

Wade D. Brim  
Wells

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**AFFIDAVIT OF WADE D. BRIM, P.E.**

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I, Wade D. Brim, herein declare that:

1. I reside at 764 Mar Vista Drive, Los Osos. I am a Registered Engineer of the State of California (CE13743) and I am certified as a Water Treatment Operator Grade IV, by the California Department of Health Services #02187.
2. I have a Bachelor of Science in Civil Engineering from University of Connecticut, dated February 1950, and have taken numerous post graduate courses and professional seminars included the Ground Water School run by the U.S. Geological Survey.
3. I retired in 1986 after thirty-three years of professional experience with the State of California, twenty three of these with the Department of Water Resources
4. From 1968-1986 I was Chief, Civil Engineering Section, Southern Field Division, Department of Water Resources (DWR) where I was responsible for Dam and Aqueduct safety monitoring for the portion of Department's water project facilities South of the San Joaquin Valley. This included twelve miles of tunnel through the Tehachapi Mountains and the San Bernardino Mountains, more than 100 miles of open aqueduct, 4 major dams and reservoirs, 40 miles of large diameter high pressure (over 1800 feet of head) pipeline, and all appurtenant structures. I supervised all aspects of water quality monitoring and control; development of water treatment systems, and regulatory interface with State, County and local agencies and contractors.
5. From 1963-1968 I was an Associate Engineer, in the Water Quality Section, Southern District DWR. My duties included providing advice to the Water Pollution Control Boards and providing "Protection Projects" for several threatened coastal ground water basins; barriers against seawater intrusion and other contamination problems.
6. I started my career with the State of California, in 1953 as a Junior Civil Engineer (entry level) with the Division of Highways, where I worked in the hydrogeology and hydraulics section. I was an expert witness on the hydrology of San Francisco Bay. I left as an associate Engineer in 1963 to accept a position with DWR.

1 7. Prior to that, I worked for four years as a Civil Engineer for the Alaska Road Commission,  
2 for the U.S. Army Corps of Engineers, and in private industry under contract to that agency  
3 both in this country and abroad.

4 8. I was approached by Matthew Nasuti, and he requested that I review, investigate and  
5 comment on four public statements made by the Los Osos Community Services District  
6 ("CSD") regarding its proposed Sewer Project.

7 STATEMENT NO. 1

8 9. The first CSD statement provided to me is one that is set out in its Internet Web Site  
9 ("www.losososcscd.org"):

10 "Every credible study of Los Osos nitrate contamination conducted  
11 over the last twenty years has concluded that septic tanks discharge  
is the principal source of nitrate contamination (in the groundwater)."

12 10. My review of the literature reveals that, although several studies over the last 30 years did  
13 posit that conclusion; a critical examination of such reports indicates that the conclusion is  
14 based on a series of unfounded assumptions taken from earlier reports. No credible study  
15 supports such a conclusion backed up by reliable data to establish such a connection. There  
16 was a 1995 Metcalf & Eddy report. The Metcalf & Eddy report however is of dubious merit.  
17 Metcalf & Eddy's report was unanimously rejected by the County's 12 person Technical  
18 Advisory committee appointed by the Board of Supervisors and by the Board of Supervisors  
19 themselves in a 4-1 vote. The contract which authorized this study was a "sweetheart deal"  
20 extension of an existing contract with the County of San Luis Obispo. It was never even  
21 advertised for bid. It is simply a self validating tool to convince government agencies to  
22 hire Metcalf & Eddy to design and assist in the construction of a large sewer project.

