.

- Consistent with the Ocotillo/Nomirage Community Area Plan adopted by Imperial County, no new OWTS will be permitted for RV or mobilehome parks, or for other commercial uses that may contribute to groundwater contamination through the discharge of high strength wastewater, non-residential wastewater, or large quantities (>3,500 gallons per day) of domestic sewage effluent being discharged to an OWTS dispersal system.

- The minimum parcel size for any new minor subdivision or residential lot division within the Bard Area as defined by Title 9 of Imperial County Ordinance (Section 92526.00), shall be one dwelling unit per two and one half (2.5) acres unless public water and sewer services are available for connection.

- Any new or replacement OWTS that cannot meet a minimum of one hundred (100) feet to domestic water wells, or that cannot maintain the minimum vertical separation of five (5) feet to groundwater must incorporate supplemental treatment meeting Treatment Standard 2[3] prior to discharge.

While not currently required by this LAMP, if detrimental impacts to groundwater are identified from OWTS in these Areas of Special Concern, the Health Officer may require any new or replacement OWTS to meet Treatment Standard 1 for Nitrate Reductions[4] prior to dispersal of the effluent within the designated areas.

[3] Treatment Standard 2 means a thirty-day average of less than thirty (30) milligrams per liter of biochemical oxygen demand (five (5) day BOD_5), thirty (30) milligrams per liter of total suspended solids (TSS), and a thirty (30) day geometric mean of less than one thousand (1000) MPN per one hundred (100) milliliters.

[4] Treatment standard 1 (for Nitrogen Reduction) means a thirty-day average of less than thirty (30) milligrams per liter of biochemical oxygen demand (five (5) day BOD_5), and thirty (30) milligrams per liter of total suspended solids (TSS), with a 50 percent in total nitrogen (TN) when comparing the 30-day average influent to the 30-day average effluent, or a TN concentration of 10 mg/L as nitrogen, whichever it most stringent.

Groundwater Ambient Monitoring and Assessment Program

To evaluate the effectiveness of the Advanced Protection Management Program, specifically for the Areas of Special Concern for groundwater resources, it is important to maintain an ongoing monitoring and assessment program to evaluate OWTS impacts to groundwater. Although increasing nitrate levels in groundwater may also be attributable to fertilizer application within agricultural areas, nitrate levels remain the best and most readily available chemical constituent for tracking potential long term groundwater impairment trends from OWTS discharges. As annual recharge rates are particularly low in the region due to extremely low precipitation rates, it is much less likely that variations in infiltration rates will mask any year over year increasing trends in groundwater nitrate levels. Moreover, with minimal rainfall, routine bacterial testing to evaluate potential contamination from pooling or untreated effluent washing into surface waters or contaminating nearby wells is a less effective planning tool for groundwater protection. Therefore, a Groundwater Ambient Monitoring and Assessment Program will be established for the Coyote Wells Aquifer and the Lower Colorado River Basin Aquifers that is based predominately on monitoring nitrate levels in the groundwater to assess the ongoing need for further OWTS controls in these areas. The water quality data will be compiled from the following sources:

- Well samples taken to establish a private domestic well as a "potable source" (i.e. private water potability reviews);
- Routine annual nitrate water samples collected by small public water systems; and
- US Geological Survey well sample data that may be available.

Water quality testing results from private and public water systems compiled as part of the local Groundwater Ambient Monitoring and Assessment Program will be made available to the RWQCB as part of the annual reporting described in Section XII of this LAMP on p. 57.

Supplemental Treatment

If required by the Advanced Protection Management Program, alternative wastewater treatment systems must incorporate supplemental treatment devices or technologies designed to meet

the minimum specified Treatment Standard. The use of alternative wastewater treatment systems is limited to those components or dispersal technologies that have been demonstrated to meet the applicable performance standard, and that the Division and/or the RWQCB have adopted technical standards for proper design and construction of the treatment component. Alternative OWTS incorporating supplemental treatment to meet a specified Treatment Standard must also be designed such that the discharge can be tested and/or verified prior to dispersal so that it can be demonstrated that the treatment performance objectives are continually being met. If a proprietary treatment device is to be utilized, it must be certified by an independent third party laboratory (such as NSF/ANSI or IAPMO) and be included on the list of approved systems or devices maintained by the Division as meeting Treatment Standard 1 or 2.

As supplemental treatment is provided as a mitigation factor, it is essential that the alternative wastewater treatment system be regularly monitored and maintained by a qualified service provider to ensure that they are operating as designed. Therefore, a maintenance contract with a qualified service provider must be signed and established prior to OWTS installation. This agreement is to remain in effect for the life of the system. Supplemental treatment components shall also be equipped with a visual or audible alarm and a telemetric system to alert the owner and service provider in the event of a system malfunction. In lieu of telemetry, enhanced frequency inspections on a monthly basis by the service provider would be necessary to ensure that the system is functioning in accordance with designed operating parameters. Similar to the procedures for alternative wastewater treatment systems, the property owner will be required to record a notice that an OWTS with supplemental treatment has been installed on the property along with its specific discharge standard requirements.

