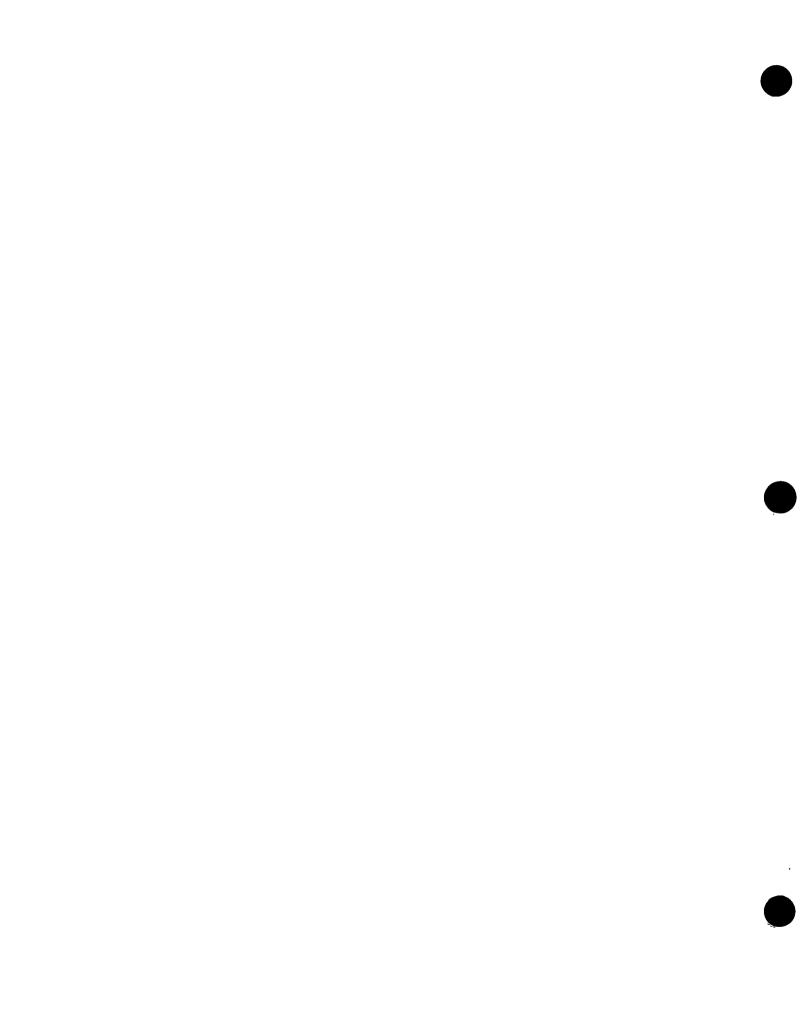
PALOS VERDES LANDFILL REMEDIAL INVESTIGATION REPORT

APPENDIX D.8

REPORT ON WELL ABANDONMENT FOR WELLS MW-1 AND MW-6 (DALE HINKLE, P.E. INC.)



Dale Hinkle, P.E. Inc.

15510 ROCKFIELD. SUITE "B" IRVINE. CA 92718 (714) 458-0498 FAX (714) 458-1918

February 4, 1992

Mr. Charles W. Carry County Sanitation Districts of Los Angeles County 1955 Workman Mill Road P O Box 4998 Whittier, California 90607

Re: Report of Well Abandonment, Seven Wells (MW-1 through MW-6 and G-9) Palos Verdes Landfill

Dear Sir:

This letter will serve as a transmittal for the enclosed report for the Palos Verdes Landfill Well Abandonment.

At this time we have completed all of the tasks requested in your RFP for the abandonment of seven monitoring wells at the Palos Verdes Landfill.

Drilling for all wells was much more difficult than anticipated with the exception of G-9. The difficultly was caused by the deformation of the well casing due to the proximity of the landfill excavation and the alignment to be up to 20 degrees out of true and difficult access. This was especially true for MW-3 which required a large amount of hand built tooling and manouvering of drill rigs.

All wells were successfully abandoned and the project has been completed.

It has been our pleasure to be of service to you on this project and if you have any questions please feel free to call our office.

Sincerely,

R. D. Hinkle

RGE #402



REPORT OF WELL ABANDONMENT MW-1 THROUGH MW-6 AND G-9 PALOS VERDES LANDFILL

PROJECT PERFORMED FOR LOS ANGELES COUNTY SANITATION DISTRICTS

Prepared By: Dale Hinkle P. E. Inc.

15510 B Rockfield Irvine, California 92718 714 458 0498

FAX 714 458 1918

TABLE OF CONTENTS

Introduction 1
Purpose 1
Scope of Work 1
Well Abandonment Procedures 2
MW-1 2 MW-2 3 MW-3 4 MW-4 5 MW-5 6 MW-6 7 G-9 8 Unusual Situations Encountered
APPENDIX
Well Abandonment Summary
Monitoring Well Abandonment-As Built Figures 1, 2, & 3
Copies of Application for Well Permit
Logs of Borings

REPORT OF WELL ABANDONDMENT PALOS VERDES LANDFILL

Introduction

7:

This project was performed under contract to the Los Angeles County Sanitation Districts and coordinated by Mr. Sailesh Banaji and Ms. Mary Jacobs of the engineering staff.

The project was conducted by Dale Hinkle P. E. Inc., with Layne Environmental Services as the drilling contractor. The wells selected for abandonment were chosen by the Districts.

Purpose

The purpose of the project was abandonment of seven monitoring wells at the Palos Verdes Landfill site. The abandonment was to be performed according to State of California Department of Water Resources (DWR) procedures.

Scope of Work

The scope of work consisted of the following:

- Perform a review of existing DWR well Abandonment procedures, well construction details (provided by LACSD), and existing geologic reports for the site.
- Preparation of a Health and Safety Plan to be used by all personnel during investigative and remedial activities at the site.
- 3. Obtain all necessary permits and licenses to carry the project to completion.
- 4. Develop access for drilling equipment to the sites of the various wells.
- 5. Abandonment of 7 monitoring wells (MW-1 through MW-6 and G-9).
- 6. Preparation of final summary report.

Well Abandonment Procedures

- 1. Measure depth to groundwater and length of well casing.
- 2. Remove concrete slab and box.
- 3. Drill out the hole to a depth of 42' with a 36" diameter auger using a Watson 2000 bucket auger drill mounted on 11 foot wide tracks provided by Mahaffey Drilling.
- 4. Remove well casing, cement, sand and gravel pack.
- 5. Backfill the hole with volclay grout to within 6' of the ground surface using a pump and tremie pipe located 2' off the bottom of the hole.
- 6. After 24 hours, check the hole for settlement and refill with additional Volclay grout.
- 7. After the Volclay grout has cured for a minimum of 72 hours, place a cement/bentonite plug to within 2' of the ground surface.
- 8. Backfill the upper 2' of the borehole with clean on-site material, compacted with a hand operated compactor, to the original surface.

- 1. Measure depth to groundwater and length of well casing.
- 2. Remove concrete slab and box.
- 3. Drill out the hole to a depth of 73.25' using a 24" diameter auger using a E-Z Bore 90 bucket auger drill provided by Layne Environmental Services.
- 4. Remove well casing, cement, sand and gravel pack.
- 5. Backfill the hole with volclay grout to within 6' of the ground surface using a pump and tremie pipe located 2' off the bottom of the hole.
- 6. After 24 hours, check the hole for settlement and refill with additional Volclay grout if necessary.
- 7. After the Volclay grout has cured for a minimum of 72 hours, place a cement/bentonite plug to within 2' of the ground surface.
- 8. Backfill the upper 2' of the borehole with clean on-site material, compacted with a hand operated compactor, to the original surface.

- Remove concrete slab and box.
- 2. Measure depth to groundwater and length of well casing.
- 3. Drill out the hole to a depth of 15' with a 36" diameter auger using a Bayshore 929 Track Mounted Helical auger drill provided by Mahaffey Drilling.
- 4. Remove upper 15' of well casing and cement.
- 5. Set and seal a new 15' by 36" steel casing over the well.
- Backfill around casing with a mixture of dry Volclay and soil.
- 7. Hand expose the well casing and fit a new PVC pipe on top.
- 8. Clean well of debris with a CME 75 drill with sliding head using air rotary procedures provided by Discovery Drilling Inc.
- 9. Perforate the well a minimum of 1 hole per foot using a swinger crane rig to a depth of 119' (Perforated a total of 104') with 1/2 inch diameter holes punched with a hydraulic perforator fabricated by us for this project.
- 10. Pressure grout the well with Volclay at a pressure of 46 psi to within 15' of the ground surface.
- 11. After 24 hours, check the hole for settlement and refill with additional Volclay grout if necessary.
- 12. Fill the in-place steel casing with Volclay grout to within 5' of the ground surface.
- 13. After the Volclay grout has cured for a minimum of 72 hours, place a cement/bentonite plug to within 2' of the ground surface. The 36 inch steel casing was left inplace.
- 14. Backfill the upper 2' of the borehole with clean on-site material, compacted with a hand operated compactor, to the original surface.