23 11. Contrary reports include:

24 A. The San Luis Obispo County Nitrate Technical Advisory Committee's 1992 - 1994  
25 study and report;

26 B. The October 6, 1982 letter report of Los Osos County Chemist Percy Garcia, who  
27 refuted the claims that urbanization in the area was resulting in a correlated increase

1 in groundwater nitrate levels; and

2 C. My own 1997 report, analyzing the County nitrate monitoring well program.

3 12. In conclusion, this First Statement of the CSD has no factual basis. There is no reliable  
4 evidence that septic systems, in general, in Los Osos, are a source of the nitrates being  
5 detected, and there is no evidence at all that they are a "primary" source of the nitrates. The  
6 CSD may assume this, but they cannot form a scientific opinion. There is no factual data that  
7 has been currently generated to support such an opinion. In fact the CSD is serving water to  
8 the public from a well in the "Upper aquifer", which has produced excellent quality water  
9 for nearly 50 years with no evidence of excessive nitrates

10 STATEMENT NO. 2

11 13. The CSD sent out a general mailing pursuant to Proposition 218 regarding the proposed  
12 Assessment District Vote in 2001. According to law, this must be a truthful and unbiased  
13 statement. The statement was:

14 "Nitrate levels in shallow groundwater and wells will be made safe"  
15 (by the Sewer Project).

16 14. My investigation has revealed two definite sources for the nitrates being detected in the  
17 upper regions of the groundwater aquifer underlying Los Osos. The first source is extensive  
18 acreages of agricultural lands lying Easterly of the community, plus five horse farms/stables.  
19 One farm that has a dense populations of horses and no residual vegetation, lies uphill in  
20 close proximity to residential areas and to monitoring and water supply wells. The second  
21 source is a large amount of surface water runoff from the surrounding water shed, inundating  
22 and flowing into old improperly abandoned wells, including those installed in 1982 for  
23 Brown & Caldwell (B&C). I have personally inspected 10 "suspect" wells in the community.  
24 These are wells which the county as sampled four times each year since 1982 and published  
25 the data as indicating nitrates in the ground water. Four of these wells were B&C wells out  
26 of ten which were auger drilled by County Engineering under permit from DWR and the  
27 Coastal Commission. When first drilled they all reached good quality ground water. Only  
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1 one showed high nitrates near the EPA maximum contaminate level. But they were not  
2 constructed in conformity with State Well Standards and the next time they were sampled  
3 and every time thereafter, the showed greatly increased Nitrate levels and remained that way  
4 for the next 18 years.

- 5 15. My review of the nitrate data from the County and the RWQCB data bases indicates that the  
6 pattern of nitrate concentrations with time is not consistent with a ground water basin  
7 subjected to a systematic change such as increasing population or septic tank discharge. In  
8 fact the nitrate levels from each well are so erratic, both with respect to time and in  
9 comparison with other chemical factors (such as chlorides) that they seem to indicate  
10 problems with data collection and analysis or some local point source contamination. *Any*  
11 *statistical analysis of these data will be badly skewed (distorted) by the sheer number (more*  
12 *than 500) of erroneously high readings from these suspect B&C wells.* Most of them are  
13 located down gradient from surface nitrate sources, they are mostly below the ground  
14 surface (which means you have to dig down to find them) and they all were installed without  
15 sanitary seals or any barrier that would prevent infiltration of surface water. The remaining  
16 wells are old irrigation or domestic wells which are no longer used for their original purpose  
17 and should have been abandoned and backfilled with cement slurry to protect the ground  
18 water. Some are even missing solid covers. These wells, which have been used over the  
19 years by the County of San Luis Obispo for its nitrate sampling, are not measuring nitrates  
20 in the ground water, but surface water infiltration and are in fact instead direct conduits for  
21 surface nitrates to flow directly into the groundwater. The continued use of these wells,  
22 improperly abandoned or constructed in violation of "State of California Well Construction  
23 Standards," constitutes a serious threat to the ground water basin and the waters of the state  
24 contained therein. Attached to this Affidavit is a true and correct copy of my September 6,  
25 1997 report cited in 11C above, which was provided to both the County and RWQC.
- 26 16. One of the wells that I examined which is no longer used by the County for monitoring but  
27 has not been properly abandoned and backfilled, is the Chevron well (30S/11E-18Q01)

1 which is directly responsible for the current costly contamination of the Los Osos ground  
2 water with MTBE.