Any OWTS discharging within the geographical area of the Advanced Protection Management Program for pathogen impaired water bodies must be designed to also provide a supplemental disinfection treatment system to meet Treatment Standard 1[5] such that pathogens are continually reduced to a thirty (30) day geometric mean of less than two hundred (200) Most Probable Number (MPN) of fecal coliform bacteria per one hundred (100) milliliters. Sampling of the wastewater flowing from the supplemental treatment components that perform disinfection must be conducted

[5] Treatment standard 1 (for Pathogen Reduction) means a thirty-day average of less than thirty (30) milligrams per liter of biochemical oxygen demand (five (5) day BOD_5), and thirty (30) milligrams per liter of total suspended solids (TSS), with a thirty (30) day geometric mean of less than two hundred (200) Most Probable Number (MPN) of fecal coliform bacteria per one hundred (100) milliliters.

quarterly by a service provider and analyzed at a California certified laboratory. The Imperial County Public Health Department is one such certified laboratory that could be used by an owner and/or service provider to analyze wastewater samples to ensure that the supplemental disinfection device is operating correctly.

Operational Permits

Alternative systems incorporating supplemental treatment devices to meet a specified Treatment Standard as may be required by the Advanced Protection Management Program will require an ongoing operational permit to ensure that the discharge is continually meeting standards. While supplemental treatment technologies are very effective at treating residential wastewater, they are more dependent on periodic inspections, maintenance, and servicing than conventional gravity flow septic systems. Furthermore, the use of alternative systems and/or supplemental treatment would typically be limited to constrained sites where standard setbacks from groundwater or a water supply, for example, could not be met. Therefore, any treatment failures using these methods of treatment and dispersal would pose a much higher potential to negatively impact public health or the environment.

Consequently, operating permits will be required for OWTS that utilize an alternative dispersal system or supplemental treatment to ensure that they are functioning as designed. Permit conditions would require regular inspections of the system by a qualified service provider and a report detailing the findings of any service inspection to be submitted to the Division for review. Each owner of an OWTS with supplemental treatment will be responsible to maintain an annual health permit to cover the cost of services to review the operation and maintenance of these systems.

Section VII Sewer District Formation

While individual OWTS serve as an effective decentralized wastewater discharge option within rural areas of Imperial County, the LAMP may also serve to inform long term Onsite Wastewater Management Plans that may be developed by the County. In particular, it is recommended that local government agencies actively coordinate with the Local Agency Formation Commission (LAFCO) to ensure public sewerage services are provided throughout the county in the most efficient service arrangements for the benefit of area residents.

Public Sewerage

Medium to high density communities and unincorporated town sites that are subdivided into small residential parcels, and that are located near or adjacent to existing sewer service districts serve as a principal example of inefficient urban service arrangements, adding additional costs to local government for the regulatory management of wastewater discharges, while at the same time limiting future development options for area residents. Replacement costs for OWTS in these areas also tend to be higher based on space constraints and accessibility, further depressing comparative property values below urban areas serviced by public sewerage systems.

Sewer improvement projects and consolidation feasibility studies to explore the potential conversion from OWTS to public sewers are initially recommended for the communities of Salton Sea Beach and Vista del Mar within the Salton City area of the county. Coordination between the Salton City Community Services District and the Coachella Valley Water District should be encouraged to identify feasible service area boundaries and sewer options for these town sites to reduce long term costs to residents and minimize health and environmental impacts from high density OWTS discharges. Other areas of potential public sewerage may be identified during periodic plan updates of this Local Agency Management Program based on 1) current public sewer availability, 2) the number of repair and/or replacement OWTS permits issued, 3) grant funding opportunities for sewer consolidation projects, and 4) building permit reviews conducted identifying limitations for development due to the continued use of OWTS.

Community Wastewater Facility

In other instances of low to medium density development, existing public sewerage services may not be available for consolidation or conversion of OWTS to a more centralized method of treatment arrangement. However, the limitations placed on the use of individual OWTS for wastewater discharge may still detrimentally impact the economic vitality of a rural town site or specific plan area for recreational or seasonal residential use due to unsuitable soils, shallow groundwater, or other inadequate setbacks to surface water or individual drinking water wells. In these instances, the cost of OWTS replacement or servicing may become higher than the construction and operational costs of a community wastewater facility that may be managed more cost-effectively by a sewer service district. In particular, it is highly recommended that feasibility and environmental studies be undertaken to develop and implement a community wastewater facility for the unincorporated town site of Palo Verde, which is located wholly within an Advanced Protection Management Area due to its proximity to the impaired Palo Verde Lagoon. As described in Section VI, and based on the special provisions of the State Policy, owners of existing OWTS would not be subject to supplemental treatment standards provided they have committed to connect to a centralized community wastewater collection and treatment system.

