

ITEM 8 - LATE ADDITION

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION**

MEETING OF APRIL 19-20, 2017

BARSTOW

ITEM 8

**WORKSHOP – ONSITE WASTEWATER TREATMENT SYSTEM (OWTS) POLICY,
IMPLEMENTATION PROGRESS REPORT**

Add the attached Enclosure 3, Approved Excerpts from other Local Agencies behind
Bates page 8-19

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ENCLOSURE 3

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APPROVED EXCERPTS FROM OTHER LOCAL AGENCIES

The following excerpts provide an overview of major elements of concern to the Water Board and are from the Kern County and Riverside County LAMPS.

Most of Kern County is within the Central Valley Regional Water Board's (Region 5) jurisdiction, which is approving the LAMP, while the eastern portion is within the Lahontan Regional Board's jurisdiction (Region 6) and only small portions are in the Central Coast Regional Board (Region 3) and Los Angeles Regional Board (Region 4).

The Colorado River Regional Water Board (Region 7) approved the Riverside County LAMP, which lies within Region 7, the Santa Ana Regional Water Board (Region 8) and the San Diego Regional Water Board (Region 9).

EXCERPT	ITEM	BATES NUMBER
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B	Riverside County LAMP, pages 37 and 38	8 – 32
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The following table summarizes different approaches taken by Riverside and Kern counties to address different selected criteria for regulating OWTS.

Table: Comparison of Kern and Riverside County LAMPs for OWTS Criteria of Significance to the Lahontan Water Board

Note: Most of Kern County is in the Central Valley Region. The criteria in this enclosure apply to the entire county regardless of regional board jurisdiction.

Criterion	Riverside County LAMP	Kern County LAMP
Minimum lot sizes	<p><u>See Excerpt A</u> Minimum lot size is ½ acre, not less than 2½ acres if subdivision has individual water wells.</p>	<p><u>See Excerpt E</u> The limitations on lot size is based on the need for, and the results of, a nitrogen-loading analysis. See special section below this table.</p>
Maximum number of lots in a new subdivision	<p><u>See Excerpt A</u> Proposed subdivision with more than 40 lots where lot sizes are less than 2½ acres must have extension or development of full public sewerage systems to be permitted by the Regional Board.</p>	<p>(No requirements found.)</p>
Supplemental Treatment System (STS) requirements	<p><u>See Excerpt B</u> In the Riverside Co. LAMP, STS are part of Alternative Treatment Systems.</p> <ul style="list-style-type: none"> • STS must achieve 50% total nitrogen reduction. • STS requires an annual renewal operating permit. • STS owners must have a service agreement with a qualified service provider (QSP). • QSP must conduct an annual inspection of STS and provide Local Agency inspection results within 45 days of inspections. • Failure of an owner to maintain an annual operating permit may result in enforcement action. 	<p><u>See Excerpts F, G, and H</u></p> <ul style="list-style-type: none"> • Local agency defines alternative OWTS as system with STS or different dispersal systems, such a pressurized dose systems. • STS may have to achieve a 50% total nitrogen reduction, depending upon nitrogen loading analysis. • County issues renewable annual permit to OWTS owner to: <ul style="list-style-type: none"> – ensure adequate system performance; – give right to enter property to conduct inspections; and – require performance monitoring and reporting.
Annual reports	<p><u>See Excerpt C</u> In addition to Policy required data, Local Agency will require reporting water quality data to the Division of Drinking Water for public water systems less than 200 service connections.</p>	<p>(Same as Policy required data)</p>

Criterion	Riverside County LAMP	Kern County LAMP
Water Quality Assessment Program (WQAP)	<p><u>See Excerpt C</u> Local Agency will submit an assessment report every 5 years.</p>	<p><u>See Excerpt I</u></p> <ul style="list-style-type: none"> • WQAP is organized by groundwater basins and localized areas. • Scope includes combination of GIS-based mapping, OWTS inventories, and nitrate analyses. • Process includes joint cooperation efforts among different agencies, such as water districts and special districts. • Process allows establishment of Onsite Wastewater Disposal Zones, which would give construction authority.
5-year WQAP assessment report	<p><u>See Excerpt C</u></p> <ul style="list-style-type: none"> • The assessment report will include monitoring data for nitrates and pathogens, and may include data for other constituents are needed to adequately characterize the impacts of OWTS on water quality. • If water quality is found to be impacted by OWTS, as determined by the Regional Board and the Local Agency, changes in the LAMP will be implemented to address these impacts. 	<p><u>See Excerpt I</u> Assessment report will include the following:</p> <ul style="list-style-type: none"> • evidence of water quality impact from OWTS; • recommended LAMP changes to address identified impacts; • Groundwater data loaded into GeoTracker; and • Surface water loaded into CEDEN/SWAMP. <p>In the Lahontan Region, the county will consider utilizing a computer model to evaluate nitrate loading and groundwater recharge rates for areas of high density and/or clustered develop. The county added this requirement to address Lahontan Water Board concern to forecast the arrival time to groundwater.</p>
Areas of special concern	<p><u>See Excerpt D</u> The LAMP lists 7 areas of special concern. Some of these may be Water Board prohibitions.</p>	<p><u>See Excerpt J</u> The LAMP does not specify specific areas. However, the LAMP gives the county the authority to delineate special areas based on cumulative impact assessment results.</p>

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Excerpt A

Riverside County LAMP, page 15

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Excerpt A

10. Minimum Lot Size Requirements

The Department has a minimum lot size requirement for lots proposed to be created and developed based on the use of an OWTS. The minimum lot size for any subdivision of property made pursuant to the Subdivision Map Act proposing to use OWTS shall not be less than 0.5 acre, or less than 2.5 acres if also proposing individual domestic wells. In proposed subdivisions where high ground water, steep slopes, or poor soil conditions exist, or where there are significant impacts to ground water quality, any or all of the following may be required: an increase in lot size, supplemental treatment, or other mitigating measures as determined by the Department. Where zoning regulations require greater lot sizes, those regulations shall take precedent.

Lots created prior to the implementation of this LAMP are not subject to the aforementioned minimum lot size requirements, however they will be subject to the design requirements of this LAMP. Existing and approved tentative tract maps are also not subject to the aforementioned minimum lot size requirements, if they have received an approved San 53 (see Chapter 7) from DEH **AND** have submitted a planning application prior to the effective date of the LAMP.

Proposed subdivisions with more than 40 lots where the lot sizes are less than 2.5 acres per lot shall provide for the extension or development of full public sewerage services to be permitted by the Regional Water Quality Control Board.

Note: Areas of special concern will have additional requirements as specified in Chapter 13.