3 17. However, another of the Wells I examined is the CSD Third Street production which is in  
4 the upper aquifer and from which the District serves water to the public under jurisdiction  
5 of County and State health departments. It is located within forty feet of the Bay in an area  
6 that is most subject to surface water flooding. This well was redrilled in 1957 with a proper  
7 sanitary seal. Nitrate levels at that time were 18mg/l (just over one third of the MCL). On  
8 May 8,2001 nitrate levels were 17 mg/l.

9 18. Besides inspecting these wells and seeing the direct proof of this, there is an indirect  
10 source of proof. Los Osos did not have a significant nitrate problem until 1983 the year after  
11 the Brown & Caldwell wells were installed. It is not a coincidence. These wells are a  
12 significant cause of the problem and it is incredible to me that the County and State of  
13 California would permit, what are now illegal wells, to continue to contaminate groundwater  
14 supplies. These wells should have been sealed off long ago. No valid evidence exists that  
15 the CSD Sewer Project will have any impact in lowering groundwater nitrate levels. The  
16 CSD is operating under the false premise that the septic systems are the primary cause of the  
17 nitrates indicated by the monitoring program. If the septic tanks were the source, requiring  
18 only part of the community to abandon their septic systems is illogical. The fact is that  
19 unless and until the current illegal wells are sealed off, and the contamination they caused  
20 is pumped out, nothing will improve groundwater nitrate levels. In addition, the disturbance  
21 of shallow ground surface by the trenching stripping and backfilling of many miles of pipe  
22 line, to say nothing of the distribution of vast quantities of dust from such operation will in  
23 all probability distribute even more nitrates over the basin and into the bay

24 STATEMENT NO. 3

25 19. The CSD sent out a general mailing pursuant to Proposition 218 regarding the proposed  
26 Assessment District Vote in 2001. According to law, this must be a truthful and unbiased  
27 statement. The statement was:

1 "Seawater intrusion into deeper groundwater levels will be made  
2 safe." (by implementation of the Sewer Project)

- 3 20. I have studied and am very familiar with seawater intrusion problems in coastal ground water  
4 basins. If there is seawater intrusion in the deeper aquifer, which is not at all certain, the  
5 Sewer Project, in its current form, is not designed to have any impact on either the lower  
6 aquifer or any seawater problem it might have. There are several ways to have an impact on  
7 deep aquifer seawater intrusion. The first is to slow the rate of intrusion by curtailing  
8 pumping of the lower aquifer for drinking water purposes. This is not likely to happen in Los  
9 Osos as the CSD is proposing a "full build-out" of the community which could increase the  
10 population by up to 100%. The Sewer Project would therefore facilitate more pumping of  
11 groundwater to serve the huge population increase and would cause an aggravation of any  
12 seawater intrusion problem, instead of any mitigation.
- 13 21. A second way to impact saltwater intrusion is to actually inject or directly recharge the lower  
14 aquifer, but that also is not part of the current Sewer Project design. No certifiable proof has  
15 ever been offered that the current sewerage plan can recharge even the upper aquifer and  
16 meet Title 22 requirements.
- 17 22. In conclusion, this Third Statement of the CSD is without any factual basis. There is no  
18 evidence that the CSD Sewer Project will curtail any saltwater intrusion or directly recharge  
19 the lower aquifer. In fact, the Project should significantly accelerate any saltwater intrusions  
20 that might be occurring, and would further drain the low aquifer.