While not currently indicated as a project priority, long term feasibility planning for centralized community collection and wastewater treatment may be necessary for communities within areas of special groundwater concern should the special provisions of this Local Agency Management Program, or as may be revised, become ineffective for groundwater protection. Any consideration for OWTS conversion should be based on identified impacts attributable to these discharges through the ongoing Groundwater Ambient Monitoring and Assessment Program established in Section VI.

Colonias

The term colonia has its origins in the Spanish work for “neighborhood,” but recently it has come to define a residential development characterized by substandard living conditions located within 150 miles of the United States and Mexico Border. At least nine colonias have been designated by the U.S. Department of Housing and Urban Development as being located within the rural,

unincorporated areas of Imperial County.[6] Often, these areas lack basic sanitary services, such as centralized water and wastewater systems or routine solid waste collection, and the presence of failing septic systems or deficient or poorly managed community wastewater facilities that may contribute to continuing groundwater and health impacts to the economically disadvantaged communities. A number of outreach and funding projects have targeted the larger of these colonias (such as the Poe Subdivision); however, small colonias within rural subdivisions utilizing septic systems also have the potential to negatively impact groundwater resources due marginal soils and deficient septic systems. Financial assistance through Community Development Block Grants (CDBG) or low interest loan programs using Clean Water State Revolving Funds may be necessary to repair and/or replace failing OWTS in these severely economically disadvantaged communities to improve basic living conditions. Coordinated efforts with the Imperial County Community and Economic Development Department to identify public wastewater treatment projects within neighborhood clusters with failing OWTS may be necessary for effective implementation of the required corrective actions identified in the LAMP to protect groundwater or remediate public nuisance conditions in these areas.

Initially, several colonia areas have been identified within this LAMP document as potential projects for OWTS replacement and/or sewerage service projects due to substandard OWTS, high OWTS failure rates, or the utilization of individual OWTS with higher potential for deleterious health impacts due to marginal soils and/or insufficient setback protections to drinking water wells. Specifically, these areas may be described as:

- The northern portion of the City of Imperial within the unincorporated county south of Neckel Road, west of State Highway 86, and north of Worthington Road;
- The unincorporated residential subdivision along the extent of Flood Road in Bard;
- The unincorporated town site of Salton Sea Beach and the Vista del Mar Subdivision of Salton City; and
- The unincorporated town site of Palo Verde.

[6] Colonias identified within the unincorporated areas of the County include: Palo Verde, Niland, Heber, Ocotillo, Bombay Beach, Salton Sea, Poe, Seeley, and Winterhaven.

For each of these identified colonia areas, preferred sewerage alternatives will be assessed prior to project implementation. Various project alternatives may include individual financing for OWTS replacement and/or repairs, construction of a community wastewater facility within a new or modified sewer management district area, or the consolidation of colonia areas into an existing sewer district through the expansion of the service area. Each project alternative will be reviewed for potential long-term benefits to groundwater and surface water protection within the Colorado River region from the potentially identified wastewater infrastructure improvements.

Section VIII Land Use Planning

With the implementation of the State Policy and in consideration of this LAMP, the County recognizes that the general location and extent of OWTS use for residential and commercial development must be considerate of groundwater resource protection and be coordinated with the expansion of public facilities within the unincorporated community areas of the County. The land use standards of this LAMP have also been prepared such that they are consistent with the basic concepts of environmental protection, planned public infrastructure development, and safety for people and property, as identified within the Land Use Element of the County's General Plan. The following outline of an Onsite Wastewater Management Plan, with a specific emphasis on Community Areas has been developed here such that the objectives, policies, and standards may be incorporated into the Land Use Element with future revisions. All terms, designations, and land use descriptions are used herein as described within the General Plan and County Zoning Ordinance.

Onsite Wastewater Management Plan

The implementation of the Onsite Wastewater Management Plan is intended to be a continual process involving amendments to the Imperial County Codified Ordinances to assure that proposed developments have identified adequate sewage disposal mechanisms that are protective of water quality objectives. However, the County's approval of proposed subdivisions and grant of conditional use permits will be restricted to the standards of this LAMP, unless otherwise granted discretionary authority in ordinance for OWTS siting, construction, or use for proposed developments. It should be noted that Urban Area designations have not been discussed at length as development in these areas shall provide for the extension and development of full urban services such as public sewer and water.

Land Use Development Standards

- All proposed subdivision development and new multiple-family, commercial, and industrial development within an Urban Area adjacent to incorporated cities shall connect to public sewer. Furthermore, no OWTS permit will be issued for the installation, alteration or repair on any lot for which a connection with a public sewer is available.