- 1. Remove concrete slab and box.
- 2. Measure depth to groundwater and length of well casing.
- 3. Drill out the hole to a depth of 35' with a 36" diameter auger using a Bayshore 929 track mounted helical auger drill provided by Mahaffey Drilling.
- 4. Remove well casing, cement, sand and gravel pack.
- 5. Backfill the hole with volclay grout to within 6' of the ground surface using a pump and tremie pipe located 2' off the bottom of the hole.
- 6. After 24 hours, check the hole for settlement and refill with additional Volclay grout if necessary.
- 7. After the Volclay grout has cured for a minimum of 72 hours, place a cement/bentonite plug to within 2' of the ground surface.
- 8. Backfill the upper 2' of the borehole with clean on-site material, compacted with a hand operated compactor, to the original surface.

£:

- 1. Remove concrete slab and box.
- 2. Measure depth to groundwater and length of well casing.
- 3. Drill out the hole to a depth of 129' with a 36" diameter auger using a E-Z Bore 90 bucket auger drill provided by Layne Environmental Services.
- 4. Remove well casing, cement, sand and gravel pack.
- 5. Backfill the hole with volclay grout to within 6' of the ground surface using a pump and tremie pipe located 2' off the bottom of the hole.
- 6. After 24 hours, check the hole for settlement and refill with additional Volclay grout if necessary.
- 7. After the Volclay grout has cured for a minimum of 72 hours, place a cement/bentonite plug to within 2' of the ground surface.
- 8. Backfill the upper 2' of the borehole with clean on-site material, compacted with a hand operated compactor, to the original surface.

- 1. Remove concrete slab and box.
- 2. Measure depth to groundwater and length of well casing.
- 3. Drill out the hole to a depth of 15' with a 36" diameter auger and from 15' to 73' with a 24" diameter auger using a E-Z Bore 90 bucket auger drill provided by Layne Environmental Services
- 4. Remove well casing, cement, sand and gravel pack.
- 5. Backfill the hole with volclay grout to within 6' of the ground surface using a pump and tremie pipe located 2' off the bottom of the hole.
- 6. After 24 hours, check the hole for settlement and refill with additional Volclay grout if necessary.
- 7. After the Volclay grout has cured for a minimum of 72 hours, place a cement/bentonite plug to within 2' of the ground surface.
- 8. Backfill the upper 2' of the borehole with clean on-site material, compacted with a hand compactor and place asphalt patch over the backfill.

G-9

- 1. Remove asphalt from top of well.
- 2. Measure depth to groundwater and length of well casing.
- 3. Drill out the hole to a depth of 110' and 13.5" diameter using a CME 95 hollow stem auger drill provided by Layne Environmental Services.
- 4. Remove well casing, cement, sand and gravel pack.
- 5. Backfill the hole with volclay grout to within 6' of the ground surface using a pump and tremie pipe located 2' off the bottom of the hole.
- 6. After 24 hours the Volclay grout had settled 20'. The hole was then refilled to within 6 feet of the ground surface.
- 7. After the Volclay grout has cured for a minimum of 72 hours, place a cement/bentonite plug to within 6' of the ground surface.
- 8. Backfill the upper 6' of the borehole with imported, clean gravel material, compacted with a hand operated compactor, to the original surface.
- 9. Area left as soil at the request of Districts personnel for future repaying.

All wells were measured with a Gastech for the presence of methane gas prior to the start of drilling. No methane gas was detected in any of the wells. Well cuttings were measured with a Photovac Tip for the presence of hydrocarbons. None were detected.

Samples of the well cuttings were transported by LACSD personnel to the Districts laboratory for testing.

Unusual Situations Encountered

Wells MW-1 through MW-6 were very close to the old excavation on the south side of the site. The close proximity of the excavation caused the monitoring well casings to be severely deformed by settlement of the landfill. The upper 10 to 15 feet of the wells were in fill or soil affected by fill settlement and the lower portions were in bedrock. The wells were also bent up to 20 degrees, causing the casing to deform, making it impossible to drill a straight hole in the wells. It was necessary to drill 2 or 3 holes at the surface to hit the lower straight portion of the wells.

The cuttings from the drilling project (approximately 100 cubic yards) were transported to the Puente Hills Landfill after testing by the Districts. The tests showed no significant contaminants.

All wells were successfully abandoned and the project was completed as of December 1991.

APPENDIX

WELL ABANDONMENT SUMMARY

Well #	Length of Well Casing	Depth of Ground- Water	Depth of Boring	Diameter of Boring	Method of Qt Abandonment		Qty of Cement	
	(ft)	(ft)	(ft)	(in)		(50#)	(94#)	(gal.)
MW-1	41.0	33.0	42.0	36.0	Bucket Auger	91	20	3000
MM-2	72.0	34.0	73.25	24.0	11 11	110	20	2700
MW-3	119.0	50.0	15.0	36.0	Helical Auger (to 15') Pressure Grou (to 119.0')		12	550
MW-4	35.0	30.0	35.0	36.0	Helical Auger	82	5	2250
MW-5	129.0	90.0	129.0	36.0	Bucket Auger	153	10	4750
MW-6	73.0	54.0	73.0	36 to 15' 24 to 73'	11 11	120	6	3750
G-9	108.0	92.0	110.0	13.5	Hollow-Stem Auger	20	6	750

PIETOMETER -30'd CMP BENCH -Ground Elevation (A) 2'ROCK BEDROCK C 2'CONC ELEV.(J) A'ROCK 1102" 2'CONC 2' ROCK 2 CONC ELEV OF WELL SCREEN GROUNDWATER ELEV. (C) (F) 1/2" & ferforations BOREHOLE FOR RBRNDONMENT 31 Z 17 PRINTED ON NO. 100000 CLEARPRINT.