11. Preliminary Recommendations

Preliminary recommendations for each lot shall include, but not be limited to, the following:

- a) Design rate in minutes/inch converted to square feet/100 gallons of septic tank capacity for leach lines, and/or in gallons per square foot converted to vertical feet of seepage pit per 100 gallons of septic tank capacity (specify 5 or 6 foot diameter) for both the primary and expansion systems.
- b) Location of the systems.
Note: If possible, the septic tank should be located in the front yard. This helps to accommodate servicing and facilitates an eventual connection to sewer if it becomes available.
- c) Depth of systems. Recommendations should correspond to depth of tests. Maximum depth of leach line or pit should be stated. Effective sidewall of seepage pit must correspond to testing depths.
- d) Special designs, if necessary. Examples include additional separation of pits or lines, amount of rock below line in excess of required code, chamber type line, non-conventional pumped, advanced treatment, etc.
- e) A statement as to whether or not there will be sufficient usable space available on every lot - in addition to the areas set aside for the primary and expansion

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Excerpt B

Riverside County LAMP, pages 37 and 38

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Excerpt B

CHAPTER 6 – ALTERNATIVE TREATMENT, GRAYWATER, AND HOLDING TANKS

Alternative Treatment Systems

Many lots that are desirable for development are unsuited for conventional septic systems as defined in Riverside County Ordinance 650 due to soil conditions and/or groundwater issues. Alternative Treatment Systems, also referred to as ATUs, are used to overcome specific site constraints generally having to do with high ground water or shallow soils, and provide the additional treatment that will not be provided in the soil.

As required by Ord. 650, all ATUs are subject to an annual renewable operating permit (ROP) issued by the Department and subject to inspections. A right of entry agreement and the requirement for maintaining an ROP shall be recorded on the property deed.

ATU Design Criteria

1. All supplemental treatment components of an ATU must be certified by the National Sanitation Foundation (NSF) to meet the minimum requirements of NSF Standard 40 and must meet the performance conditions established by this Department and the Regional Water Board. ATUs utilizing nitrogen reduction components shall achieve a minimum 50 percent nitrogen reduction, when comparing the 30-day average influent concentration to the 30-day average effluent concentration.
2. Percolation testing, soil depth evaluations and groundwater elevation determinations shall be performed by a Professional of Record (PR). Percolation testing will be performed at the proposed installation depth of the dispersal field and shall follow the procedures stated in Chapter 3 of this LAMP.
3. Treated effluent from all ATUs shall be discharged to a subsurface dispersal system consisting of leach lines, seepage pits, or pressurized drip dispersal systems.
4. System sizing for dispersal systems that utilize leach lines or seepage pits shall be the same as those used for conventional OWTS.
5. Pressurized drip dispersal systems shall be designed and installed per the manufacturer's recommendations.
6. A minimum 2 feet of soil must separate the bottom of the ATU dispersal system from impermeable strata or the highest anticipated level to which groundwater could be expected to rise.
7. The ATU shall be equipped with a visual and audible alarm that alert the owner/occupant of system malfunctions.
8. Site plans must include detailed specifications of the components of the proposed ATU.

Construction Requirements for Drip Dispersal Systems

The construction requirements for dispersal systems consisting of leach lines and seepage pit systems can be found in the specific chapters in this LAMP for those systems. The construction requirements for pressurized drip dispersal systems shall be as follows.

1. Drip dispersal systems must be installed by a Qualified Service Provider (QSP) trained on the specific system proposed, and installed according to the PR's specifications for location, components, size, and depth.

2. The natural soil cover over a drip dispersal system shall be at least 9 inches but no greater than 12 inches.
3. The area of the drip dispersal system shall be planted with appropriate vegetation to allow for uptake of nutrients from the wastewater.
4. The drip dispersal system shall be designed and maintained to reduce orifice clogging and root intrusion.
5. The drip dispersal system shall be designed, located and maintained to prevent vehicular traffic over it.
6. The setbacks required between drip dispersal systems and other components of the OWTS as well as structures, property lines, easements, watercourses, wells, or grading shall be the same as required for leach lines.
7. Drip dispersal systems are pressure distribution systems and head loss calculations shall be provided to ensure proper hydraulic pressure at the emitter.
8. Drip dispersal system emitter lines shall be designed as a continuous loop circuit with no dead-ends. Vacuum release valves shall be installed at the highpoint of the emitter lines.
9. The maximum emitter longitudinal spacing on an emitter line shall be 2 feet. The maximum spacing between adjacent emitter lines in an absorption bed configuration shall be 2 feet.
10. Drip dispersal systems shall be time dosed over a 24-hour period. Demand control dosing shall override timed dosing in periods of flow where timed dosing cannot accommodate the excessive flow.
11. All drip dispersal systems shall incorporate a mechanism for backwashing or flushing the drip lines and filters.
12. All components shall be certified in writing by the PR who designed the system that the installation was completed per the approved design.

Operation and Maintenance

1. All ATUs require an annual operating permit issued by this Department as required by Ordinance 650.
2. All ATU owners must maintain a service agreement with a QSP trained by the manufacturer.
3. All ATUs require, at a minimum, an annual inspection by the QSP to ensure proper operation and maintenance of the system. The QSP shall provide copies of the inspection results to this Department within 45 days of the date of inspection.
4. Failure to maintain an annual operating permit and/or provide the annual inspection report to this Department may result in enforcement action as specified in Ordinance 650.

Graywater Systems

Graywater is defined in the California Plumbing Code as untreated water that has not been contaminated with any toilet discharge. Graywater includes wastewater from bathtubs, showers, bathroom washbasins, clothes washing machines, and laundry tubs, but does not include wastewater from kitchen sinks or dishwashers. No plumbing connection deemed by the

Excerpt C

Riverside County LAMP, page 47

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Excerpt C

CHAPTER 12 – DATA COLLECTION AND REPORTING

Data Collection/Reporting/Notifications

As a condition of oversight of OWTS within Riverside County, the Department has certain responsibilities related to data collection and reporting to the Colorado River Basin, Santa Ana, and San Diego Regional Water Quality Control Boards (Regional Water Boards) as well as in some instances to the owners of water systems and the State Water Board's Division of Drinking Water (DDW). This Chapter will detail the data that must be collected and the procedure for reporting to Regional Water Boards and notifications to owners of water systems and the State Water Board DDW.

Reporting to Regional Water Boards

On an annual basis, the Department will collect data and report in tabular spreadsheet format the following information. A copy of the report will be provided to the Colorado River Basin, Santa Ana and San Diego Regional Water Boards no later than February 1st of each year, and will include the preceding reporting period of January 1st to December 31st. At minimum, the annual report will include data for nitrates and pathogens from the following:

1. Random well samples from domestic wells (if reported).
2. Routine real estate transfer samples (if reported).
3. Water quality data reported to the LPA for public water systems less than 200 service connections.
4. Water quality data from initial domestic well sampling.
5. The number, location, and description of permits issued for new and replacement OWTS.
6. Additional water quality data from sampling performed as part of an NPDES permit or as part of a Waste Discharge Requirement, as reported to us by the responsible agency.
7. The volume, location of disposal, and hauler for all liquid waste disposal of septage.

Note: The Department will direct all public water systems, with less than 200 service connections, to submit all required groundwater sample results through electronic data transfer (EDT) to the SWRCB's Division of Drinking Water Program.

Every fifth year, the Department will submit an assessment report to the applicable regional boards. At a minimum, this assessment report will include monitoring data for nitrates and pathogens, and may include data for other constituents which are needed to adequately characterize the impacts of OWTS on water quality. If water quality is found to be impacted by OWTS, as determined by the Regional Board and the Department, changes in the LAMP will be implemented to address these impacts.