- All proposed major subdivisions shall provide for the extension or development of full public sewerage services to be permitted by the Regional Water Quality Control Board. The use of OWTS on newly created individual lots is restricted to minor subdivisions where access to public sewer services is otherwise not accessible. Minimum lot sizes per dwelling unit for residential or commercial development will otherwise be consistent with the County Land Use Ordinance in Title 9 where public water and sewer service is available.

- New minor subdivisions for residential improvement in Limited Agriculture Areas (A-1) within Urban boundaries or other Community Areas will be subject to a minimum size limit of one dwelling unit per acre provided that a soils report prepared by a qualified engineer demonstrates that sufficient soils and/or setbacks can be maintained consistent with minimum OWTS standards. A minimum of five feet to groundwater must be maintained for new residential parcels located within an Area of Special Concern, as well as a larger minimum parcel size of two and one half (2.5) acres. Due to potential groundwater impacts, more intensive commercial or industrial land uses may only be allowed pursuant to an approved Master Plan for the overall Community Area when adequate public infrastructure exists.

- The purpose of the General Agriculture (A-2) or Heavy Agriculture (A-3) zoning designations is to maintain areas that are suitable and intended primarily for agricultural uses. An exception to the minimum lot/parcel size of forty (40) acres is provided in the County Land Use Ordinance for the subdivision of property by parcel map within existing enclaves or to authorize conveyance of an existing single-family dwelling. As these agricultural properties are often used for farming related activities and located within the Imperial Valley Subunit that contains marginal soils suitable for OWTS installation, a minimum parcel size of two and one half (2.5) acres shall be maintained for new parcels unless a site specific waiver is granted based on the unique characteristics of the site that would equally prevent water quality degradation given a smaller parcel configuration. An additional dwelling unit may be permitted on existing lots provided that the minimum requirements of Chapter 8.80 of the Imperial County Codified Ordinances can be met. Agricultural employee housing may be permitted with a Conditional Use Permit following an appropriate environmental review to determine whether suitable sewer and potable water infrastructure can be supported.

- The Land Use Element of the County General Plan recognizes the unique recreational character of Imperial County and includes Open Space/Recreation/Preservation Areas of the County characterized by a low intensity of human utilization and associated impacts. The maximum allowable density for residential use is one dwelling unit per acre, with a minimum parcel size for new subdivisions of one single family dwelling per twenty (20) acres.

- The development of recreation-oriented residential or special occupancy uses in Open Space/Recreation Areas, such as mobile home and recreational vehicle (RV) parks, and resort and recreation facilities, provide unique challenges for wastewater treatment and dispersal due to the quantity of wastewater flows generated as well as the non-domestic waste characteristics of the sewage. These parks shall not be developed unless an operation and discharge permit has been issued by the Regional Water Quality Control Board for the proposed discharge, regardless of projected flow quantities.

Development Prohibitions

- Dry recreational vehicle parks are generally prohibited; however, an RV dump station with holding tanks may be permitted by the Division in remote desert areas to service a proposed RV park or RV storage facilities without sewer utility connections.

- Holding tank systems shall not be allowed as a permanent means of wastewater management for either seasonal or a year-round operations. The Division may permit holding tanks for RV dump stations, interim use for temporary construction offices or for limited seasonal use where it is not practicable to otherwise install an OWTS system.

- No pit privies shall be permitted in the unincorporated County of Imperial. The adequate and reliable provision of running water and proper means of sewage disposal is required for all buildings constructed for human occupation. Additionally, it is unlawful to drill, construct, maintain, or to operate a cesspool or sewer well. Due to the potential to detrimentally impact groundwater, seepage pits are not authorized by the Division, unless otherwise permitted for non-conforming repairs where siting limitations would require a variance to these standards.

- The discharge to an OWTS that exceeds peak design flows or the maximum permitted capacity of the system is prohibited for existing developments. Persons that do not comply

with the permitting conditions of an existing OWTS are not covered by a waiver of waste discharge requirements, and may be subject to enforcement action pursuant to Section XI of this LAMP and will be directed by the Division or RWQCB to take corrective actions to remedy the condition of violation.

- To ensure the safe and reliable provision of potable water to county residents through private or public water systems, no lot shall be developed such that a connection to a public water system or an identified on-site supply of potable water is detrimentally impacted or potentially threatened by an OWTS installation. An onsite source supply of water that is safe and reliable must be identified prior to the grant of occupancy by the county building official.

Any appeal process or waiver request to the Health Officer from these development standards and prohibitions contained herein will be processed as described in Sections 8.80.260 and 8.80.280 of Imperial County Ordinance, respectively, and as noted in Section XI of this LAMP. The County will review proposed developments for consistency with these standards, and update the LAMP as necessary to afford ongoing protection of public groundwater resources.

Section IX Septage Management

This section describes the existing disposal locations for septage, the volume of septage anticipated, and general septage management in Imperial County as required by Section 9.2.6 of the State Policy. Although it is difficult to accurately assess the total quantity of septage that may be generated from OWTS on an annual basis, a general discussion of septage management has been provided in this LAMP.