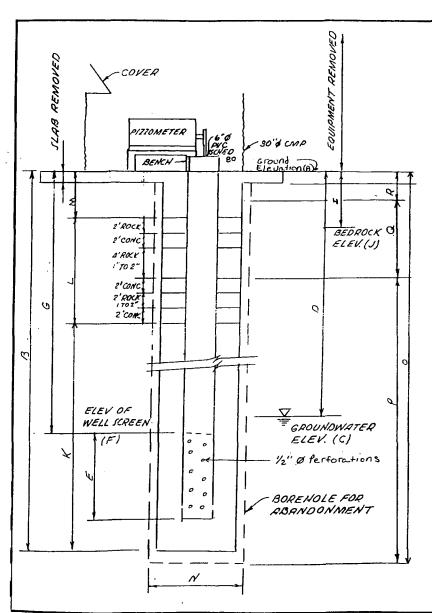
A. Ground Elevation (ft. above M.S.L.) (USGS Topo) 350.0 380.0 350.0 B. Length of Well Casing and Screen (ft) 41.0 72.0 119.0 C. Groundwater Elevation (ft. above M.S.L.) 317.0 346.0 257.0 D. Static Water Level (ft) 33.0 34.0 93.0 E. Length Of Well Screen (ft) 5.0 5.0 5.0 F. Elevation of Well screen (ft. above M.S.L.) 316.5 313.0 236.0 G. Length of Well Casing (ft) 33.5 67.0 113.0					
B. Length of Well Casing and Screen (ft)		WELL NUMBER	MW-1	MW-Z	MW-3
C. Groundwater Elevation (ft. above M.S.L.) 3/7.0 346.0 257.0 D. Static Water Level (ft) 33.0 34.0 93.0 E. Length Of Well Screen (ft) 5.0 5.0 5.0 F. Elevation of Well screen (ft. above M.S.L.) 3/6.5 3/3.0 236.0 G. Length of Well Casing (ft) 33.5 67.0 /1/3.0 H. Elevation of Top of Casing (ft. above M.S.L.) 350.0 380.0 350.0 I. Depth to Bedrock (ft) /5.0 20.0 N.E. J. Elevation of Top of Bedrock (ft. above M.S.L.) 325.0 360.0 N.E. K. Length of Rock Filter Pack (ft) 23.0 54.0 /2/.0 Length of Concrete/Rock Surface (4.0 /4.0 14.0 14.0 Seal (ft) (Well) 4.0 4.0 4.0 N. Diameter of Borehole (in) 36.0 24.0 36.0 O. Length of Concrete Slab (ft) 36.0 67.25 /5.0 P. Length of Concrete/Bentonite to Seal Borehole (ft) 30.0 67.25 /0.0 R. Length of Cement/Bentonite to Seal Borehole (ft) 2.0 2.0 2.0 R. Length of Backfill to Cap Borehole (ft) 2.0 2.0 2.0 S. Quantity of Volclay, Used (50f bags) 9/1 //0 24 T. Quantity of Cement Used (94f bags) 20 270 12	A.	Ground Elevation (ft. above M.S.L.) (USGS Topo)	350.0	380.0	350.0
D. Static Water Level (ft) Below Ground Level E. Length Of Well Screen (ft) F. Elevation of Well screen (ft. above M.S.L.) G. Length of Well Casing (ft) H. Elevation of Top of Casing (ft. above M.S.L.) J. Depth to Bedrock (ft) J. Elevation of Top of Bedrock (ft. above M.S.L.) J. Elevation of Top of Bedrock (ft. above M.S.L.) J. Elevation of Top of Bedrock (ft. above M.S.L.) J. Elevation of Top of Bedrock (ft. above M.S.L.) J. Elevation of Top of Bedrock (ft. above M.S.L.) J. Elevation of Top of Bedrock (ft. above M.S.L.) J. Elevation of Top of Bedrock (ft. above M.S.L.) J. Elevation of Top of Bedrock (ft. above M.S.L.) J. Elevation of Top of Bedrock (ft. above M.S.L.) J. Elevation of Top of Bedrock (ft. above M.S.L.) J. Elevation of Top of Bedrock (ft. above M.S.L.) J. Elevation of Top of Bedrock (ft. above M.S.L.) J. Elevation of Top of Bedrock (ft. above M.S.L.) J. Elevation of Top of Bedrock (ft. above M.S.L.) J. Elevation of Top of Bedrock (ft. above M.S.L.) J. Elevation of Top of Bedrock (ft) J. J	В.	Length of Well Casing and Screen (ft)	41.0	72.0	:119.0
E. Length Of Well Screen (ft) E. Length Of Well Screen (ft) F. Elevation of Well screen (ft. above M.S.L.) G. Length of Well Casing (ft) H. Elevation of Top of Casing (ft. above M.S.L.) J. Depth to Bedrock (ft) J. Elevation of Top of Bedrock (ft. above M.S.L.) J. Elevation of Top of Bedrock (ft. above M.S.L.) K. Length of Rock Filter Pack (ft) (1-2" diameter) L. Length of Concrete/Rock Surface Seal (ft) (Well) M. Length of Concrete Slab (ft) N. Diameter of Borehole (in) J. Length of Volclay Grout to Seal Borehole (ft) Q. Length of Dement/Bentonite to Seal Borehole (ft) R. Length of Backfill to Cap Borehole (ft) S. Quantity of Volclay, Used (50f bags) T. Quantity of Cement Used (94f bags) J. Quantity of Water Used (gallons) J. J	c.	Groundwater Elevation (ft. above M.S.L.)	317.0	346.0	257.0
E. Length of Well Screen (ft)	D.		33.0	34.0	9 <i>3.0</i>
G. Length of Well Casing (ft) H. Elevation of Top of Casing (ft. above M.S.L.) J. Depth to Bedrock (ft) J. Elevation of Top of Bedrock (ft. above M.S.L.) J. Elevation of Top of Bedrock (ft. above M.S.L.) J. Elevation of Top of Bedrock (ft. above M.S.L.) J. Elevation of Top of Bedrock (ft. above M.S.L.) J. Elevation of Top of Bedrock (ft. above M.S.L.) J. Elevation of Top of Bedrock (ft. above M.S.L.) J. Elevation of Top of Bedrock (ft. above M.S.L.) J. Elevation of Top of Bedrock (ft. above M.S.L.) J. Elevation of Top of Bedrock (ft. above M.S.L.) J. Elevation of Top of Concete Fack (ft.) J. Length of Rock Filter Pack (ft.) J. J	E.		5.0	5.0	5.0
H. Elevation of Top of Casing (ft. above M.S.L.) J. Depth to Bedrock (ft) J. Elevation of Top of Bedrock (ft. above M.S.L.) J. Elevation of Top of Bedrock (ft. above M.S.L.) K. Length of Rock Filter Pack (ft) (1-2" diameter) L. Length of Concrete/Rock Surface Seal (ft) (Well) M. Length of Concrete Slab (ft) N. Diameter of Borehole (in) J. Length of Volclay Grout to Seal Borehole (ft) Q. Length of Cement/Bentonite to Seal Borehole (ft) R. Length of Backfill to Cap Borehole (ft) S. Quantity of Volclay, Used (50# bags) T. Quantity of Cement Used (gallons) J. J	F.	Elevation of Well screen (ft. above M.S.L.)	3/6.5	313.0	236.0
I. Depth to Bedrock (ft) J. Elevation of Top of Bedrock (ft. above M.S.L.) K. Length of Rock Filter Pack (ft) (1-2" diameter) L. Length of Concrete/Rock Surface (4.0	G.	Length of Well Casing (ft)	33.5	67.0	113.0
J. Elevation of Top of Bedrock (ft. above M.S.L.) 325.0 360.0 N.E. K. Length of Rock Filter Pack (ft) 23.0 54.0 /01.0 Length of Concrete/Rock Surface /4.0 14.0 14.0 M. Length of Concrete Slab (ft) 4.0 4.0 4.0 N. Diameter of Borehole (in) 36.0 24.0 36.0 O. Length of Borehole (ft) 42.0 73.25 /5.0 P. Length of Volclay Grout to Seal 36.0 67.25 /0.0 Q. Length of Cement/Bentonite to Seal 4.0 4.0 3.0 R. Length of Backfill to Cap Borehole (ft) 2.0 2.0 2.0 S. Quantity of Volclay, Used (50% bags) 9/1 //0 24 T. Quantity of Cement Used (94% bags) 20 20 12 U. Quantity of Water Used (gallons) 3000 2700 550	н.	Elevation of Top of Casing (ft. above M.S.L.)	350.0	380.0	350.0
K. Length of Rock Filter Pack (ft) (1-2" diameter) 23.0 54.0 /21,0 L. Length of Concrete/Rock Surface 14.0 14.0 14.0 M. Length of Concrete Slab (ft) 4.0 4.0 4.0 N. Diameter of Borehole (in) 36.0 24.0 36.0 O. Length of Borehole (ft) 42.0 73.25 15.0 P. Length of Volclay Grout to Seal Borehole (ft) 36.0 67.25 10.0 Q. Length of Cement/Bentonite to Seal Borehole (ft) 4.0 4.0 3.0 R. Length of Backfill to Cap Borehole (ft) 2.0 2.0 2.0 S. Quantity of Volclay, Used (50f bags) 91 1/0 24 T. Quantity of Cement Used (94f bags) 20 20 12 U. Quantity of Water Used (gallons) 3000 2700 550	I.	Depth to Bedrock (ft)	15.0	20.0	· N.E.
Columbia Columbia	J.	Elevation of Top of Bedrock (ft. above M.S.L.)	335.0	360.0	N. E.
L. Length of Concrete/Rock Surface Seal (ft) (Well) M. Length of Concrete Slab (ft) N. Diameter of Borehole (in) O. Length of Borehole (ft) P. Length of Volclay Grout to Seal Borehole (ft) Q. Length of Cement/Bentonite to Seal Borehole (ft) R. Length of Backfill to Cap Borehole (ft) Q. Quantity of Volclay, Used (50# bags) T. Quantity of Cement Used (94# bags) Quantity of Water Used (gallons) 14.0 4.0 4.0 4.0 36.0 67.25 10.0 3.0 3.0 3.0 3.0 3.0 3.0 3.	к.		23.0	54.0	101.0
M. Length of Concrete Slab (ft) 4.0 4.0 4.0 N. Diameter of Borehole (in) 36.0 24.0 36.0 O. Length of Borehole (ft) 42.0 73.25 15.0 P. Length of Volclay Grout to Seal Borehole (ft) 36.0 67.25 10.0 Q. Length of Cement/Bentonite to Seal Borehole (ft) 4.0 4.0 3.0 R. Length of Backfill to Cap Borehole (ft) 2.0 2.0 2.0 S. Quantity of Volclay, Used (50% bags) 91 1/0 2.4 T. Quantity of Cement Used (94% bags) 20 20 12 U. Quantity of Water Used (gallons) 3000 2700 550	L.	Length of Concrete/Rock Surface	14.0	14.0	14.0
0. Length of Borehole (ft) 42.0 73.25 15.0 P. Length of Volclay Grout to Seal Borehole (ft) 36.0 67.25 10.0 Q. Length of Cement/Bentonite to Seal Borehole (ft) 4.0 4.0 3.0 R. Length of Backfill to Cap Borehole (ft) 2.0 2.0 2.0 S. Quantity of Volclay, Used (50% bags) 91 110 24 T. Quantity of Cement Used (94% bags) 20 20 12 U. Quantity of Water Used (gallons) 3000 2700 550	M.		4.0	4.0	4.0
P. Length of Volclay Grout to Seal Borehole (ft) Q. Length of Cement/Bentonite to Seal Borehole (ft) R. Length of Backfill to Cap Borehole (ft) Q. Quantity of Volclay, Used (50# bags) Quantity of Cement Used (94# bags) Quantity of Water Used (gallons) 36.0 67.25 10.0 3.0 3.0 3.0 3.0 2.0 2.0 2.0	N.	Diameter of Borehole (in)	36.0	24.0	36.0
Borehole (ft) Co.	0.	Length of Borehole (ft)	42.0	73.25	15.0
Borehole (ft)	P.		36.0	67.25	10.0
R. Length of Backfill to Cap Borehole (ft) 2.0 2.0 2.0 S. Quantity of Volclay, Used (50# bags) 91 1/0 2A T. Quantity of Cement Used (94# bags) 20 20 12 U. Quantity of Water Used (gallons) 3000 2700 550	Q.	Length of Cement/Bentonite to Seal	4.0	4.0	3.0
T. Quantity of Cement Used (94# bags) 20 20 12 U. Quantity of Water Used (gallons) 3000 2700 550	R.		2.0	2.0	2.0
T. Quantity of Cement Used (94# bags) 20 20 12 U. Quantity of Water Used (gallons) 3000 2700 550	S.		91	110	24
	T.				12
V. Drill Method Bucket Auger Helical Aug.	U.	Quantity of Water Used (gallons)			
	v.	Drill Method	Bucket Auger	Bucket Auge	Helical Auger