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Excerpt D

Riverside County LAMP, page 48 and 49

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Excerpt D

CHAPTER 13 – IMPAIRED WATER BODIES AND AREAS OF SPECIAL CONCERN

Existing, new and replacement OWTS that are near impaired water bodies may be addressed by a TMDL and its implementation program, or special provisions contained in a LAMP. If there is no TMDL or special provisions, new or replacement OWTS within 600 feet of impaired water bodies listed in Attachment 2 of the State's OWTS Policy must meet the applicable specific requirements found in Tier 3 of the State's OWTS Policy (See Appendix VIII).

Currently, there are six (6) impaired water bodies in Riverside County listed in Attachment 2 of the State's OWTS Policy: Canyon Lake; Fulmor Lake; Golden Star Creek; Santa Ana River, Reach 2; Temescal Creek, Reach 6 (Elsinore Groundwater sub basin boundary to Lake Elsinore Outlet); and Palo Verde Outfall Drain and Lagoon. The Department will follow the applicable specific requirements found in Tier 3 of the State's OWTS Policy or develop and obtain approval from the Regional Water Board of its own Advanced Protection Management Program.

The following areas of special concern either prohibit waste discharge or have additional discharge requirements:

1. Mission Springs or Desert Hot Springs Aquifer
 - a) The discharge of waste from new or existing individual disposal systems on parcels of less than one-half acre that overlie the Mission Creek Aquifer or the Desert Hot Springs Aquifer in Riverside County is prohibited, if a sewer system is available.
 - b) For parcels of one-half acre or greater that overlie the Mission Creek Aquifer or the Desert Hot Springs Aquifer in Riverside County, the maximum number of equivalent dwelling units with individual disposal systems shall be two per acre, if a sewer system is available. The discharge of waste from additional new or existing individual disposal systems is prohibited, if a sewer system is available.
2. Cathedral City Cove Prohibition Area - the discharge of wastewater into the ground through the use of individual subsurface disposal systems in the Cove area of Cathedral City in Riverside County is prohibited.
3. Cherry Valley Community of Interest (CVCOI) – Rising nitrate levels have been observed in the CVCOI. In accordance with Riverside County Ordinance 871, the following prohibitions are in place in the CVCOI:
 - a) No application for a new septic system shall be accepted for any lot within the CVCOI unless that system is designed to remove no less than fifty percent (50%) of the nitrogen released in the effluent (advanced treatment, denitrifying systems).
 - b) No existing system in the area shall be expanded or otherwise modified to accommodate new construction and/or additional wastewater generating fixtures or appliances.
4. I-10 Corridor at North Indian Canyon Drive and Interstate 10 – New developers must submit a Report of Waste Discharge (ROWD) and application for Waste Discharge Requirements (WDRs) to the Colorado River Basin Water Board for permitting. The area overlies a high quality groundwater aquifer with a drinking water beneficial use. Due to

Increasing business development in the area, the Colorado River Basin Water Board requires the use of advanced treatment units for nitrogen removal for new installations. The boundaries of the I-10 Corridor shall be defined as one and one half miles east and west of the Interstate 10 and Indian Canyon Drive interchange and one and one half miles north and south of the Interstate 10 and Indian Canyon Drive interchange.

5. Quail Valley – Because of small lot sizes, high population density, historical failure rates, poor soil conditions, and variable groundwater levels, the following prohibitions are in place on any new OWTS in accordance with Riverside County Ordinance 856:
 - a) No new septic systems shall be approved for any lot or parcel within the prohibited area.
 - b) No existing OWTS in the prohibited area shall be expanded or otherwise modified to accommodate new construction and/or additional wastewater generating fixtures or appliances.
6. Temecula Valley Wine Country – Potential siting and operational requirements for protection of water quality could include: establishing increased setbacks from capture zones for existing public supply wells, requiring use of advanced treatment systems and flow limits/restrictions for new or replacement OWTS located within close proximity to capture zones of public supply wells, additional monitoring requirements, etc.
7. Homeland/Romoland Prohibition – The prohibition of new OWTS in this area has been in place since 1982. New OWTS are prohibited unless exemption criteria are met.
8. Other areas which may be identified as a special concern by the Regional Board at a later date.

Excerpt E

Kern County Onsite Systems Manual – Part 1

pages 29 – 33

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Excerpt E

1.8 Cumulative Impact Assessment Guidelines

1. **General Provisions.** County OWTS Ordinance Article 3 authorizes EHD to require the completion of additional technical studies ("cumulative impact assessment") for OWTS proposals in situations where cumulative impacts on groundwater and/or watershed conditions are of potential concern. Cumulative impacts from OWTS may occur due to such factors as the constituent levels in the wastewater (e.g., nitrogen content), the volume of wastewater flow, the density of OWTS discharges in a given area, and/or the sensitivity and beneficial uses of water resources.

Cumulative impact assessments to address potential concerns shall be conducted in accordance with the requirements outlined in these guidelines. The results of the assessment shall be submitted for review by EHD and may be the basis for denial, modification or imposition of specific conditions for the OWTS proposal, in addition to other siting and design criteria.

2. **Cumulative Impact Issues.** The primary issues to be addressed in cumulative impact assessments will normally include the following:
 - a. **Groundwater Mounding.** A rise in the water table, referred to as "groundwater mounding", may occur beneath or down-gradient of OWTS as a result of the concentrated or high volume of hydraulic loading from one or more systems in a limited area.
 - b. **Groundwater Nitrate Loading.** Discharges from OWTS contain high concentrations of nitrogen that may contribute to rises in the nitrate level of local and regional aquifers.

For individual cases, EHD may identify and require analysis of cumulative impact issues other than those listed above which could pose potential water quality, public health, or safety risks.

3. **Qualifications.** Cumulative impact assessments required for alternative system proposals shall be performed by or under the supervision of one of the following licensed professionals:
 - a. Registered Civil Engineer
 - b. Registered Environmental Health Specialist
 - c. Registered Geologist

Additionally, the licensed professional assuming responsibility for the cumulative impact assessment should have training and experience in the fields of water quality and hydrology acceptable to the EHD.

4. **Cases Requiring Cumulative Impact Assessment.** Cases where cumulative impact assessments shall be required are listed in **Table A**. Additionally, EHD reserves the right to require the completion of a cumulative impact assessment in any case where, special circumstances related to the size, type, or location of the OWTS warrant such analysis.

**Table A.
Projects Requiring Cumulative Impact Assessment***

Type of Project	Lot Size (acres)	Design Wastewater Flow (gpd)	Groundwater Mounding Analysis	Nitrate Loading Analysis
Residence, including 2 nd dwelling unit(s)	-	< 750	No	No
Residence, including 2 nd dwelling unit(s)	< 1	750 +	No	Yes
Multiunit and Non-residential	< 1	750 +	No	Yes
	-	1,500+	Yes	No
	-	2,500+	Yes	Yes
Subdivisions	2.5+	-	No	No
	<2.5	-	No	Yes

*Note: EHD may also require cumulative impact assessment based on project or site specific conditions.