Septage is a partially treated mixture of solid waste, scum, sludge, and liquids that are pumped from septic tanks, pump tanks, holding tanks, chemical toilets, or any other OWTS component containing sewage. It is estimated that the majority of septage pumped and hauled to authorized disposal facilities within Imperial County is generated from the routine pumping of residential septic tanks. As generally discussed in Section X, an owner of record is responsible for properly operating and maintaining an OWTS, including employment of a registered sewage pumper/hauler to remove septage from the tank when the level of solids and scum indicate that removal is necessary. A service visit by an authorized provider is recommended at least every five (5) years. Failure to routinely pump a septic tank allows accumulated solids to pass out of the tank and clog the dispersal field, potentially requiring a complete replacement of the OWTS.

In Imperial County, septage is also generated in large quantities from recreational vehicles (RVs) associated with off-roading activities, private RV dump stations, and from chemical toilets provided for agricultural farm laborers. Septage pumpers/haulers providing cleaning services for septic tanks, recreational vehicles, or chemical toilets must be registered with the Division and maintain an annual health permit in accordance with the California Health & Safety Code, Section 117405 et seq. A sanitary inspection of septage pumper/hauler vehicles and equipment is conducted prior to the issuance of an annual permit. The inspection also includes a review of required pumping records that specify the locations serviced and where the cleanings were disposed.

Upon removal or cleaning by a registered pumper hauler, liquid septage must be transported to a disposal facility that operates under the authority of a permit issued by the Colorado River Basin Regional Water Quality Control Board. Currently, there are three (3) facilities in Imperial County that accept septage for further treatment and disposal: the Holtville Wastewater Treatment Plant, the Calexico Wastewater Treatment Plant, and the Seeley County Wastewater Treatment Plant. Initial

volume estimates obtained for septage received at these facilities for the calendar years of 2012 to 2014 was approximately 3.48 million gallons per year, which accounted for an estimated 0.27% of the total wastewater volume treated by these facilities during this same period. Sufficient local capacity to manage the treatment of septage volumes generated from OWTS currently exists in Imperial County.

The subsequent treatment of sewage and management of biosolids generated at these permitted wastewater treatment facilities is also described in the attached Biosolids Generation and Management in Imperial County (August 2006) report included in Appendix F. As septage is transported as a liquid waste, there are currently no solid waste landfill facilities that are permitted to accept this waste for disposal in Imperial County.[7] However, dewatered sewage sludge from wastewater treatment plants may be disposed of at either the Imperial Landfill or the Salton City Solid Waste Site.

[7] The South Yuma County Landfill in Arizona may be authorized to receive non-hazardous liquid wastes (including septic or sewage wastes) for disposal at its liquid solidification process facility.

Section X Education & Training

Proper operation and maintenance of an on-site wastewater treatment system is critical for environmental and public health protection by ensuring that deleterious impacts associated with failing or poorly designed and installed OWTS are minimized. While an on-site wastewater treatment system is a significant long term investment for a private property owner or commercial business, insufficient education is often available for system owners. Education and outreach is necessary to ensure that residents are equipped with a service manual informing them how to properly maintain and operate their OWTS for years to come. Additionally, ongoing training will be offered to service professionals to improve industry standards when conducting OWTS maintenance and/or when troubleshooting problems that may arise with existing systems.

Education

Unlike centralized sewer systems that employ certified operators to oversee day to day operations, OWTS owners need to be sufficiently informed about how to locate, operate, and maintain their system to keep it functioning as designed since they are tasked to be the day to day operators of their onsite wastewater treatment system. Proper operation and preventative maintenance is essential to avoid unanticipated failures, expensive repairs, or conditions where sewage is being improperly treated prior to its discharge to surface or groundwaters. OWTS owners should not, for example, introduce strong chemicals into the system for the purpose of system cleaning, use additives that are not approved by the State, or dispose of more sewage or other wastewater into an OWTS than it is designed to accommodate. Moreover, OWTS owners should protect the dispersal system and replacement area from impervious cover, stormwater drainage, flood irrigation, soil compaction or vehicular traffic. A licensed sewage pumper should be employed to remove septage from the septic tank when the level of solids and scum indicates that removal is necessary (or approximately every 3-5 years for a family of four).

While this information is commonly available through many public resources, it is the intent of the County to provide new OWTS owners with a basic service manual to guide them on how to operate their new on-site wastewater treatment plant from day one. For those OWTS incorporating alternative treatment or dispersal field components designed by a qualified professional, the design must include a site specific operation and maintenance manual for the owner of an alternative OWTS.