PALOS VERDES LANDFILL							
ng well abandonm	ENT PROJECT						
APPROVED BY:	DRAWN BY GPD						
	REVISED						
	NG WELL ABANDONM						

MONITORING WELL ABANDONMENT-AS BUILT

DALE HINKLE P.E. INC.

FIG. 1



•	WELL NUMBER	MW-4	Mw.5	MW-6		
A.	Ground Elevation (ft. above M.S.L.) (USGS Topo)	360.0	340.0	280.0		
В.	Length of Well Casing and Screen (ft)	35.0	129.0	73.0		
c.	Groundwater Elevation (ft. above M.S.L.)	330.0	250.0	226.0		
D.	Static Water Level (ft) Below Ground Level	30.0	90.0	54.0		
E.	Length Of Well Screen (ft)	5.0	5.0	5.0		
F.	Elevation of Well screen (ft. above M.S.L.)	331.0	217.5	214.0		
G.	Length of Well Casing (ft)	29.0	122.5	66.0		
н.	Elevation of Top of Casing (ft. above M.S.L.)	360.0	340.0	280.0		
I.	Depth to Bedrock (ft)	32.0	EST. 20.0	70.5		
J.	Elevation of Top of Bedrock (ft. above M.S.L.)	328.0	320.0	209,5		
к.	Length of Rock Filter Pack (ft) _(1-2" diameter)	17.0	109.5	55.0		
L.	Length of Concrete/Rock Surface Seal (ft) (Well)	14.0	14.0	14.0		
M.	Length of Concrete Slab (ft)	4.0	4.0	4.0		
N.	Diameter of Borehole (in)	36.0	36.0	36.0 to 15'		
0.	Length of Borehole (ft)	35.0	129.0	73.0		
P.	Length of Volclay Grout to Seal Borehole (ft)	29.0	123.0	67.0		
Q.	Length of Cement/Bentonite to Seal Borehole (ft)	4.0	4.0	4.0		
R.	Length of Backfill to Cap Borehole (ft)	2.0	2.0	2.0		
s.	Quantity of Volclay, Used (50# bags)	82	15.3	120		
T.	Quantity of Cement Used (94# bags)	5	10	6		
υ.	Quantity of Water Used (gallons)	2250	4750	3750		
v.	Drill Method	Helical Alyer	Broket	Bucker		

PALOS VERDES LANDFILL
MONITORING WELL ABANDONMENT PROJECT

SCALE: NO SCALE
DATE: 11-5-91

DRAWN BY GPD

MONITORING WELL ABANDONMENT-AS BUILT

DALE HINKLE P.E. INC.

FIG. 2

11 X 17 PRINTED ON NO. 1600H CLEARPHINE .

BENTONITE SEAL (K) BEDROCK ELEV.(J) BENTONITE SEAL (K) ELEV OF WELL SCREEN TILL GROUNDWATER Q - BOREHOLE FOR ABANDONMENT

		<u> </u>	
	: WELL NUMBER	G-9	
A.	Ground Elevation (ft. above M.S.L.) (USGS Topo)	300.0	
в.	Length of Well Casing and Screen (ft)	108.0	4
c.	Groundwater Elevation (ft. above M.S.L.)	208.0	
D.	Static Water Level (ft) Below Ground Level	92.0	
E.	Length Of Well Screen (ft)	35.0	
F.	Elevation of Well screen (ft. above M.S.L.)	228.0	
G.	Length of Well Casing (ft)	72.0	
н.	Elevation of Top of Casing (ft. above M.S.L.)	300.0	
I.	Depth to Bedrock (ft)	90.0	
J.	Elevation of Top of Bedrock (ft. above M.S.L.)	2/0.0	
K.	Length of Rock Filter Pack (ft)(1-2" diameter)	42.0	
L.	Length of Concrete/Rock Surface Seal (ft) (Well)	62.0	
M.	Length of Concrete Slab (ft)	2.0	
N.	Diameter of Borehole (in)	13.5	
0.	Length of Borehole (ft)	110.0	
Р.	Length of Volclay Grout to Seal Borehole (ft)	90.0	
Q.	Length of Cement/Bentonite to Seal Borehole (ft)	14.0	
R.	Length of Backfill to Cap Borehole (ft)	6.0	
s.	Quantity of Volclay, Used (50# bags)	20	
T.	Quantity of Cement Used (94# bags)	6	
υ.	Quantity of Water Used (gallons)	750	
v.	Drill Method	HOLLOW STEM	 ·

PALOS VERDES LANDFILL MONITORING WELL ABANDONMENT PROJECT						
SCALE: NO SCALE	APPROVED BY:	DRAWN BY GPD				
DATE: 11-5-91	1	REVISED				
MONITORING	WELL ABANDONMEN	T-AS BUILT				
DAEE H	INKLE P.E. INC.	FIG.3				

TITE 17 PRINTED ON NO. 1800H CLEARPHINT .

-אעו	RICATION FOR WELL PERMIT RONMENTAL MANAGEMENT - 2615 S. GRAND AVENUE, LOS ANGEL	ES, CA 90007, ROOM 604	DATE						
COU	INTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES		10-21-91						
	TYPE OF PERMIT (CHECK) NEW WELL CONSTRUCTION RECONSTRUCTION OR RENOVATION	PRIVATE DOMESTIC PUBLIC DOMESTIC IRRIGATION							
z	XX DESTRUCTION	XX OBSERVATION/MO							
NOI.	TYPE OF CASING								
JESC	がXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	h 80 PVC MW-1	·						
) ES	Drill out and fill with volclay grout								
	METHOD OF DESTRUCTION HELLOWX STRUCTION 200 HELLOWY STRUCTION HELL	0 & 929 Bayshor	ce 36" Helical auger						
	ADDRESS (NUMBER, STREET, AND NEAREST INTERSECTION)		CITY						
	25706 Hawthorne Boulevard DIAGRAM (SHOW PROPERTY LINES, STREET, ADDRESS, WELL SITE, SEWERS, AND PRI	IVATE SEWAGE DISPOSAL SYSTEM	Rolling Hills Estate S ALONG WITH LABELS AND DIMENSIONS)						
		00							
Nj., r	BOUNDARY								
707	NAM+1								
-	NAME OF WELL DRILLER (PRINT)	NAME OF WELL OWNER L.A. Count	(PRINT) LY Sanitation District						
	TRADE NAME <u>KAYNAX KAXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX</u>	MAILING ADDRESS	998						
	BUSINESS ADDRESS CITY 1X4XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	i CITY							
1.	1210 West 190th St Torrance 90502	DISPOSITION OF APPI	ICATION: (For Sanitarians Use Only)						
	I hereby agree to comply in every respect with all regulations of the County Preventive/Public Health	☐ APPROVED	DENIED						
	Services and with all ordinances and laws of the County of Los Angeles and of the State of California pertaining to	APPROVED WITH C	CONDITIONS						
PLIC	well construction, reconstruction and destruction. Upon completion of well and within ten days thereafter, I will furnish the County Preventive/Public Health Services with a complete log of the well, giving date drilled, depth of well, all perforations in casing, and any other data deemed	If denied or approved w here:	rith conditions, report reason or conditions						
~	necessary by such County Preventive/Public Health Services.								
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	Applicant's Signature	DATE	SANITARIAN						
		DATE	SECTION CHIEF						

