



# CITY OF SACRAMENTO



## DEPARTMENT OF PUBLIC WORKS

SOLID WASTE DIVISION

JOHN F. BOSS  
Solid Waste Division Manager

April 22, 1986

Transportation and Community Development Committee  
Sacramento, California

Honorable Members In Session:

SUBJECT: CLOSURE PLAN FOR THE 28TH STREET LANDFILL

### SUMMARY

Staff has prepared procedures and activities required to close the 28th Street Land-fill in conformance with all pertinent State regulations and received concurrence from the staff of the Regional Water Quality Control Board regarding them. These activities are incorporated within the attached Closure Plan, dated April 1986 (Attachment IV). Also attached is a cost analysis for an alternative closing the landfill one year earlier than currently proposed in the Closure Plan. Note: The Closure Plan report is presented without the Appendices C and G since they are voluminous and have been submitted previously to Council members. Copies are available for review upon request.

### BACKGROUND

This report presents the general closure plan for the Sacramento City Landfill site in conformance to Order No. 84-094 of the California Regional Quality Control Board, Central Valley Region (Regional Board). The plan is prepared to meet all applicable requirements of the recently revised "Discharge of Waste to Land" regulations of the State Water Resources Control Board (Title 23, Chapter 3, Subchapter 15 of the California Administrative Code) adopted October 18, 1984. This plan covers the 113-acre landfill site located at the northern end of 28th Street. This site includes the 78-acre existing disposal site and the recently constructed 35-acre expansion site.

City staff has concluded negotiations with Regional Board staff regarding this Closure Plan and received their approval of this plan, by letter, dated January 22, 1986 (Attachment II). Following Council approval of the Closure Plan the Regional Board will be asked to formally approve the plan at a Board hearing.

The Closure Plan includes several major features that are mandated by law and require to minimize adverse environmental effects of the landfill during the post-closure period. Brief descriptions of these features and the current status of their implementation follows: (For more detailed information please refer to the Closure Plan pages specified in parentheses.)

1. Installation of a clay liner at the expansion site (pgs. 9-11, 16, 17)

Status: Project was completed in summer of 1985. Limited erosional damage was sustained by liner, this February, during the floods. Staff is assessing the damage and will be preparing plans to repair and to prevent a recurrence. These plans will be implemented prior to next winter's rains.

2. Installation of a leachate collection system at the expansion site and operation of this system for as long as the site is anticipated to generate leachate. (pgs. 10, 16, 17)

Status: Project was completed in summer of 1985. Damage due to rainfall will also be assessed and corrected as discussed above.

3. Protection of the facility from any washout or erosion of wastes or cover material, and from inundation which may occur as a result of floods having a predicted occurrence of once in 100 years. (pgs. 18-20/Plate 1)

Status: Staff has prepared the final grading plan and conceptual design of drainage facilities for the site to incorporate these protection measures.

4. Grading of the landfill to provide slopes of between three (3) and ten (10) percent to promote lateral runoff of precipitation and to prevent ponding and infiltration. (pgs. 18-20/Plate 1)

Status: Same as Item 3.

5. Design and construction of the final cover to function with minimum maintenance and consisting of the following:
  - o A foundation layer of not less than two (2) feet of compacted material.

- o A cap layer of soil not less than one (1) foot containing no waste or leachate, placed on top of the foundation layer and compacted to achieve a coefficient of permeability of not greater than  $1 \times 10^{-6}$  cm/sec.
- o A top cover of soil, containing no waste or leachate, not less than one (1) foot thick, placed on top of the cap layer, The rooting depth of any vegetation planted on the cover shall not exceed the depth of the top cover.  
(pgs. 17, 18/Plate 3)

Status: Suitable cap materials are stockpiled at the site to construct the initial phase of the cap this summer. Construction should begin within a month. City forces will do the construction. Plate 3 indicates the sequencing and proposed schedule of final cover placement.

6. Control of gas migration from the landfill to prevent creation of a safety hazard and nuisance.

(pg. 11)

Status: Monitoring probes have been installed along the south boundary of the existing landfill and more probes will be installed along the freeway when wastes are placed into the expansion site. The City will be negotiating this summer for a contract to recover landfill gas.

7. Implementation of a ground water monitoring program to detect potential migration of pollutants.

(pgs. 20-23)

Status: The monitoring program is being implemented and plans are being made to construct additional wells per Regional Board requirements.

The schedule for closure of the landfill is attached to Plate 3 in the Closure Plan. Phase I, consisting of approximately 15 acres, is scheduled for final closure in 1986. The entire site, including the expansion area, is scheduled to close for refuse disposal by the end of 1990, with final cover placed during the summer of 1991.