** The hydrological and water quality analysis requirements may be modified depending on site specific conditions and the extent to which the OWTS discharge contributes flow to catchment area supporting the vernal pool.

5. Methods

a. Groundwater Mounding Analysis

- i. Analysis of groundwater mounding effects shall be conducted using accepted principles of groundwater hydraulics. The specific methodology shall be described and supported with accompanying literature references, as appropriate.
- ii. Assumptions and data used for the groundwater mounding analysis shall be stated along with supporting information. A map of the project site showing the location and dimensions of the proposed system(s) and the location of other nearby OWTS, wells and

relevant hydrogeologic features (e.g., site topography, streams, drainage channels, subsurface drains, etc.) shall be provided.

- iii. The wastewater flow used for groundwater mounding analyses shall be the design sewage flow, unless supported adequately by other documentation or rationale.
- iv. Groundwater mounding analyses shall be used to predict the highest rise of the water table and shall account for background groundwater conditions during the wet weather season.
- v. All relevant calculations necessary for reviewing the groundwater mounding analysis shall accompany the submittal.
- vi. Any measures proposed to mitigate or reduce the groundwater mounding effects shall be presented and described as to their documented effectiveness elsewhere, special maintenance, monitoring requirements, or other relevant factors.

6. Nitrate Loading

- a. Analysis of nitrate loading effects shall, at a minimum, be based upon construction of an annual chemical-water mass balance. The specific methodology shall be described and supported with accompanied literature references as appropriate.
- b. Assumptions and data for the mass balance analysis shall be stated, along with supporting information. Such supporting information should include, at a minimum:
 - i. climatic data (e.g., precipitation, evapotranspiration rates);
 - ii. groundwater occurrence, depth and flow direction(s);
 - iii. background groundwater quality data, if available;
 - iv. soil conditions and runoff factors;
 - v. wastewater characteristics (i.e., flow and nitrogen content); and,
 - vi. other significant nitrogen sources in the impact area (e.g., livestock, other waste discharges, etc.).
- c. A map of the project siting showing the location and dimensions of the proposed system(s) and the location of other nearby OWTS, wells and relevant hydrogeologic features (e.g., site topography, streams, drainage channels, subsurface drains, etc.) shall be provided.

- d. The wastewater flow (average) used for nitrate loading analyses shall be as follows, unless adequately supported by other documentation or rationale:
 - i. For individual residential systems: 50 gpd/bedroom;
 - ii. For multi-family residential systems and other non-residential systems: average monthly wastewater flow for the proposed OWTS;
- e. Minimum values used for the total nitrogen concentration of septic tank effluent shall be as follows, unless supported adequately by other documentation or rationale:
 - i. Residential wastewater: 70 mg/l
 - ii. Non-residential wastewater: as determined from sampling of comparable system(s) or from literature values.

EHD may require the use of more conservative values than cited above if the values are judged (by EHD) not likely to be representative of the proposed system(s).

- f. All relevant calculations necessary for reviewing the nitrate loading analysis shall accompany the submittal.
- g. Any measures proposed to mitigate or reduce the nitrate loading effects shall be presented and described as to their documented effectiveness elsewhere, special maintenance or monitoring requirements or other relevant factors.

7. Evaluation Criteria

- a. **Groundwater Mounding.** The maximum acceptable rise of the water table for short periods of time (e.g., one to two weeks) during the wet weather season, as estimated from groundwater mounding analyses, shall be as follows:
 - i. **General Requirement for all OWTS.** Groundwater mounding shall not result in more than a 50-percent reduction in the required minimum depth to seasonally high groundwater per Part 2.2 of this Manual, as applicable, for the type of OWTS and site conditions. For example, where a 5-foot vertical separation to the native groundwater level is required, a short-term "mounding" rise of the water table to within 2.5 feet of trench bottom would be acceptable during peak wet weather conditions. Where a 3-foot vertical separation is required, a short-term rise to within 1.5 feet of trench bottom would be acceptable.

- ii. Requirement for Large Systems. Notwithstanding (a) above, for all OWTS with design flows of 2,500 gpd or more (i.e., "large systems"), the groundwater mounding analysis shall demonstrate that the minimum required groundwater separation, per Part 2.2 of this Manual, will be maintained beneath the system during peak wet weather conditions.

EHD may require, in any individual case or in specific geographical areas, a minimum of 2 feet of groundwater clearance ("mounded" conditions) where deemed necessary for protection of public health, or based upon specific requirements or recommendations of the Regional Water Board.

- b. **Nitrate Loading.** Minimum criteria for evaluating the cumulative nitrate loading from proposed OWTS shall be as follows:

- i. For Areas Served By Individual Water Wells.

- (a) Existing Lots of Record: New OWTS on existing lots of record shall not cause the groundwater nitrate-nitrogen concentration to exceed 7.5 mg-N/L at the nearest existing or potential point of groundwater withdrawal (e.g., water well location);

and

- (b) New Subdivisions: The total loading of nitrate from new subdivisions shall not result in an average groundwater nitrate-nitrogen concentration over the geographical extent of the subdivision that exceeds 7.5 mg-N/L.

- c. For Areas Not Served by Individual Water Wells.

- i. Existing Lots of Record: OWTS installed on existing lots of record shall not cause the groundwater nitrate-nitrogen concentration to exceed 10 mg-N/L at the nearest existing or potential point of groundwater withdrawal (e.g., water well location); and

- ii. New Subdivisions. The total loading of nitrate from new subdivisions shall not result in an average groundwater nitrate-nitrogen concentration over the geographical extent of the subdivision that exceeds 10 mg-N/L.

EHD may require, in any individual case or specific geographical areas, more stringent nitrate-nitrogen compliance criteria when deemed necessary for protection of public health, or based on specific requirements or recommendations of the RWQCB.

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Excerpt F

Kern County LAMP, pages 35 and 36

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Excerpt F

- Inlet Fitting

Alternative OWTS

General

An alternative OWTS is a type of OWTS that utilizes either a method of wastewater treatment other than a conventional septic tank, for the purpose of producing a higher quality wastewater effluent and/or a method of wastewater dispersal, other than a gravity fed drain field trench for effluent dispersal. Kern County Ordinance and Onsite Systems Manual allow for, and in some cases require, the use of an alternative OWTS. Alternative OWTS may be permitted by EHD for the repair or upgrading of any existing OWTS and for new construction on any legally created parcel where: (a) it is determined that sewage cannot be disposed of in a sanitary manner by a conventional OWTS; (b) it is determined that an alternative OWTS would provide equal or greater protection to public health and the environment than a conventional OWTS; or (c) necessary to comply with requirements adopted for Mountain and Groundwater Impact Areas. Alternative OWTS normally include pressure distribution for effluent dispersal and often include supplemental treatment.