,)F	LICATION FOR WELL PERMIT			•	<u> </u>		
EN\	/IRONMENTAL HEALTH 2525 Corporate Place Monterey Par.	k, Ca 91	1754 .	DATE			
COL	INTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES			10-22-9	10-22-91		
	TYPE OF PERMIT (CHECK)	TYPE OF	WELL				
	☐ NEW WELL CONSTRUCTION	☐ PF	RIVATE DOMEST	IC	CATHODIC		
	☐ RECONSTRUCTION OR RENOVATION	☐ PU	JBLIC DOMESTI	S .	☐ INDUSTRIAL		
			RIGATION		GRAVEL PACK		
NO.	DESTRUCTION	XX O	BSERVATION/MO	DNITORING	☐ TEST		
	TYPE OF CASING	~			·····		
	6" Sch 80 PVC MW-2						
ESC	METHOD OF SEALING OF CASING	•					
	Drill out and fill with volclay grou	16					
	HETHOLOGIC PROTECTION		· <u>···</u>				
	METHOD OF DESTRUCTION EZ Bore 90 24" and 36" bucket auge	~					
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	ADDRESS (NUMBER, STREET, AND NEAREST INTERSECTION)						
	25706 Hawthorne Blvd			Rollin	ng Hills Est.		
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- 1	NAME OF WELL DRILLER (PRINT)		NAME OF WELL OWNE				
	Gary Gibson		L. A. Cou	nty Sanitati	on Districts		
	TRADE NAME	MAILING ADDRESS P O Box 4998					
	Layne Environmental BUSINESS ADDRESS CITY		CITY				
Ì	1749 East 28th Street Long Beach 908	306		Calif 90607	1		
- 1		DISPO	SITION OF APP	LICATION: (For Sa	nitarians Use Only)		
}	I hereby agree to comply in every respect with all regulations of the County Preventive/Public Health	]]	PROVED				
	Services and with all ordinances and laws of the County				DENIED		
	of Los Angeles and of the State of California pertaining to well construction, reconstruction and destruction. Upon	⊩ AP	PROVED WITH (	CONDITIONS			
PLIC	completion of well and within ten days thereafter, I will	If denied or approved with conditions, report reason or conditions					
<u>a</u>	furnish the County Preventive/Public Health Services with a complete log of the well, giving date drilled, depth of	here:					
	well, all perforations in casing, and any other data deemed	1					
	necessary by such County Preventive/Public Health Services.						
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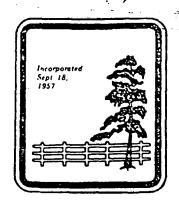
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COU	RONMENTAL HEALTH 2525 Corporate Place Monterey Park NTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES	c, Ca 917	754	10-1	22-91		
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NOL	XX DESTRUCTION	XX OB	SERVATION/MON	NITORING	TEST		
=	TYPE OF CASING 6" Sch 80 PVC MW-3						
ا ي	6" Sch 80 PVC MW-3  METHOD OF SEALING OF CASING			<del></del>			
)ES(	Grouting with cement/bentonite	<del> </del>					
	METHOD OF DESTRUCTION						
	929 Bayshore 36" Helical auger f	for th	ne 1st 15'				
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	ADDRESS (NUMBER STREET, AND NEAREST INTERSECTION) 25706 Hawthorne Blvd			CITY RO	lling Hills Est.		
	DIAGRAM (SHOW PROPERTY LINES, STREET, ADDRESS, WELL SITE, SEWERS, AND PR	IVATE SEW	AGE DISPOSAL SYSTEMS				
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	NAME OF WELL DRILLER (PRINT)  Dwaine Porter	NAME OF WELL OWNER (PRINT)  L. A. County Sanitation District					
	TRADE NAME	MAILING ADDRESS					
	Mahaffey Drilling Co		P O Box 49	98			
	BUSINESS ADDRESS CITY 1210 West 190 th St. Torrance 905	02	Whittier,	Calif 9	0607		
- 4	I horoby some to semally in such assets with all	DISPO	SITION OF APPL	ICATION: (F	For Sanitarians Use Only)		
	I hereby agree to comply in every respect with all regulations of the County Preventive/Public Health	☐ AF	PROVED		☐ DENIED		
<b>L</b> .	Services and with all ordinances and laws of the County of Los Angeles and of the State of California pertaining to	☐ AP	PROVED WITH C	ONDITIONS	<b>S</b>		
_	well construction, reconstruction and destruction. Upon completion of well and within ten days thereafter, I will	If don	ied or approved w	ith condition	ns, report reason or conditions		
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	necessary by such County Preventive/Public Health Services.						
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_	☐ RECONSTRUCTION OR RENOVATION  © DESTRUCTION		RIGATION ISERVATION/MO	NITORI	GRAVEL PACK			
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	TYPE OF CASING  6" Sch 80 PVC MW-4							
SCF	METHOD OF SEALING OF CASING							
**	Drill out and fill with volclay grout							
			· - <u>- · · · · · · · · · · · · · · · · ·</u>					
	METHOD OF DESTRUCTION  929 Bayshore 36" Helical auger							
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	ADDRESS (NUMBER, STREET, AND NEAREST INTERSECTION)				CITY			
	25706 Hawthorne Blvd DIAGRAM (SHOW PROPERTY LINES, STREET, ADDRESS, WELL SITE, SEWERS, AND PRI		ACE DISPOSAL SYSTEM		Rolling Hills Est.			
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İ	300							
	NAME OF WELL DRILLER (PRINT)	•	NAME OF WELL OWNER	(PRINT)				
	Dwaine Porter				Sanitation District			
	TRADE NAME	MAILING ADDRESS P O Box 4998						
	Mahaffey Drilling Co BUSINESS ADDRESS CITY	CITY						
ار	1210 West 190th St Torrance 90502		Whittier	. Cal:	if. 90607			
	I hereby agree to comply in every respect with all	DISPO	SITION OF APPL	LICATIO	N: (For Sanitarians Use Only)			
	regulations of the County Preventive/Public Health	☐ AP	PROVED	•	☐ DENIED			
	Services and with all ordinances and laws of the County of Los Angeles and of the State of California pertaining to	☐ AP	PROVED WITH C	ONDITI	IONS			
6	well construction, reconstruction and destruction. Upon							
LIC	completion of well and within ten days thereafter, I will furnish the County Preventive/Public Health Services with	If den	ied or approved w	ith cond	ditions, report reason or condition			
	a complete log of the well, giving date drilled, depth of well, all perforations in casing, and any other data deemed	11010.						
•	necessary by such County Preventive/Public Health	∦						
	Services.							
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	RONMENTAL HEALTH 2525 Corporate Place Monterey Park	. Ca 917	754	DATE	•		
こつしゃ	NTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES			10	0-22-91		
T	TYPE OF PERMIT (CHECK)	TYPE OF V	/ELL				
	□ NEW WELL CONSTRUCTION	□ PR	IVATE DOMESTIC		☐ CATHODIC		
	☐ RECONSTRUCTION OR RENOVATION	☐ IRF	BLIC DOMESTIC RIGATION		☐ INDUSTRIAL ☐ GRAVEL PACK		
NO N		XXI OB	SERVATION/MON	NITORING	G 🗀 TEST		
	TYPE OF CASING 6" Sch 80 PVC MW-5						
SCI	METHOD OF SEALING OF CASING  Drill out and fill with volclay grou	t					
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	METHOD OF DESTRUCTION EZ Bore 120 Bucket auger 36"						
İ							
	ADDRESS (NUMBER, STREET, AND NEAREST INTERSECTION) 25706 Hawthorne Boulevard				cory Rolling Hills Est.		
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- +	NAME OF WELL DRILLER (PRINT)		NAME OF WELL OWNER	(PRINT)	itati Di-twist		
	Gary Gibson			inty S	anitation District		
	Layne Environmental		MAILING ADDRESS P O BOX 4	998			
	BUSINESS ADDRESS CITY		CITY		5 00007		
,	1749 East 28th St. Long Beach	Whittier, Calif 90807					
.	I hereby agree to comply in every respect with all	DISPO	SITION OF APPL	ICATION	l: (For Sanitarians Use Only)		
	regulations of the County Preventive/Public Health	☐ AF	PROVED	5	☐ DENIED		
	Services and with all ordinances and laws of the County of Los Angeles and of the State of California pertaining to	☐ AF	PROVED WITH C	ONDITIC	ONS		
$\sigma$	well construction, reconstruction and destruction. Upon						
LIC	completion of well and within ten days thereafter, I will furnish the County Preventive/Public Health Services with	If den	ied or approved w	ith condit	tions, report reason or conditions		
	a complete log of the well, giving date drilled, depth of well, all perforations in casing, and any other data deemed						
-	necessary by such County Preventive/Public Health	<b> </b>					
	Services.						
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	Applicant's Signature	DATE		SANITARIAN			
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ENV COU	VIRONMENTAL HEALTH 2525 Corporate Place Monterey Park	. Ca 91	754 -		october	21,	1991
NO		☐ PL	WELL , IVATE DOMESTI BLIC DOMESTIC RIGATION ISERVATION/MO	;		ואו 🗀	THODIC DUSTRIAL IAVEL PACK ST
:SCI	TYPE OF CASING  6" Sch 80 PVC MW-6  METHOD OF SEALING OF CASING  Drill out and fill with volclay ground  METHOD OF DESTRUCTION  EZ Bore 95 24"and 36" bucket auger						
1 000	ADDRESS (NUMBER STREET, AND NEAREST INTERSECTION) 25706 Hawthorne Blvd  DIAGRAM (SHOW PROPERTY LINES, STREET, ADDRESS, WELL SITE, SEWERS, AND PRI  R POR  BOUNDA	VATE SEW OG	AGE DISPOSAL SYSTEM	S ALONG W			ls Est.
	NAME OF WELL DRILLER (PRINT) Gary Gibson TRADE NAME		NAME OF WELL OWNER  L. A. COUT  MAILING ADDRESS		anitatio	on Di	strict
٠٠٠٠ الـ٠٠٠ ا	Layne Environmental BUSINESS ADDRESS  1749 East 28th St. Long Beach 9080  I hereby agree to comply in every respect with all regulations of the County Preventive/Public Health Services and with all ordinances and laws of the County of Los Angeles and of the State of California pertaining to well construction, reconstruction and destruction. Upon completion of well and within ten days thereafter, I will furnish the County Preventive/Public Health Services with a complete log of the well, giving date drilled, depth of well, all perforations in casing, and any other data deemed necessary by such County Preventive/Public Health Services.	DISPO	P O Box 49 ciry Whittier PSITION OF APPL PROVED PROVED WITH Co	ICATIO	IONS ditions, repo	itarians	ED
	Applicant's Signature	DATE		SECTION (	CHIEF		<u> </u>