Financial Information

The estimated cost to implement the proposed Closure Plan is \$3,000,000. This cost is proposed to be recovered by inclusion in the Solid Waste Enterprise Fund Budget over the next five years. Post-closure monitoring and maintenance costs is estimated to average \$60,000 per year. This annual expense will be included in the Solid Waste budget commencing after site closure.

ALTERNATIVES

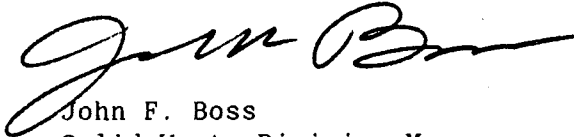
At the request of the property owner immediately east of the site (across freeway), staff evaluated the cost-effectiveness of closing the landfill site one year earlier than scheduled in the Closure Plan. This analysis is attached for Committee review (Attachment III).

The conclusion reached in this analysis is that it is not cost-effective to close the site earlier than scheduled in the Closure Plan.

RECOMMENDATION

Staff recommends that the Transportation and Community Development Committee submit to the City Council the 28th Street Landfill's Closure Plan as currently proposed and recommend its approval pursuant to the attached resolution (Attachment I).

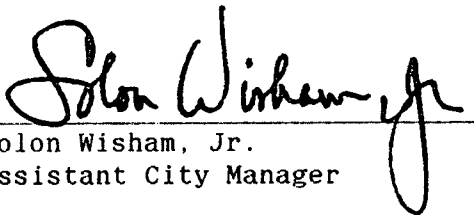
Respectfully submitted,



John F. Boss  
Solid Waste Division Manager

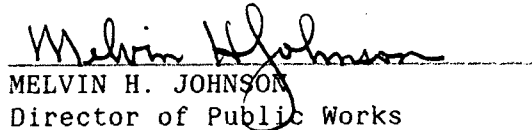
JFB/myw (clospln:c)

Recommendation Approved:



Solon Wisham, Jr.  
Assistant City Manager

Approved:



MELVIN H. JOHNSON  
Director of Public Works

Attachments:

- I - Resolution
- II - Plan Approval
- III - Cost Analysis
- IV - Landfill Closure Plan

# RESOLUTION NO.

ADOPTED BY THE SACRAMENTO CITY COUNCIL ON DATE OF

## A RESOLUTION APPROVING THE CLOSURE PLAN FOR THE 28TH STREET LANDFILL

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF SACRAMENTO  
THAT:

The 28th Street Landfill Closure Plan, dated April, 1986, is hereby approved and the City Manager is authorized to implement the plan following formal approval by the Regional Water Quality Control Board.

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MAYOR

ATTEST:

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CITY CLERK



311 S. STREET  
SACRAMENTO, CALIFORNIA 95816-7090  
PHONE: (916) 445-0270

22 January 1986

Mr. Melvin H. Johnson, Director  
Department of Public Works  
City of Sacramento  
915 I Street, Room 207  
Sacramento, CA 95814

28TH STREET LANDFILL CLOSURE PLAN, FINAL DRAFT

This letter is in response to the above closure plan. I have reviewed and subsequently determined the plan adequately covers the closure requirements as prescribed in the California Administrative Code, Title 23, Chapter 3, Subchapter 15. The remaining portion of this letter discusses the conditions needed to keep the landfill closure in compliance.

Before construction of any permanent features, please submit for approval, a complete set of construction specifications detailing the proposed segment. Also, please note any work that differs from the closure plan.

Upon completion of each phase of closure you must request an inspection from our office. During the inspection, log books and field inspection reports shall be available upon request.

Since the construction, operations, and closure of the existing 78 acre and 35 acre expansion sites are nearly independent, your current Waste Discharge Requirements Order No. 84-094 will be replaced by two orders. The revised waste discharge orders will be issued when a ground water monitoring program is adopted.

Finally, although the 28th Street Landfill Closure Plan has been approved, the Regional Board may require revisions if later deemed necessary to protect water quality.

If you have any further questions, please contact me at (916) 322-9094.

MARK A. CLARKSON  
Area Engineer

MAC:jec

cc: Mr. John Boss, City of Sacramento  
Mr. Bruce Barbosa, City of Sacramento

RECEIVED

JAN 24 1986

PUBLIC WORKS  
ADMINISTRATIVE

COST ANALYSIS  
ACCELERATED CLOSURE OF THE 28TH STREET LANDFILL

SUMMARY

A cost analysis on the accelerated closure of the City's 28th Street Landfill is presented. Annual costs over the next three years are estimated to increase by about 1.2 million dollars due to a one year accelerated closure of the site. Tipping fees estimated at \$18.60/ton would be required of commercial haulers to recover this additional cost at no expense to City rate payers. This figure far exceeds the rate commercial haulers would be willing to pay, estimated at \$7.50 to \$10.50/ton. Hence, staff does not recommend early closure of the site.