General requirements guiding the use of alternative OWTS include the following:

- Types of alternative OWTS permitted are limited to those identified in the Manual for which siting and design standards have been adopted and approved by the EHD and the Regional Water Board as part of the County's LAMP.
- All alternative OWTS must be designed by a Registered Professional (RCE, REHS or PG) as allowed by their registration and installed by a contractor duly licensed by the Contractors State License Board of the State of California to install OWTS (A, C-42 or C-36).
- All alternative OWTS require the issuance of a renewable annual operating permit which is in addition to the construction permit issued for system installation. Operating permits are intended to serve as the basis for ensuring on-going maintenance and require that such work be performed by a registered professional or qualified on-site wastewater maintenance provider.
- Monitoring and reporting requirements to verify adequate performance of alternative OWTS, are implemented as conditions of the operating permit and vary according to the type of system.

Types of Alternative OWTS

The types of alternative OWTS approved for use in Kern County include the following:

1. Supplemental Treatment Systems:

- a. Intermittent sand filters;
- b. Proprietary Systems;

- c. Others as may be approved.

2. Alternative Dispersal Systems:

- a. Pressure distribution systems;
- b. Mound systems;
- c. Subsurface drip dispersal systems;
- d. Others as may be approved.

Siting, Design, and Construction Requirements

Siting, design, and construction requirements are provided in Part 3 of the Manual for each respective type of Alternative OWTS.

Operating permits

A County-issued operating permit is required for all alternative systems. Operating permits are intended to serve as the basis for verifying the adequacy of alternative system performance and ensuring on-going maintenance, including requirements for system inspection, monitoring and reporting of results to Environmental Health, along with the requirement for permit renewal; typically on an annual or biennial (every two years) basis. An OWTS operating permit gives Environmental Health right of inspection. In addition, failure to comply with requirements of an OWTS operating permit may subject the system owner or user to administrative enforcement and fines.

Performance monitoring and reporting requirements

Performance monitoring requirements and frequencies for Alternative OWTS are provided in Part 3 and Part 4 of the Manual and are dependent on the type and complexity of the system, treatment components, and dispersal system. A monitoring program will be established for each alternative OWTS as a condition of the operating permit at the time of permit issuance and may be amended at the time of permit renewal. Monitoring shall be performed to ensure that the alternative OWTS is functioning satisfactorily to protect water quality and public health and safety. The monitoring program will be in accordance with guidelines prescribed in the Onsite Systems Manual.

EHD will compile and review monitoring and inspection results for alternative OWTS and periodically provide a summary of results to the Central Valley and Lahontan Regional Water Boards. Based on this review, EHD may require corrective action for specific properties or certain types of alternative OWTS, or general changes in monitoring and inspection requirements.

Excerpt G

**Kern County Onsite Systems Manual, Part 3, pages 1 –
3**

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3.0 Introduction

GENERAL

“**Alternative OWTS**” is a type of OWTS that utilizes either a method of wastewater treatment other than a conventional septic tank for the purpose of producing a higher quality wastewater effluent and/or a method of wastewater dispersal other than a gravity-fed disposal trench or seepage pit for effluent dispersal.

As provided in the Kern County Code (Article 3), Alternative OWTS may be used for system repairs, existing lots of record, and for land divisions, in accordance with conditions and requirements in Part 5 of this Manual as approved by the Director.

This section of the Onsite Systems Manual provides technical guidance and requirements for the application, design, construction and management of various alternative onsite wastewater treatment and dispersal technologies suited to the conditions and constraints in Kern County.

ALTERNATIVE TREATMENT SYSTEMS

Requirements are provided for the following alternative treatment systems:

1. Intermittent Sand Filters
2. Proprietary Treatment Units

County Code allows for the future addition of other alternative treatment systems, as may be approved by the Director and the appropriate California Regional Water Quality Control Board(s). Upon approval, such other alternative treatment systems will be incorporated into this Manual, including a listing of applicable requirements, similar to the information provided for intermittent sand filters and proprietary treatment units.

Dispersal systems receiving effluent from an alternative treatment system shall be sited, designed and constructed in accordance with the respective design and construction requirements for the particular type of dispersal system (e.g., conventional trenches, pressure distribution, mound system, at-grade or drip dispersal), as specified in this Manual.

ALTERNATIVE DISPERSAL SYSTEMS

Requirements are provided for the following types of alternative dispersal systems.

1. Pressure Distribution Trenches
2. Mound Systems
3. At-grade Systems
4. Raised Sand Filter Bed (aka Open-bottom Sand Filter)
5. Subsurface Drip Dispersal

County Code allows for the future addition of other alternative dispersal systems, as may be approved by the Director and the appropriate California Regional Water Quality Control Board(s). Upon approval, such other alternative dispersal systems will be incorporated into this Manual, including a listing of applicable requirements, similar to the information provided for pressure distribution trench systems and subsurface drip dispersal.

DEPTH TO GROUNDWATER REQUIREMENTS

A primary basis for using alternative OWTS is to compensate for reduced vertical separation distance to groundwater below the dispersal system. **Table 3-1** summarizes the depth to groundwater requirements that apply to conventional OWTS and various types of alternative OWTS. Seepage pits (not displayed in the table) normally require 12-ft vertical separation to groundwater, which can be reduced to 10-ft separation where supplemental treatment is used.

Table 3-1.
Depth to Groundwater Requirements for Conventional and Alternative OWTS
(feet, below trench bottom)

Type of OWTS	Percolation Rate (MPI)	Min. Depth to Groundwater (feet)		
		2	3	7
Conventional Septic Tank & Dispersal Trench	1-60			X
Conventional Trench w/Supplemental Treatment Pressure Distribution (PD) Trench At-grade (1-60 mpi only)	1-120		X	
Pressure Distribution w/Supplemental Treatment Mound At-grade w/Supplemental Treatment Raised Sand Filter Bed Drip Dispersal w/Supplemental Treatment	1-120	X		

OPERATION AND MAINTENANCE GUIDELINES

Operation and maintenance guidelines for each alternative OWTS installation shall be supplied to the system owner by the designer, with a copy also provided to EHD. Final approval of system installation shall be contingent upon confirmation by EHD that required operation and maintenance guidelines have been provided.

Minimum items expected to be contained in the operation and maintenance guidelines include the following:

1. General description of the OWTS, design capacity, and any special permit or operating conditions;
2. Brief description of the key components and their function;
3. For each component, describe recommended inspection and maintenance activities, including frequency; provide copies of manufacturer operation and maintenance instructions and "trouble-shooting" guides, as applicable;

4. General preventative measures for proper use and maintenance of the OWTS (e.g., "Dos and Don'ts");
5. Copy of system plans or "as-built" drawings, as applicable.
6. Contact information for the following:
 - a. Designer
 - b. Installer
 - c. Maintenance contractor
 - d. Environmental Health Division
7. Other information, references or documents, as appropriate.

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Excerpt H

**Kern County Onsite Systems Manual, Part 4,
pages 1 – 6**

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Excerpt H

4.1 OWTS PERFORMANCE REQUIREMENTS

GENERAL

1. All onsite wastewater treatment systems (OWTS) shall function in such a manner as to:
 - a. Be sanitary and not create a health hazard or nuisance;
 - b. Prevent backup or release of wastewater or wastewater effluent into the structure(s) being served by the OWTS; and
 - c. Not discharge wastewater or wastewater effluent onto the ground surface or into surface water, or in such a manner that groundwater may be adversely impacted.
2. All OWTS and the individual components shall meet the performance requirements for the specific site conditions and application for which they are approved.
3. All OWTS shall be operated in compliance with applicable performance requirements particular to the type of system, the facility served, and the site conditions.