COU	IRONMENTAL HEALTH _ 2525 Corporate Place Monterey Par NTY OF LOS ANGELES DEPARTMENT OF HEALTH SERVICES	k, Ca 91754	DATE 10-21-	-91
NOI	TYPE OF PERMIT (CHECK)  NEW WELL CONSTRUCTION  RECONSTRUCTION OR RENOVATION  ST DESTRUCTION	TYPE OF WELL  PRIVATE DOMESTIC  PUBLIC DOMESTIC  IRRIGATION  XX OBSERVATION/MON		CATHODIC INDUSTRIAL GRAVEL PACK TEST
)ES( I	TYPE OF CASING  3" Sch. 40 PVC G-9  METHOD OF SEALING OF CASING  Drill out and fill with volclay ground the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sealing of the sea	t		
NC OOT	ADDRESS (NUMBER, STREET, AND NEAREST INTERSECTION)  P V Landfill 25707 Hawthorne Bvd  DIAGRAM (SHOW PROPERTY LINES, STREET, ADDRESS, WELL SITE, SEWERS, AND PR  BOUNDAR  BOUNDAR	RIVATE SEWAGE DISPOSAL SYSTEMS	CITY RO11 SALONG WITH LABELS	ing Hills Est AND DIMENSIONS)  LOGALDENED
1714, 1	I hereby agree to comply in every respect with all regulations of the County Preventive/Public Health Services and with all ordinances and laws of the County of Los Angeles and of the State of California pertaining to well construction, reconstruction and destruction. Upon completion of well and within ten days thereafter, I will furnish the County Preventive/Public Health Services with a complete log of the well, giving date drilled, depth of well, all perforations in casing, and any other data deemed necessary by such County Preventive/Public Health Services.	MAILING ADDRESS POBOX 49 CITY  00806 Whittier.  DISPOSITION OF APPL  APPROVED  APPROVED WITH C  If denied or approved we here:	nty Sanita  998  Calif 90  ICATION: (For S	
	Applicant's Signature		SECTION CHIEF	



PROJECT ADDRESS: Palos Verdes Landfill

CASE NO.	
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## THE CITY OF

# ROLLING HILLS ESTATES

4045 PALOS VERDES DRIVE NORTH • ROLLING HILLS ESTATES, CA. 90274

TELEPHONE — 377-1577

### PLANNING SERVICE REQUEST

25706 Hawthorne	Boulevard		
PROJECT DESCRIPTION:	Abandon 7 mc	nitorina we	lls 1 near office 6.
along north prop	erty line	<u>.</u>	
•			
REQUEST:NEI	GHBORHOOD COMPATI	BILITY	<u>XX</u> VARIANCE *
CON	DITIONAL USE PERM		MINOR DEVIATION
PRE	CISE PLAN OF DESI	gn	GRADING
SPE	CIAL USE PERMIT	•	·
	NDMENT TO PREVIOU		
<u></u>	ER NOISE VA	RIANCE.	( \$25.00 FILING FE
· ·	•	•	•
WHAT THE REQUEST IS	FOR: Use of tr	uck mounted	bucket auger between
approximately Aud	ust 19 - Septe	mber 20 199	91 We anticipate
approximately 75	dbs.		
•			
* If a variance is b	eing requested, pl	ease describe	in detail what the variance
is for and attach a	sheet responding	to each of the	required findings.
	••		
PRIMARY CONTACT PE	RSON: To whom al	l corresponden	nce will be sent.
	To be fil	led in, even i	if same as applicant
	•		
NAME Dale Hinkle	P. E. Inc.	DAY PHONE_	714 458 0498
ADDRESS 15510 B	Rockfield	CITY/ZIP	Irvine Calif 92718
\$ <del></del>			
OWNER OF PROPERTY	Los Angeles Co	unty Sanitat	tion Districts
0	$\bigcap J/\cdot \bigcap J$	,	
SIGNATURE Z	1. Herke	<u></u>	· · · · · · · · · · · · · · · · · · ·
. R. D.	Hinkle Jr.	•	•
MAILING ADDRESS (OW	ner) PO Box	4998	
Wh	ittier, Califo	nia 90507	
PHONE NUMBER: 21	3 699 7411	Contact per	cson Ethan Laden
PHONE NUMBER: 21	3 699 7411	Contact per	cson Ethan Laden

#### NOTICE OF APPLICATION FOR

#### NOISE VARIANCE

NV-101-91

NOTICE IS HEREBY GIVEN THAT THE LOS ANGELES COUNTY SANITATION DISTRICT HAS CONTRACTED WITH DALE HINKLE, P.E. INC., TO ABANDON SEVEN GROUNDWATER MONITORING WELLS, SIX OF WHICH ARE LOCATED APPROXIMATELY 10' FROM THE FENCE AT THE NORTHERN PROPERTY LINE OF THE PALOS VERDES LANDFILL SITE. CONSTRUCTION ASSOCIATED WITH THE ABANDONING OF THESE WELLS IS ANTICIPATED TO EXCEED THE CITY'S ESTABLISHED NOISE LEVEL BY 20 dB (75 dB), THEREBY REQUIRING AN APPLICATION FOR A NOISE VARIANCE. THIS APPLICATION WILL PERMIT CONSTRUCTION TO TAKE PLACE DURING THE WEEKDAY HOURS OF 8:00 A.M. AND 5:00 P.M., BETWEEN AUGUST 19 AND SEPTEMBER 20, 1991.

In accordance with Article II of the Rolling Hills Estates Municipal Code, Section 695.14 permits the City Manager to grant a Noise Variance subject to specific terms and conditions.

Any questions or comments regarding this application should be directed to David Wahba, Assistant Planner, of the City of Rolling Hills Estates, 4045 Palos Verdes Drive North.

Douglas Prichard, City Manager

1

Date

Job Location: PALOS VERDES
Date Drilled: 9/20-24/91

Drilling Firm: MAHAFFEY Hole Diameter: 36 INCHES

Hammer Weight: ---Water Depth: 33 FEET Depth to Bedrock: 15 FEET Job Number: 9-20-24 Boring Number: MW1 Engr. Geologist: DRK

Drill Type: WATSON 2000, 929 BAYSHDRE

Sample Type(s): --Hammer Drop: ---

TOTAL	; INCHES;	DRY	NATURAL;	SAMPLE	F	
BLOWS	DRIVEN;D					
PER			CONTENT;		€ .	
FOOT	) }		(7) ;	;	t	Visual Classification
	; ; ; ;		; ; ; ;		1	[CL] FILL-SILTY CLAY, light-medium brown, dry, loose, with sand, clay is non-plastic, with some rubbish, 2° gravel, also
I	! ! ! !		! ! ! !		2	with concrete slab.
	f				3	
	t I		! ! ! !	· · · · · · · · · · · · · · · · · · ·	4	
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· <del></del>	· ! · · · · · · · · · · · · · · · · · ·		: ; ! !	!	15	[ ] BEDROCK, ALTAMIRA SHALE, brown, moist, dense.
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Log Continued on Next Page