Training

In some instances, supplemental treatment may be required based on soil or groundwater conditions at the property, or due to inadequate setbacks to drinking water supplies. The use of these systems will require an annual operating permit with specific service schedules by a qualified provider. To ensure that local OWTS service providers are sufficiently trained to conduct ongoing system maintenance, telemetric monitoring, reporting, and quarterly sampling of wastewater effluent, the Division, in consultation with the RWQCB, will develop and implement a local certification program. Training will also be made available, when possible, to commercial OWTS installers, designers, and homeowners through partnering nonprofit organizations, such as the California Onsite Wastewater Association, Rural Community Assistance Corporation, or others that may be sponsored by the State Water Resources Control Board. An emphasis of the trainings will be placed on OWTS troubleshooting to ensure that system deficiencies are detected early so that preventative maintenance or corrective actions can be taken to reduce treatment failures.

Technical Advisory Committee

As alternative dispersal and treatment technology options will continue to change with further advancements in small scale wastewater treatment, the Division intends to establish a technical advisory committee to review and recommend revisions for adopted technical standards in response to these OWTS advances. The technical advisory committee will consist of industry professionals selected by the Division based on experience, training, and knowledge of on-site wastewater treatment system technology. This ad hoc committee will also review technical standards and policies that have been adopted by the Department at least every five years, and submit any recommended changes to the County for incorporation into the next LAMP update.

Section XI Enforcement

It will be the duty of the local Health Officer or Department Director, as the Administrative Officer, to enforce the provisions of this LAMP as codified in County Ordinance. While public education and coordination with other county departments on the permitting of proposed building projects has lessened the need for direct enforcement action, there are situations encountered that serve as an immediate threat to public health and safety. Enforcement procedures have been developed to provide an owner ample opportunity to comply with local ordinance or State regulations with respect to OWTS provisions. However, the Department has also developed enforcement tools for a quick response when immediate or potentially injurious health or damaging environmental impacts are identified. The circumstances or conditions that would result in the initiation of enforcement activities are described in this section.

Violation of OWTS Provisions

County Ordinance requires that a permit be obtained prior to construction, alteration or modification, expansion, repair, or abandonment of an OWTS. It further states that it is unlawful to cover, conceal, or place into use any OWTS or part thereof without first having obtained an inspection and final approval from the Division. Should the County be made aware or discover such work without a permit, a cease and desist (or stop work) order is issued to the property owner directing that all work cease and that the appropriate permit be obtained. An OWTS that was installed, modified, repaired or abandoned without permit has no legal standing, and it will be the responsibility of the owner to make any modifications necessary to meet the requirements of this LAMP, including the submittal of an application and supporting documents (i.e. percolation test, design, etc). A violation of a stop work order or a failure to correct unauthorized construction is subject to a citation as provided for in Imperial County Ordinance, Section 8.80.270.

Citation Authority

The Health Officer, and any qualified designee, shall have authority to issue citations for violations of Chapter 8.80 of the Imperial County Codified Ordinances against any person, firm or corporation that is in violation of this OWTS ordinance to effect compliance with these standards. Any person who violates or fails to comply with any provision of this Chapter shall be guilty of an

infraction punishable by a fine not to exceed two hundred fifty dollars ($250.00). A second or subsequent violation is a misdemeanor punishable by imprisonment in county jail for not more than six months and by a fine of not less than five hundred dollars ($500.00) nor more than one thousand dollars ($1,000.00).

Notwithstanding these provisions, any disposition of a violation resulting in an immediate or potential health hazard shall not absolve a person from correcting or abating the violation immediately, and shall not prevent the Health Officer or the County from pursuing criminal prosecution, other civil action, including, but not limited to, injunctive relief, registration revocation, and immediate abatement, or all of the above.

Appeal Hearing

Any person aggrieved by an action taken by the Division pertaining to the processing, issuance, suspension, or revocation of permits, or the issuance of stop work orders may request an administrative hearing before a hearing officer. The timelines and procedures of such a hearing have been established in County Ordinance.

Furthermore, individuals requesting a site specific waiver from local OWTS requirements may petition the Health Officer to grant a special permit or variance to these standards, provided that the waiver does not create a potential health hazard and is consistent with the purpose of this LAMP. If the Health Officer determines that a waiver is not consistent with the purpose of County Ordinance and may result in a violation of the State Policy, no waiver will be issued and the person will be directed to seek relief and/or applicable permitting by the applicable Regional Water Board for the discharge.

Financial Assistance

While it is not anticipated that this LAMP will cause undue financial hardship on private property owners to comply with the State Policy or the local alternative standards developed herein, the County may seek to establish a low interest loan program and/or refer owners to outside agencies that may provide direct financial assistance with funds from the Clean Water State Revolving Fund

consistent with Section 14.0 of the State Policy. The details of any such local assistance program will be provided as an update to the LAMP program upon adoption by the County.

Section XII Program Administration

In accordance with Section 9.3 of the State Policy, this Local Agency Management Program outlines the responsibilities of administering the program. The liquid waste program is located under the Environmental Health Services section of the Division of Environmental Health. Staff assigned to this section report to the Environmental Health Services Manager, who in turn reports to the Deputy Director of the Division. Please see the organization chart for the Division of Environmental Health in Appendix F.