CONVENTIONAL SYSTEMS

1. All septic tanks shall be structurally sound, watertight, provide clarified effluent, have adequate space available for sludge and scum storage, and operate in such a manner as to not create odors or vector attraction, be properly vented, and have a functional baffle.
2. Dispersal systems shall: (a) have adequate dispersal capacity for the structures and/or uses served; (b) not result in seepage or saturated soil conditions within 12 inches of ground surface in or adjacent to the dispersal field; and (c) be free from soil erosion or instability.
3. Effluent shall not continuously pond at a level above the invert (bottom) of the perforated distribution pipe in the dispersal trench or serial distribution overflow line, as applicable.
4. All components of the OWTS shall be functional and in proper working order.

SUPPLEMENTAL TREATMENT

In addition to meeting criteria in A and B above, supplemental treatment systems shall comply with the following performance requirements.

1. **Effluent Quality.** Effluent produced by all supplemental treatment systems shall comply with the following minimum 30-day average constituent limitations:

Constituent	(1) Where required for reduced separation to GW	(2) Where Pathogen or Nitrogen treatment Required
Biochemical Oxygen Demand (BOD), mg/L	30	30
Total Suspended Solids (TSS), mg/L	30	30
Fecal Coliform, MPN/100 ml	N/A	200*
Total Nitrogen, % reduction (effluent/influent)	N/A	50%**

*Due to proximity to public water supply well or surface water intake per SWRCB OWTS Policy; where applicable, additional requirements for pathogens include: (a) minimum 3-ft separation to groundwater below dispersal field; and (b) minimum 12 inches of soil cover over dispersal piping.

** Per results or recommendation of cumulative impact assessment, Kern County OWTS **Code section** _____.

2. **Sand Filters.** Sand filters shall:

- a. be operated to maintain uniform effluent distribution throughout the sand filter bed;
- b. not result in continuously ponded effluent on the distribution bed infiltrative surface;
- c. be operated and maintained to prevent channeling of flow, erosion of the sand media or other conditions that allow short-circuiting of effluent through the system;
- d. not result in leakage of effluent through the sand filter liner or supporting structure; and
- e. conform to applicable requirements for pressure distribution in D.1 below.

3. **Proprietary Treatment Units.** Proprietary treatment units shall comply with the following:

- a. The unit and its components shall be structurally sound, free from defects, be watertight, and not create odor or vector attraction nuisance.
- b. The unit shall be operated in accordance with the approved manufacturer and certification/listing organization standards.

ALTERNATIVE DISPERSAL SYSTEMS

In addition to the requirements in A and B above, alternative dispersal systems shall also comply with the following.

1. Pressure Distribution Systems.

- a. Pump tanks, risers and lids shall be structurally sound, watertight and store wastewater effluent in such a manner as to not create odors or vector attraction;
- b. Pumps, floats, alarms and associated controls shall be in good condition and operate in accordance with design specifications; and
- c. Dispersal field and components shall:
 - i be operable and in good condition;
 - ii maintain uniform distribution of effluent throughout the dispersal field;
 - iii not result in continuously ponded effluent in the dispersal trench (or bed) to a level above the invert (bottom) of the distribution pipe; and
 - iv in the case of pressure-dosed sand trenches, not result in continuously ponded effluent above the sand interface.

2. Mound, At-Grade and Raised Sand Bed Systems. Mound, at-grade and raised sand bed systems shall:

- a. not result in seepage or saturated soil conditions within 12 inches of ground surface anywhere along the perimeter toe or edge of the system;
- b. be free from erosion, slumping or damage to the soil cover;

- c. not result in continuously ponded effluent within the gravel distribution bed or in the sand fill (for mounds); and
- d. conform to applicable requirements for pressure distribution in D.1 above.

3. **Subsurface Drip Dispersal Systems.** Subsurface drip dispersal systems and components shall:

- a. not result in seepage or saturated soil conditions above the depth of the dripline within or anywhere along the perimeter of the drip field;
- b. be free from erosion, slumping or other soil disturbance that threatens to expose or cause damage to drip dispersal tubing or appurtenances;
- c. conform to applicable requirements for pressure distribution in D.1 above; and
- d. be operated and maintained in accordance with manufacturer recommendations.

4.2 OWTS MONITORING REQUIREMENTS

GENERAL

A monitoring program will be established for each alternative OWTS as a condition of the operating permit at the time of permit issuance, and may be amended at the time of permit renewal. Said monitoring shall be performed to ensure that the alternative OWTS is functioning satisfactorily to protect water quality and public health and safety.

MONITORING ELEMENTS

The monitoring requirements will vary depending on the specific type of alternative system, typically including the following:

1. Recoding of wastewater flow based on water meter readings, pump event counter, elapsed time meter, in-line flow meter, or other approved methods;
2. Measurement and recording of water levels in inspection/monitoring wells in the dispersal field;
3. Inspection and observation of pump operation and other mechanical equipment;
4. Water quality of selected water samples taken from points in the treatment process, from groundwater monitoring wells, or from surface streams or drainages; typical water quality parameters include total and fecal coliform, nitrate, BOD, and suspended solids;
5. General review and inspection of treatment and dispersal area for evidence of seepage, effluent surfacing, erosion or other indicators of system malfunction; and
6. Other monitoring as recommended by the system designer or equipment manufacturer.

MONITORING FREQUENCY

The required frequency of monitoring for each installation will be established in the operation permit, generally in accordance with the following minimum schedule:

- Years 1 through 4 of operation: semi-annual monitoring
- Years 5 and beyond: annual monitoring

Monitoring frequency may be increased for larger flow OWTS (e.g., >2,500 gpd) or where warranted because of the complexity of the design or sensitive nature of the site. Monitoring frequency may be increased for any system if problems are experienced.

MONITORING RESPONSIBILITY

Monitoring of alternative OWTS shall be conducted by or under the supervision of one of the following:

1. Registered Civil Engineer;
2. Professional Geologist;
3. Registered Environmental Health Specialist; or
4. Other onsite wastewater maintenance provider registered with the EHD and meeting qualifications as established in this Manual. Registration shall entail: (a) documentation of required qualifications; (b) participation in annual training/review conducted by the EHD; and (c) payment of an annual fee established by the Board of Supervisors.

Additionally, the EHD may require third-party or County inspection and monitoring of any alternative OWTS where deemed necessary because of special circumstances, such as the complexity of the system or the sensitive nature of the site. The costs for such additional monitoring would be the responsibility of the owner.

REPORTING

Monitoring results shall be submitted to the EHD in accordance with reporting guidelines provided in this Manual and as specified in the operating permit. The monitoring report shall be signed by the party responsible for the monitoring. Notwithstanding formal monitoring reports, the Director shall be notified immediately of any system problems observed during system inspection and monitoring that threaten public health or water quality.