Job Location: PALOS VERDES

Data Drille: 9/20-24/91
Drilling Firm: MAMAFFEY

Hole Diameter: 36 INCHES Hammer Weight: ---

Water Depth: 33 FEET

Depth to Bedrock: 15 FEET

Job Number: 9-20-24

Boring Number: MW1 Engr. Seologist: DRX

Drill Type: HATSON 2000, 929 BAYSHORE

Sample Type(s): ---

Hasser Drop: ---

TOTAL	; INCHES;	DRY	NATURAL	SAMPLE;	F	
BLOWS	; DRIVEN;I	ENSITY	; MOIST.;	TYPE :		
PER FOOT	;	(PCF)	CONTENT;	;	e t	Visual Classification
GUI			<del>; (%) ;</del>			412001 C1022111C0C10H
	1 1		;	t f	22	BEDROCK, ALTAMIRA SHALE, brown, moist, dense.
	!!!		1 t		24	beauties, herming didn't design design design
	1		! !		23	
	1 1		! !	:	24	
	<del>i i</del>	*********	<u>i i</u>	i	24	
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	! !		1 1	1		
	1 1		<u> </u>	!	26	
	; i		; i	:	27	
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	! !		<u> </u>	!	28	
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	1 <u>i</u>				32	
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	<u>;                                    </u>		<u> </u>	i	33	saturated at 33'.
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	<u> </u>		· 	! !	. 41	
	;		;	1	;	BORING TERMINATED AT 42 FEET.
	<u>i i</u>		<u>i                                     </u>	<u></u>	; 42	

Job Location: PALOS VERDES Date Drilled: 8-30/9-3-91

Drilling Firm: LAYNE ENVIRONMENTAL Hole Diameter: 18"/4'-24" BELOW 4'

Hammer Weight: ---

Water Depth: 34 FEET Depth to Bedrock: 20 FEET

Job Number: 8-30

Boring Number: MW2 Engr. Seclegist: DRY

Drill Type: E I BORE 90

Sample Type(s): --Hammer Drop: ---

			NATURAL;		F	
			! MOIST.;		£	
PER			CONTENT:		E	History Classification
FOOT	i	i 	(%) ;	<u> </u>	t	Visual Classification
	1	! !	! :	,	1:	[SP] FILL-SAND, tan, dry, loose, fine-coarse grained, with rock
	<u>.                                    </u>	! !	: ! 		1 1	fragments, also PVC casing and concrete to a depth of 4'.
į	1	!		1	2	
	1	! !	!!!		- 1	
		! !	! ! ! !	1	3 [	
	!	f 1	!!!	, , ,	<u> </u>	
	1	• !	! ! } !		4 🗄	2' of 1" gravel to 6'.
	1	ŧ !	t : ; :	t 1	į:	
	<u>!</u>	! !	! ! !	! i	5 [:	
	1	t t	!!!!	!	<u>_</u> [:	
~	<del>!                                    </del>	; ;	. ! 	;	6 }:	approximately 2' of gravel and 2' of concrete to 11'
	•	! !	i i	i t	- t	in depth.
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	:	1	!!!	1	[:	
		<u>;</u>	;		11	[CL] CLAY, brown, wet, soft, cohesive, plastic, with gravel.
	•		i i	1	12	74
	1	<u> </u>	<u>i                                     </u>	tt	12	7.4
	!	! !	!!!	!	13	with concrete pieces, we are not in a layer of concrete as
~	1	<u>'</u> !	! !	·		specs. show.
÷		! 1	, , , ,		14	
	1	: 1	! ! !	t !		<del>(/)</del>
	1	<u> </u>	!	!	15	7A
	1	\$ \$		! !		CONT CAND ALL THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF THE CONTRACT OF
	<u>i                                      </u>	<u>)                                    </u>	<u> </u>	i	16	[SP] SAND, dark gray, moist, loose, coarse grained, with clay,
	1	) 	, ,	1	17	with 6-12" pieces of concrete.
	!	! !	<u> </u>	! !	1/ [: f:	
	!	, 1 3	;	1	18	concrete layer at 18' to a depth of 20'.
	(	i i	· · · · · · · · · · · · · · · · · · ·	·	<u>.</u>	
	<u> </u>	1			19	
	1	i .	!!!!	1	į. †:	
	<u> </u>	<u> </u>	! !	1	20	[ ] BEDROCK, ALTAMIRA SHALE, brown, moist, dense.
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Log Continued on Next Page

Job Location: PALOS VERDES
Date Drilled: 8-30/9-3-91

Drilling Firm: LAYNE ENVIRONMENTAL Hole Diameter: 18"/4'-24" BELOW 4'

Hammer Weight: ---Water Depth: 34 FEET Depth to Bedrock: 20 FEET Job Number: 8-30 Boring Number: MW2 Engr. Seologist: DRK

Drill Type: E 7 BORE 90

Sample Type(s): ---Hammer Drop: ---

TOTAL	INCHES:	DRY	NATURAL	SAMPLE!		
BLOWS	DRIVER;	DENSITY	; MOIST.;	TYPE ;	9	
PER Foot		(PCF)	CONTENT;	· i	e t	Visual Classification
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	1 1		1 1	! ! !	24	
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	1			<u>'</u>	26	
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	! !	! !		! ! ! ! !!	28	
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	<u>i</u>	<u>.</u>	<u>t</u>	<u> </u>	42	

Job Location: PALOS VERDES Date Drilled: 8-30/9-3-91

Brilling Firm: LAYNE ENVIRONMENTAL

Hole Diameter: 18"/4'-24" BELOW 4'

Hammer Weight: ---

Bepth to Bedrock: 20 FEET

Water Depth: 34 FEET

Job Mumber: 8-30 Boring Number: MW2

Engr. Sepisgist: DRY

Drill Type: E 7 BORE 50

Sample Type(s): ---Hammer Drop: ---

TOTAL ;	INCHES;	DRY ;	NATURAL;	SAMPLE;	F	
BLOWS ;	; DRIVEN;D	ENSITY;	MOIST.;	TYPE ;		
PER ; FOOT ;	: i	(FUF) ;	CONTENT;	1	e t	Visual Classification
	: :		!		1	
1		: ! !	:	!	43	ALTAMIRA SHALE, brown, moist, saturated, dense.
!	1 !	1	: :	1		
<u> </u>	<u>i i</u>	i			44	
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1	1 1		;	1		
	<u>:                                      </u>			:	63	·

Job Location: PALOS VERDES
Date Drilled: 8-30/9-3-91

Drilling Firm: LAYNE ENVIRONMENTAL Hole Diameter: 18"/4"-24" BELOW 4"

Hammer Weight: ---

Water Depth: 34 FEET Depth to Bedrock: 20 FEET Job Number: 8-30 Boring Number: MW2

Engr. Seologist: DRK

Drill Type: E 7 BORE 90 Sample Type(s): ---

Hammer Drop: ---

TOTAL	; INCHES;	DRY	NATURAL:	SAMPLE;	F	
			MOIST.;		٤	
PER			CONTENT;		E	
FOOT	;		(%)	;	t	Visual Classification
	1 1	·····	!!!	! 1	<u> </u>	
	· !		!		64	ALTAMIRA SHALE, brown, saturated, dense.
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	1 1		<u> </u>	<u></u> !	65	
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	<u> </u>	<del></del>	<u>i                                     </u>	<u> </u>	66	
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		•	;		70	
	1		<u>i i</u>	i	70	
	1 1		1 1	1	71	
			! !	'		
	1		 	i	72	Bottom of PVC is as 72'3".
	2		: :	:		GROUNDWATER ENCOUNTERED AT 34 FEET.
	1	 	<u> </u>	!	73	BORING TERMINATED AT 73 FEET, 3 INCHES.

-Job Location: PALOS VERDES

Date Drilled: 9-24-91 Drilling Firm: MAHAFFEY Hole Diameter: 36 INCHES

Hanner Weight: ---

Water Depth: 93 FEET Depth to Bedrock: N.E.

Job Number: 9-24 Boring Number: MWS Engr. Geologist: DRK

Drill Type: 929 BAYSHORE

Sample Type(s): ---

Hammer Drop: ---

	INCHES;				F	
	DRIVEN;				6	
PER ;			CONTENT;		6	
FOOT ;	!		; (%) ;	;	t	Visual Classification
i	!		1 f	<u>;</u>	į.	///[CL] FILL-SILTY CLAY, dry, loose, with sand and gravel, with
			1 L	!	1	concrete to a depth of 4'.
1	:		t i.	t i		7/1
1	<u> </u>		1	f	2	concrete slab at 2', corragated steel is outside of
<b>1</b>	:		!	1		concrete.
	L		<u> </u>		3 /	saturated and very soft at 3'.
			1 1			74
			<u> </u>	·	4	74
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			1 f		13	'/A
:	1		i i	:	V	74
			<u> </u>		14	//
;	;		:			GROUNDWATER ENCOUNTERED AT 3 FEET.
	<u> </u>		<u> </u>		15	BORING TERMINATED AT 15 FEET.

