



California Integrated Waste Management Board

Dan Eaton, Chairman

8800 Cal Center Drive • Sacramento, California 95826 • (916) 255-2200

www.ciwmb.ca.gov



Gray Davis
Governor

Winston H. Hickox
Secretary for
Environmental
Protection

March 19, 1999

Mr. Landfill Operator
Mars County Public Works Department
1215 Mars Street
Alpha Centauri, CA 92001

RE: Request for Cost Estimate Information for Municipal Solid Waste Landfills.

Dear Mr. Operator:

Thank you for your inquiry dated February 12, 1999 letter requesting statewide/general cost information for municipal solid waste landfills based on California Integrated Waste Management Board (CIWMB) records. Three specific areas requested include closure and postclosure maintenance, landfill gas control and clean closure.

It is important to note that the following information is general and is not to be used as a replacement for site-specific evaluations of cost estimates.

Closure and Postclosure Maintenance

The statewide average cost estimate for 30 years of postclosure maintenance is \$75,090 (1998 dollars) per landfill footprint acre with one standard deviation of \$46,342 (number of estimates in compilation-210). This calculation is from data through July 1, 1998. CIWMB staff have not found significant correlation with final cover type and landfill footprint size. The calculation also does not include approximately 50 estimates that were considered outliers (less than \$20,000 per footprint acre or more than \$200,000 per footprint acre).

Statewide average closure cost estimates are primarily a function of the type of final cover system as follows:

Monolithic- \$50,000 per landfill acre with one standard deviation of \$21,000 (range excluding outlier- \$9,000-\$90,000).

Compacted Clay (CCL)- \$65,000 (1998dollars) per landfill footprint with one standard deviation of \$25,000 (range excluding outlier- \$25,000 -\$125,000).

Flexible Membrane of Geosynthetic Clay (FML or GCL)- \$90,000 per landfill footprint with one standard deviation of \$29,000 (range excluding outlier- \$50,000 -\$200,000).

Composite FML/CCL- \$110,000 per landfill footprint with one standard deviation of \$35,000 (range excluding outlier- \$50,000 -\$200,000).

Combination Systems /CCL or Monolithic FML or GCL-FML/CCL-FML/GCL- \$85,000 per landfill footprint with one standard deviation of \$34,000 (range excluding outlier- \$40,000 -\$200,000).

Landfill Gas Control Systems

The approximate range for cost estimates for gas control systems (conventional active-flare system) is approximately \$15,000 to \$25,000 per footprint acre of extraction, plus an additional 15% of the total for engineering and permitting.

Clean Closure

Clean closure costs are highly variable and site specific. Three main municipal solid waste landfill clean closure projects have recently been implemented. These projects include Glenville Landfill (final cost records should be in Kern County files), Ventucopa Landfill, Santa Barbara County (approximately \$25 per cubic yard, no processing), and McCourtney Road Landfill, Nevada County (\$40 per cubic yard, required screening of soil, treatment of ash and onsite disposal).

Additional information comes from recent Department of Defense base closure projects that can be further researched if requested. There is another body of information on old burn dump clean closures that would require further research.

Cost Estimates as Known and Reasonably Forseeable Release (27CCR 22222).

The Regional Water Quality Control Board (RWQCB implements this requirement. CIWMB records indicate very few landfills with these estimates on file. Please contact the RWQCB should you desire any further information on this topic.

If you have any further questions, please contact me at (916) 451-2001

Sincerely,

Luke Skywalker, P.E. C.E.G., Manager
Remediation, Closure and Technical Services Branch
Permitting and Enforcement division

Cc:

Sincerely,

Scott Walker, Manager
Remediation, Closure Technical Services Branch
Permitting and Enforcement Division

CC: Mr. Kevin Backus, Colusa County Local Enforcement Agency
Mr. William Brattain, Central Valley Regional Water Quality Control Board

County of Colusa Health Department,
Environmental Health Division
Attn: Mr. Kevin Backus
251 E. Webster Ave.
P.O. Box 610
Colusa, CA 95932

California Regional Water Quality Control Bd.,
Central Valley Region
Attn: Mr. William Brattain
3443 Routier Rd.
Sacramento, CA 95827-3098

Colusa County Public Works Dept.
Attn: Mr. Richard Dickson
1215 Market St.
Colusa, CA 95932