BACKGROUND

The estimated closure date for the 28th Street Landfill is 1990. This estimate is based upon several assumptions including:

1. Attainment of the final grades as shown on Plate 1 of the Closure Plan;
2. Compaction of the refuse to a density of 1100 to 1200 lbs/ft ;
3. A yearly refuse influx of about 200,000 tons per year;

There has been some interest expressed in closing the landfill earlier, primarily by the property owner of the land immediately east of the landfill, across the freeway. A change in any of the above assumptions could increase or decrease the remaining life of the landfill. However, only assumption #3, the yearly refuse influx, can be voluntarily changed to reduce the active life of the landfill without jeopardizing the integrity of the site.

The final grades (assumption #1) are predicated on attainment of the minimally acceptable post-closure slopes per State regulations. Hence, decreasing landfill life by reducing these grades would violate State requirements.

Refuse density (assumption #2) can be decreased by minimizing the compaction of the refuse during placement. However, this method of reducing the active life of the landfill is contrary to sound operational procedures and would result in large scale differential settling of the site and structural damage to the clay cap during the post-closure period.

Assumption #3, as stated, can be modified to decrease the life of the landfill without jeopardizing the structured integrity of the site following closure. Commitment to this assumption would require opening the landfill to commercial haulers at a tip fee sufficiently low to entice contracts with them. However, such a policy would be to the detriment of the Solid Waste Fund if the revenue generated were not sufficient to offset additional operating costs, and the acceleration of a more expensive transfer alternative.

FINANCIAL

Following is a cost analysis based on reducing the landfill's active life one year:

A. Assumptions

1. Open landfill to commercial haulers at 1/3 of the City's current refuse influx (=65,000 tons/year).
2. Commercial haulers on line during next three years to allow closure by 1989 (a one year acceleration).

B. Operational & Closure Costs

Additional annual operational costs to handle the 65,000 tons/year commercial hauler's refuse is estimated as follows:

<u>ITEM</u>	<u>ANNUAL COST (\$)</u>
o Employees/overtime/out-of-class	\$ 64,000
-Scale Attendant	
-Equipment Operator	
o Fleet equipment rental	42,000
o Closure Plan Revision/Permits/EIR	20,000
o Billing	20,000
o Miscellaneous	2,400
o Daily cover (\$4/yd)	176,000
o Final cover (\$4/yd)	72,000
o Final cover placement (outside contract)	45,000
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Total	\$441,400/Yr =====

C. Capital Improvement Project (CIP) Payoff Cost

The one year accelerated closure of the landfill will result in a one year loss of revenue for payoff of the existing landfill's "Certificate of Participation" account.

o Yearly payoff	\$800,000/Yr
o Recovery of one year loss over three year period	267,000/Yr =====



D. Increased Cost For Disposal At Another Landfill In 4th Year

Current planning analyses for waste disposal alternatives indicate that any new alternative could cost the City about \$7.50 per ton more than the current disposal rate of \$12.50 per ton.

o Increased cost to City for one year acceleration	\$1,550,000
o Recovery of this cost over three year period	500,000/Yr =====

E. Total Annual Cost

The total additional annual costs, over the next three years, for a one year accelerated closure of the landfill is estimated as follows:

o Operational	\$ 441,400
o CIP Payoff	267,000
o Increase 4th Year Costs	<u>500,000</u>
Total	\$1,208,400 =====

F. Tip Fees

To offset this estimated increase in costs, without increasing the cost to rate payers, tip fees will have to be established to recover this additional cost. Therefore, for the City to break even a tip fee of \$18.60/ton (\$1,270,400 - 65,000 tons) must be charged to the commercial haulers under the scenario described above.

G. Conclusion

Sacramento County and Yolo County landfills currently charge commercial haulers tipping fees of \$4.60/ton and \$5.50/ton respectively. Staff estimates that haulers would consider disposal at the 28th Street Landfill at tipping fees between \$9.50 to \$10.50/ton due to a \$5.00/ton cost savings from reduced travel distances to the City landfill. Proposed increases of tip fees at these landfills could raise these by \$1-3 per ton. One commercial hauler has proposed to staff a tipping fee of \$7.50/ton. Both of these figures, staff's estimate of \$9.50 to \$10.50/ton and the haulers proposal of \$7.50/ton are far short of the estimated break even tip fee of \$18.60.

RECOMMENDATION

Based upon the cost analysis presented above staff recommends that the landfill be utilized for its projected life without additional wastes. This would be the most cost-effective option for the Solid Waste Enterprise Fund.