21 STATEMENT NO. 4

- 22 23. The CSD sent out a general mailing pursuant to Proposition 218 regarding the proposed  
23 Assessment District Vote in 2001. According to law, this must be a truthful and unbiased  
24 statement. The statement was:
- 25 "The Morro Bay Estuary will be protected" (by implementation of the  
26 Sewer Project)
- 27 24. I am very familiar with the coastal hydrogeology in this area and all the work conducted to  
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1 date by the various regulatory agencies. A mathematic model might be created which would  
2 show a statistical likelihood that some of the upper aquifer water underlying Los Osos, could  
3 be under sufficient hydraulic head that it could be pushed into the Morro Bay area. The  
4 problem with this, is that certain people then jump to the conclusion that nitrates in the upper  
5 aquifer are entering the Bay itself. There is insufficient data to make this leap. The Los Osos  
6 ground water data shows that nitrate levels generally and in some cases substantially decline  
7 as one approached Morro Bay. In addition, any residual amounts of nitrates that may be in  
8 the aquifer water when it encounters the brine waters of Morro Bay, would have to pass up  
9 through 20 to 30 feet of anaerobic bay mud and would surface as nitrogen gas before they  
10 actually entered the Bay. There is no evidence that this is occurring and it is highly unlikely  
11 that it is. The wide spread and lush riparian growth at the edges of the bay provides plenty  
12 of evidence that surface waters, probably high in nitrates and other nutrients are reaching the  
13 fringes of the Bay, but there is no conceivable scenario under which this can be attributed to  
14 septic systems in the community.

15 25. There is also a claim by the CSD that the Sewer Project will address standing water in Los  
16 Osos that is a source of surface nitrates entering Morro Bay. This admission by the CSD of  
17 surface water nitrates entering the bay should be noted, but there is no evidence that this  
18 standing water is being caused by septic systems backing up, and there is no perennial  
19 riparian growth typical of rising water. This standing water occurs only in periods of high  
20 rainfall and clearly results from uncorrected storm runoff flooding, but drainage and flood  
21 control are not a part of this proposed Project. A Drainage Plan could cost an additional  
22 twenty million dollars. The Los Osos community is semi-agricultural and has several horse  
23 farms within the community as well as high natural nitrate levels in the surface soils. These  
24 are clear and obvious sources for the surface nitrates that the Sewer Project cannot and is not  
25 going to address.

26 26. In conclusion, this Fourth Statement of the CSD has no factual basis. There is insufficient  
27 evidence that the CSD Sewer Project will have any impact at all on nitrate levels in Morro  
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1 Bay. Someone from CSD may speculate as to this, but they cannot form a scientific opinion  
2 as there is no factual data that has been currently generated which would support such an  
3 opinion.

4 **CONCLUSION**

5 27. After reviewing the "goals" of the CSD's proposed Sewer Project, I find no scientifically  
6 valid evidence that the Sewer Project will be able to achieve any of the goals for which it is  
7 being designed, except the political one of permitting expansion of the population of the  
8 community. The most likely scenario is that \$100 million will be expended, significant  
9 physical disruption will occur in the town, a significant number of low income, retirees and  
10 disabled persons in the Prohibition Zone will face tremendous financial burdens, the  
11 community will have to find a home for an endless supply of sewage sludge that the  
12 treatment plant will generate, the community will be stuck with a sewage treatment plant in  
13 the middle of its downtown business district, and in the end, there will be no detectable  
14 improvements in groundwater quality, and no improvements in surface water quality in  
15 Morro Bay.

16 I have personal knowledge as to the above matters and if called upon, I could and would competently  
17 testify thereto. After being duly sworn, I swear under penalty of perjury, that the foregoing is true  
18 and correct and that this affidavit was executed on August 17, 2001 in Los Osos, California.

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20  
21 *Aug 17, 2001*

*Waide D. Brim PE*  
\_\_\_\_\_  
WAIDE D. BRIM, P.E.

22  
23  
24 Subscribed and sworn to before me this

25 *17<sup>th</sup>* day of *August* *2001*

26 *Bonita Grant*  
\_\_\_\_\_  
Notary Public in and for the City of Los Osos,  
County of San Luis Obispo, State of California