DATA REVIEW

The Director will, from time-to-time, compile and review monitoring and inspection results for alternative OWTS and will provide a summary of results to the applicable Regional Water Quality Control Board at least once every five (5) years. Based on this review, the Director may require corrective action for specific properties or certain types of alternative OWTS, or general changes in monitoring and inspection requirements.

Excerpt I

**Kern County LAMP, pages 51 – 55,
and revised page 53**

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Excerpt I

Section 6: Program Administration

OWTS Permitting Records

The EHD will retain permanent records of OWTS permitting actions and will make those records available within 10 working days upon written request for review by the appropriate RWQCB, as applicable. This includes:

- Installation permits issued for new, repair, and replacement OWTS, including type of OWTS system (e.g., conventional trench or seepage pit, alternative OWTS);
- OWTS variances and/or exemptions issued, including number, location, and description;
- Operating permits issued for alternative systems, OWTS with flows >2,500 gpd or other OWTS where the Director has determined the need for an operating permit;
- Septic tank pumper reporting data, including the number and location of septic tank pump-outs, organized according to geographic/hydrologic management areas of the County;
- List of applications and registrations issued for liquid waste haulers.

Water Quality Assessment Program

Objectives

The EHD will maintain an OWTS water quality assessment program having three primary objectives: (1) to determine the general operational status of OWTS in the County; (2) assess possible impacts of OWTS on groundwater and surface water quality, and their associated beneficial uses; and (3) identify areas for changes to existing OWTS management practices.

Hydrologic Area and Groundwater Basin Approach

The OWTS-water quality assessment will be organized according to the various hydrologic areas and groundwater basins delineated and presented in Section 2 of this LAMP and utilized in supporting GIS studies. This will allow the existing GIS-based mapping, OWTS inventories, and nitrate loading analyses to be utilized and updated. Additionally, localized focus areas within each hydrologic area may be delineated where warranted and may include joint cooperative efforts with other jurisdictions (e.g., water districts, community services districts) involved with water resources and wastewater management activities. For example, Golden Hills Community Services District (CSD) has historically been active and involved in review and oversight of OWTS serving properties within their jurisdiction. The CSD has been identified as a potential candidate for establishment of an Onsite Wastewater Disposal Zone (OSWDZ) per (State Health and Safety Code), to provide additional on-going monitoring and assessment of OWTS. The County will support the implementation of an OSWDZ for Golden Hills and other areas to supplement EHD oversight and

assessment of OWTS where warranted. Progress in the development of OSWDZs will be included in annual reporting to the RWQCB (per below) and addressed in greater detail in the 5-yr Water Quality Assessment report, including any additional OWTS monitoring/maintenance information from such programs, where available.

Operational Status of OWTS

The general operational status of OWTS will be assessed through compilation and review of the following types of information:

- 1. Septic tank pumping logs:** The monthly septic tank reporting data submitted to the EHD will be compiled and filed electronically. This will allow the pump-out data to be organized by geographical/hydrological areas of the County and to be reviewed periodically for trends (e.g., frequency of pump-outs in general or for specific areas or properties) or other information relevant to OWTS operational conditions;
- 2. Complaints and abatement of failing OWTS:** Complaints and abatement activities related to failing OWTS will be compiled and mapped (electronically) to facilitate on-going review of the type and level of operational problems and identification of any trends;
- 3. Variances issued for new and/or repair OWTS:** Information regarding variances for new and repair OWTS will be entered into the EHD OWTS database files to facilitate review and reporting;
- 4. Performance Inspections:** Results of performance inspections of existing OWTS conducted in connection with building additions/remodel projects, or property transactions will be documented and compiled with property/OWTS data files;
- 5. Alternative OWTS Inspection Reports:** Monitoring reports submitted periodically to EHD for alternative systems or other OWTS having an operating permit, will be reviewed individually at the time of report submission and will be compiled for annual review by EHD of all alternative OWTS;
- 6. Special management areas:** Where special management programs for OWTS are implemented (e.g., under consideration for Golden Hills CSD), the EHD will utilize and incorporate monitoring and assessment information for OWTS in these designated areas, including any findings or recommendations that may be relevant to other areas or the County OWTS management program in general.

The data review and assessment will focus on both positive and negative findings, apparent trends, and areas for changes in practices. The assessment will maintain and update the existing inventory of OWTS in the county. To the greatest extent practical, the various types of OWTS data above will be entered into GIS-compatible files to facilitate review, mapping, and reporting.

Water Quality Assessment

The water quality assessment will include the following:

1. **Water Quality Parameters of Concern:** The initial focus of the water quality assessment program will be on two key water quality parameters – pathogens and nitrate-nitrogen. Other parameters of concern may be added if warranted.
2. **Wastewater Discharge Volumes:** Estimates of annual wastewater discharge estimates from OWTS will be updated based upon the running inventory of OWTS per above.
3. **Nitrate Loading:** Nitrate loading estimates (by groundwater basin/geographic area) will be maintained and updated based on the running inventory of OWTS in the County.
4. **Water Quality Data Sources:** Relevant water quality monitoring data for pathogens and nitrate-nitrogen will be compiled from available sources, anticipated to include:
 - Receiving water quality monitoring data reported under alternative systems operating permits;
 - Water quality data from cumulative impact studies;
 - Groundwater Reports from Kern County Water Agency and others;
 - Domestic water wells sampling from new wells or other;
 - Public water system raw water quality data monitoring reports;
 - Reservoir or stream water quality sampling data for Kern River or other studies;
 - Receiving water sampling performed as part of any NPDES permits;
 - Groundwater sampling performed as part of Waste Discharge Requirements, such as some of the small wastewater treatment systems in the mountain regions of the County;
 - Data from the California Water Quality Assessment Database; and
 - Groundwater data collected as part of the Groundwater Ambient Monitoring and Assessment Program available in the Geotracker Database.
5. **Assessment:** In addition to periodically updating the OWTS nitrate loading estimates for the county, it is anticipated that assessment of the data will include a review to: (a) determine relevance of the various data to OWTS; (b) identification of any obvious water quality degradation attributable to OWTS warranting follow-up investigation or action; (c) identification of any water quality degradation where OWTS may be implicated as a possible source; and (d) identification of water quality data/areas indicating no apparent issues of concern related to OWTS.

Reporting to Regional Water Boards

Annual Report

By February 1st of each year, an annual report pertaining to OWTS activities in Kern County will be submitted to the applicable RWQCB. The annual report will, at a minimum, include the following information, organized in a tabular spreadsheet format:

1. Number and location of complaints pertaining to OWTS operation and maintenance, including identification of those which were investigated and how they were resolved;
2. Number, location, and description of permits issued for new and replacement OWTS, including any variances and/or exemptions issued;
3. Number and location of septic tank pump-outs per septic pumper reports;
4. List of applications and registrations issued, as part of the local septic tank pumper registration program pursuant to Section 117400 et seq. of the California Health and Safety Code.