Minimum Staff Requirements

Staff assigned to the liquid waste program is classified at the journey-level Environmental Health Compliance Specialist II position. A Registered Environmental Health Specialist within the Environmental Health Services section reviews all new or replacement OWTS permits prior to issuance by the Division. Based on a recent workload analysis, the liquid waste program requires a minimum of 0.4 Full-Time Equivalents (FTEs) for technical staff, with additional administrative and supervisory support.

Table 2. Time-task analysis.

Program Component	Staff Hours Per Year[1]		
	2012	2013	2014
Septage Haulers	23.6	52.3	25.5
OWTS Permits	214.5	203.8	190.1
Building Plan Reviews	22.4	169.1	222.8
Sewage Complaints	6.2	6.4	7.1
General Liquid Waste[2]	295.4	192.9	147.3
Travel Time	70.3	109.1	114.0
Total Time (FTE)	632.4 (.36)	733.6 (.41)	706.8 (.40)

[1] One Full Time Equivalent (FTE) = 1768 Hours/Year Per Person

[2] The General Liquid Waste program component includes document and technical report reviews, written correspondence, follow up meetings, and consultations.

With the adoption of a Local Agency Management Program, the Division must also account for additional program requirements that will be newly implemented upon its adoption. Specifically,

the Division anticipates that an increase in technical staff time will be necessary for each permit application to review design and soils characterization reports, conduct permit tracking and reporting for the RWQCB, and implement the ongoing regulatory oversight duties of the Advanced Protection Management Program. To evaluate programmatic and fiscal needs for local implementation of this program, the current time accounting system through Envision Connect will be maintained. For time accounting purposes, all staff assigned to the liquid waste program complete Daily Activity Reports (DARs) in Envision Connect that detail the tasks performed by an individual and the time spent on each of these tasks during a workday. The DAR entry codes identify the particular program, the permit or project, the activity or type of work performed, and the time spent by the Environmental Health Compliance Specialist performing the specific activity.

Based on the estimated increase in time necessary for implementing the LAMP, the Division anticipates increasing the minimum staffing to 1.0 FTE person to accommodate the additional responsibilities. However, the workload and staffing may be shifted and/or shared between equivalent Environmental Health technical program staff depending on program needs.

State Reporting

The Division fully intends to submit an annual report to the Colorado Regional Water Quality Control Board as required by Sections 3.3 and 9.3 of the Policy. The annual report will be provided to the RWQCB no later than February 1st of each year, and will include the preceding reporting period of January 1st to December 31st. The first annual report is anticipated to be submitted prior to February 1, 2016; and will include the information requested in the State Policy, as summarized below:

- the number and location of OWTS related complaints, including a description of the Division response to resolve any justified complaints;
- a summary report of the registered septage hauler permits issued for the calendar year;
- the number, address location, and type of OWTS permit issued by the Division (i.e. new, repair, alteration, replacement, or abandonment);

- the number, address location, and type of OWTS permit issued by the Division where a variance is granted to the minimum county standards;

- the number and address location of OWTS permitted with supplemental treatment under the Advanced Protection Management Program for areas of special concern; and

- water quality testing results from private and public water systems compiled as part of the local Groundwater Ambient Monitoring and Assessment Program for the Coyote Wells Aquifer and the Lower Colorado River Basin Aquifer areas of special groundwater concern as described in Section VI.

As the groundwater in the Coyote Wells Aquifer and the Lower Colorado River Basin Aquifer are utilized as primary sources for drinking water, the Division will also submit every fifth year an evaluation of the monitoring program for these Areas of Special Concern, along with an assessment of whether water quality is being impacted by OWTS. If groundwater quality impacts or impairments are identified, the report will also identify modifications that may be necessary in the Local Agency Management Program to address these impairments.

The summary of groundwater monitoring data compiled as part of the Groundwater Ambient Monitoring and Assessment Program will not be submitted in an electronic deliverable format (EDF) for inclusion into the State Water Resource Control Board's (SWRCB) Geotracker System as the Division does not currently have the software capabilities to electronically report the data at this time. The Division will, however, continue to direct public water systems within these groundwater Areas of Special Concern to submit all required groundwater sample results through electronic data transfer (EDT) to the SWRCB's Division of Drinking Water Program, which is data that is also directly accessible by the RWQCB.

Fiscal Impact/Regulatory Fees

The Local Agency Management Program will be funded through permit fees. All of the fees for the Division of Environmental Health, including the Liquid Waste Program, were most recently revised in 2012 to account for full cost recovery of related permitting and inspection services. The fee study for the Imperial County Public Health Department was prepared by Wohlford Consulting, and

was based on an evaluation of staff time for each fee service. The daily accounting by service and program element data from Envision Connect allows the Division to accurately calculate the user fee cost for each of the LAMP program services.