The report will include: (a) a summary of whether any further actions related to OWTS are warranted to protect water quality or public health; (b) status of water quality data collection and review; and (c) any other information deemed appropriate by the Director of Environmental Health Services.

5-Yr Water Quality Assessment Report to RWQCB

Every five (5) years the annual report to the RWQCB will be accompanied by a Water Quality Assessment Report that summarizes the information and findings from the EHD Water Quality Assessment Program described above. The report will present an overall assessment regarding any evidence of water quality impact from OWTS along with any recommended changes in the LAMP to address the identified impacts. Additionally, any groundwater water quality data generated by the EHD from monitoring activities will be submitted in electronic data format (EDF), for inclusion in Geotracker and any surface water quality data will be submitted to CEDEN in a SWAMP comparable format².

² CEDN stands for California Electronic Data Exchange Network; SWAMP stands for Surface Water Ambient Monitoring Program

directly from the water systems or establishing a partnership with them for monitoring. This issue will continue to be refined over the course of time.

- 5. Assessment:** In addition to periodically updating the OWTS nitrate loading estimates for the county, it is anticipated that assessment of the data will include a review to: (a) determine relevance of the various data to OWTS; (b) identification of any obvious water quality degradation attributable to OWTS warranting follow-up investigation or action; (c) identification of any water quality degradation where OWTS may be implicated as a possible source; and (d) identification of water quality data/areas indicating no apparent issues of concern related to OWTS.

The County will consider utilizing a computer model to evaluate nitrate loading and ground-water recharge rates for higher density and/or clustered development within the Lahontan Regional Water Quality Control Board as dictated by the pace of development.

Reporting to Regional Water Boards

Annual Report

By February 1st of each year, an annual report pertaining to OWTS activities in Kern County will be submitted to the applicable RWQCB. The annual report will, at a minimum, include the following information, organized in a tabular spreadsheet format:

1. Number and location of complaints pertaining to OWTS operation and maintenance, including identification of those which were investigated and how they were resolved;
2. Number, location, and description of permits issued for new and replacement OWTS, including tier, any variances and/or exemptions issued;
3. Number and location of septic tank pump-outs per septic pumper reports;
4. List of applications and registrations issued, as part of the local septic tank pumper registration program pursuant to Section 117400 et seq. of the California Health and Safety Code.

The report will include: (a) a summary of whether any further actions related to OWTS are warranted to protect water quality or public health; (b) status of water quality data collection and review; and (c) any other information deemed appropriate by the Director of Environmental Health Services.

5-Yr Water Quality Assessment Report to RWQCB

Every five (5) years the annual report to the RWQCB will be accompanied by a Water Quality Assessment Report that summarizes the information and findings from the EHD Water Quality Assessment Program described above. The report will present an overall assessment

Excerpt J

Kern County LAMP, pages 29 – 30

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Excerpt J

3. **Erosion control measures:** Depending upon site conditions and system design, construction of an OWTS may pose a threat of soil erosion and impacts on downstream receiving waters from excavations for tanks, trenching for pipelines and dispersal trenches, and associated clearing and grading activities. The County's Onsite Systems Manual requires that erosion control measures be implemented in connection with the installation of OWTS in mountain areas and that final approval of the OWTS installation is contingent upon confirmation that the specified erosion control measures have been implemented.
4. **Flood protection measures:** In addition to prohibiting the installation of OWTS in low-lying areas that experience annual flooding, the County's Onsite System Manual includes provisions for evaluation and incorporation of special design measures for systems located within areas subject to inundation by extreme flood events, such as the 100-year flood. Specifically, the measures require: (a) protection for OWTS supplemental treatment, pressure distribution and/or drip dispersal components from flood damage, such as structural tie-downs and/or elevating critical components above the 100-year flood level; (b) prevention of discharge of wastewater into flooded dispersal areas from pump systems (e.g., using flood-activated float switches to override/disable pump operation during high water conditions); and (c) additional emergency storage capacity for flood periods.
5. **Enhanced Protection for Water Supply Watersheds:** Kern County does not have a great many surface water resources that serve as water supply sources. However, those that do exist warrant special concern and enhanced water quality protection. In accordance with the requirements of State OWTS Policy, Kern County has adopted increased setback standards for any OWTS located in an area tributary to and within 1,200 feet and within 2,500 feet of a public water supply surface water intake. The provisions for identifying and notifying public water system owners of pending OWTS applications are discussed in **Sections 4 and 5** of this LAMP, along with the applicable requirements for OWTS design when the dispersal system must be located within the prescribed setback buffer (e.g., for a replacement system or pre-existing lot of record).

Impaired surface waters (nitrogen or pathogens)

There are no water bodies in Kern County currently listed as impaired for nitrogen or pathogens.

High Density of OWTS, Parcel Size and Cumulative Impacts

Consideration of OWTS density, parcel size and potential cumulative OWTS impact issues (e.g., groundwater mounding, nitrate loading) are addressed in Kern County primarily through Ordinance requirements under Article 3, that call for the completion of cumulative impact assessments for certain types of projects or locations, including consideration of such factors as the constituent levels (e.g., nitrogen content) in the wastewater, the volume of wastewater flow, the density of OWTS discharges in a given area, and/or the sensitivity

and beneficial uses of water resources in the discharge area. Guidelines for such studies are contained in the Onsite Systems Manual (Part 1). The guidelines identify circumstances requiring cumulative impact studies, minimum qualifications of those conducting the work, typical data needs and assumptions, analytical methods, and evaluation criteria. The Ordinance also allows for the County to designate areas of special environmental concern for OWTS that may be identified from the results of cumulative impact studies. Any new subdivision utilizing OWTS with lot sizes smaller than 2.5 acres where domestic wells are used, normally require cumulative impact assessment to evaluate nitrogen loading.

Additionally, the new Ordinance provisions allowing the use of alternative treatment and dispersal technologies provide opportunities to mitigate nitrate loading (e.g., with supplemental treatment systems) and hydraulic mounding (e.g., with pressure distribution or drip dispersal designs).

Geographic areas with many older non-conforming OWTS installations and setbacks

Older, non-conforming OWTS are common in the rural mountain and agricultural areas of the County. OWTS issues commonly arise in areas where properties were originally developed for seasonal/recreational cabins and have converted over the years to year-round residences. Often the properties are very small, with OWTS constructed prior to the introduction of modern codes. Some systems consist of cesspools, and repairs/replacement systems tend to be very challenging. Non-conformance with adopted setback requirements (e.g., from structures, water features, etc.) are also common. Non-conforming OWTS located in areas of high groundwater conditions, such as some parts of the Lake Isabella area, are especially problematic.

Measures contained in the County's updated Ordinance that will aid significantly in addressing problems of older non-conforming OWTS, are the availability of alternative treatment and dispersal system designs to provide more effective upgrades and repairs for lots having limited area, soil limitations, or other constraints for conventional OWTS. Additionally, as discussed in Section 4, the County anticipates the eventual need to pursue community approaches to OWTS management in some of the mountain development areas that may include the implementation of Onsite Waste Disposal Zones (e.g., maintenance districts) and/or development of community facilities to replace individual OWTS.