As part of the phased implementation of the fee study, specific Liquid Waste/Sewage System and Septage Hauler permit fees were temporarily reduced by 25% to 50% for one to two years with a 25% cap on the total fee increase to be proposed. The reduction and/or delay of permit fee implementation for septage haulers, new or replacement OWTS, engineered OWTS, and septic tank replacements and abandonments resulted in temporary budget shortfalls in the Liquid Waste Program. All temporary reductions have now expired as of July 1, 2014; and permit fees, with the exception of minor repair permits, currently reflect the full user cost to the Division.

In fiscal year 2013/14, the program revenue generated to support the Liquid Waste Program was derived from three main sources: annual health permits for septage haulers ($50,758.00), construction permit fees for OWTS related projects ($14,336.00), and building permit reviews ($24,346.10). It is anticipated that the current fees for the Liquid Waste Program will sufficiently fund the current 0.4 FTEs of technical staff, and clerical/supervisory support needed to initially manage the proposed LAMP. However, the Division anticipates that the relatively fixed revenue support for the program may result in an estimated 15-20% shortfall in budget revenue over the next five year planning period as additional permitting, RWQCB reporting, design review, and tracking time is required. Division fees will continue to be evaluated to ensure that program staffing and budgets are sufficient to meet the responsibilities of the Local Agency Management Program.

LAMP Revisions

It is likely that modifications to this Local Agency Management Program may need to be made in the future based on a variety of factors, including, but not limited to:

- Updates to the Advanced Protection Management Program based on the adoption of a TMDL implementation plan by the RWQCB;

- A modification to the Clean Water Act 303(d) list of impaired water bodies for nitrogen or pathogens that are located within Imperial County;

- Revisions to the minimum OWTS standards within Areas of Special Concern based on the results of the ongoing Groundwater Ambient Monitoring and Assessment Program; or the

- Adoption of revised technical standards for OWTS with supplemental treatment.

If, at any time, the Division proposes to modify the approved LAMP, it will provide to the State Water Board and the Colorado River Basin Regional Water Quality Control Board written notice of its intended modifications. As required, Imperial County would continue to implement its existing Local Agency Management Program until such modifications are approved.

Appendices

References

Clean Water Act Section 303(d) List of Impaired Water Bodies. 2012. California Regional Water Quality Control Board, Colorado River Basin.
http://www.waterboards.ca.gov/coloradoriver/water_issues/programs/tmdl/rb7_303d_list.shtml

Colorado River Region Water Quality Control Plan. 2014. California Regional Water Quality Control Board, Colorado River Basin. http://www.waterboards.ca.gov/coloradoriver/water_issues/programs/basin_planning/

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Land Use Element of the Imperial County General Plan. January 29, 2008. Imperial County Planning and Development Services Department. http://icpds.com/CMS/Media/Land-Use-Element-(2008).pdf

Ocotillo-Coyote Wells Aquifer in Imperial County, California; Sole Source Aquifer Final Determination. September 10, 1996. Federal Register, Vol. 61, No. 176. Environmental Protection Agency.
http://www.gpo.gov/fdsys/pkg/FR-1996-09-10/pdf/96-23066.pdf

Soil Survey Maps of Imperial County. United States Department of Agriculture, Natural Resources Conservation Service. http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

Soil Survey of Imperial County California Imperial Valley Area, 1975. U.S. Department of Agriculture Soil Conservation Service. http://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/california/CA683/0/imperial.pdf

State Water Quality Control Policy for Developing California's Clean Water Act Section 303(d) List (adopted September 30, 2004), State Water Quality Control Board.
http://www.waterboards.ca.gov/water_issues/programs/tmdl/docs/ffed_303d_listingpolicy093004.pdf

Update of the Accounting Surface Along the Lower Colorado River. 2009. U.S. Geological Survey, Stephen M. Weile et al. http://pubs.usgs.gov/sir/2008/5113/sir2008-5113_text.pdf

Agency Links

Bureau of Land Management	http://www.blm.gov/ca/st/en/fo/elcentro.html
City of Calexico Utility Services	www.calexico.ca.gov/
City of Holtville Public Works	www.holtville.ca.gov/
Coachella Valley Water District	http://www.cvwd.org/
County of Imperial	www.co.imperial.ca.us
Imperial Irrigation District	www.iid.com
Imperial County Planning & Development Services	http://www.icpds.com/
Imperial County Public Health	http://www.icphd.org/
Local Agency Formation Commission	http://www.iclafco.com/
Palo Verde County Water District	Tel: 760-854-3530
Regional Water Quality Control Board, Colorado River	http://www.waterboards.ca.gov/coloradoriver/
Salton City Community Services District	http://www.saltoncsd.ca.gov/
Seeley County Water District	https://seeleycountywaterdistrict.wordpress.com/
State Water Resources Control Board	http://www.waterboards.ca.gov/
U.S. Department of Housing and Urban Development	http://portal.hud.gov/hudportal/HUD