Job Location: PALOS VERDES

Date Drilled: 9/25-26/91 Drilling Fira: MAHAFFEY Hole Diameter: 36 INCHES

Hammer Weight: ---Water Depth: 30 FEET Depth to Bedrock: 32 FEET Job Number: 9-25 Boring Number: MW4 Engr. Geologist: DRK

Drill Type: 929 BAYSHORE

Sample Type(s): ---Hammer Drop: ---

			; NATURAL;		F	·
			! MOIST.;		e	
ER			(CONTENT)		E	
T00	1		(%)	t 1	t	Visual Classification
	1		1 1	1		[CL] FILL, SILTY CLAY, light medium tan, dry, medium stiff, with
	!		1 1	t	1	gravel and some pieces of rubbish.
	t t		1 1	1		
		<del></del>	11		2	color change to dark gray to black, very soft, plastic,
	:			. !	_	with 1-2° gravel.
	<u>.                                      </u>		<u> </u>		3	Y/A
	;		; ;			Name of concepts from 21 to 751
······································	<u> </u>		<u> </u>	· · · · · · · · · · · · · · · · · · ·	4	layer of concrete from 2' to 35'.
	i i		1 1	i i	5	K/A
	<del></del>	J	! !	<u> </u>	3	K/A
	1 1		1 1	! !	6	[//]
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	!	! !	1	1 1		Y/A
	!	1 i		<u>!</u> !	21	K/A

Jot Location: PALOS VERDES Date Orilled: 9/25-26/91 Drilling Firm: MAHAFFEY

Hole Diameter: 36 INCHES

Hammer Weight: ---

Water Depth: 30 FEET Depth to Bedrock: 32 FEET

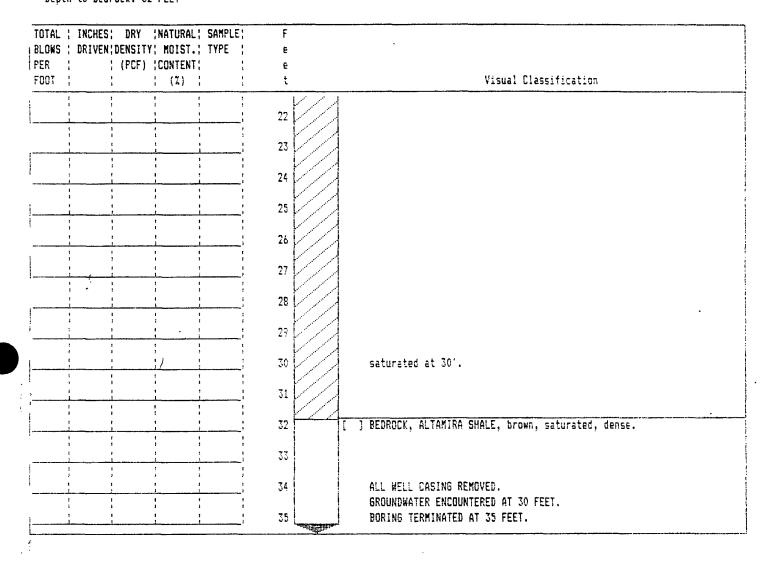
Job Number: 9-25 Boring Number: MW4

Engr. Geologist: DRK

Drill Type: 929 BAYSHORE

Sample Type(s): ---Hammer Drop: ---

Ground Elevation: APPROX. 360 FEET



Job Location: PALOS VERDES
Date Drilled: 9/18-24/91
Drilling Firm: LAYNE
Hole Diameter: 24 INCHES

Hammer Weight: ---Water Depth: 90 FEET

Depth to Bedrock: ESTIMATE 20 FEET

Job Number: 9-18 Boring Number: MWS

Engr. Geologist: DRK

Drill Type: E 7 BORE 120

Sample Type(s): ---Hammer Drop: ---

Ground Elevation: APPROX. 340 FEET

	; INCHES;				F	
	; DRIVEN;				e	
PER FOOT			CONTENT; (%);		e t Visual Classification	
	1 1		1 17 1		1 / / [CL] cover and top 4' is CONCRETE, with FILL, SILT	Y CLAY light-
•	1 1		1 ; 1 ;	ŧ	2 medium brown, wet, soft, non-plastic, with 1'	
			, , , ,	į	gravel, with pieces of gray PVC.	
1			! !	1	4 2" pieces of gravel.	
	1 1		<u> </u>	<u> </u>	5	
					6 2' of concrete with fill.	
I	: :		í i	1	8 4' of 1-2" gravel with fill.	!
	i i		i i	:	o	
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i	<del></del>		<u> </u>			
	1 1		. '	! ! :	12 2' of concrete, with 1-2" gravel, with fill.	
	1 -		. !	: 1	13	
;	1 1		1 1	9 1	2' of 1-2" gravel, with fill.	
	<u> </u>				15	<u>.</u>
	i i		;	:	2' of concrete, with 1-2" gravel, with fill.	
1	1 f		1 1		1-2° gravel, with pieces of concrete, with fi	11.
ļ	!!!			· •	19	
	1 1		1		20 [ ] BEDROCK, ALTAMIRA SHALE, brown, moist, dense.	
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}	; ;				22	
	; ;				23	
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Į.			1		28	
	1 1		f 1		29	-
	1 1		<u>;                                    </u>	<u> </u>	30	
j	; 1 ; 2	, ,	1	, } r	31	
	i i	i †	i	<del>!</del> !	32 33	
,	1	! !	1	! !	34	
	1 (	; ! !		<del>.</del> 1 i	35	
	1	l i	1	1	36	
	1	6 1	1	1	37	
-	}	[ }	;	:	38	
	1	; ;	;		39	
	<u> </u>	!	<del> </del>	1	40   41	
	1	1	1	:	42	
	•		•			

Job-Location: PALOS VERDES Date Drilled: 9/18-24/91

Drilling Fire: LAYNE Hole Diameter: 24 INCHES

Hammer Weight: ---

Water Depth: 90 FEET

Depth to Bedrock: ESTIMATE 20 FEET

Job Number: 9-18 Boring Number: MK5

Engr. Seologist: DRK

Drill Type: E 7 BORE 120

Sample Type(s): ---Hammer Drop: ---

Ground Elevation: APPROX. 340 FEET

TNTAL	; INCHES;	DRY	NATURAL '	SAMPI F	F	
	; DRIVEN;				,	
PER	1 1		CONTENT:		e	
FOOT	1 1		(%) ;	;	t	Visual Classification
i	1 !		I I	!	43	ALTAMIRA SHALE, brown, moist, dense.
	1 1		! !	1	44	
	<del>! !</del>			!	45	
1	! ! ! !			ì	46 47	
ł	i i		: i	;	48	
	! !		i 1 !	I !	49	
1				· •	50	no more concrete at 50'.
-	1 1		j j	1 1	51	
	† ! }		: ;	1	52	
1	1 1		! ! ! :	:	53	
			. ! ! :	1	54   55	
	<del>                                     </del>			······································	56	
	1 1			:	57	•
	1 1		:	;	58	
	! !			1	59	
	! ! !		!!!	!	60	
ĺ	1 1		! ! !	1	61	
1	; ;			;	62	
1	i i		; ; : 1	į	63 64	
!	! ! ! !		1 1		65	
	! !				66	
1			· · · · · · · · · · · · · · · · · · ·		67	
1	i i		!!!!	;	68	
	i i		;	!	69	
	<u> </u>		!	:	- 70	
}	; ;		; ;	:	71 72	
. •	1 1		, i	1	73	
	! ! ! !		! ! ! !	; •	74	
·	<u>;                                    </u>		· !		75	
	: :		:	;	76	
	1 1		: :	;	77	
;				:	78	
<b>-</b>				ì	79 80	
	!!!		! !	<del></del> !	81	
1	: :		· ·	!	82	
	1 1		. , ! !	:	83	
	1 1		:	1	84	
<u> </u>						

Job Location: PALGS VERDES Date Drilled: 9/18-24/91

Drilling Firm: LAYNE Hole Diameter: 24 INCHES

Hammer Weight: ---

Water Depth: 90 FEET

Depth to Bedrock: ESTIMATE 20 FEET

Job Number: 9-18

Boring Number: MW5 Engr. Geologist: DRK

Drill Type: E Z BORE 120

Sample Type(s): ---

Hammer Drop: ---

Sround Elevation: APPROX. 340 FEET

TOTAL :	INCHES	DRY	NATURAL;	SAMPLE!	F	
			: MOIST.;		е	
PER :			CONTENT		9	
FOOT ;			(%) ;		t	Visual Classification
1	· · · · · · · · · · · · · · · · · · ·	·	!!!	!	85	ALTAMIRA SHALE, brown, moist, dense.
		1 i	1 !	1	86	
,	1 ;	1	! !	! :	87	
·	t i	t i	;	1	88	
	! !	!	1 1	:	89	1 1 1 2 001
	1	<u>.</u>	<u> </u>		90	saturated at 90'.
ı	:	i	i i	;	91 92	
	i •	1 1	1 1	1	93	
	ŧ •	1	i i	1	94	
1	!	!	, ) , ,	:	95	
	ł 1 . , ,	!	!!!!	· · · · · · · · · · · · · · · · · · ·	96	
	1 4	•	1		97	
1	† ;	t 1	t !		98	
	1	1	1 3	:	99	
` <u> </u>	<u> </u>	<u>!</u>	<u> </u>		100	
1			1 1		101	
İ	i	1	, ,		102	
	i •	i 1	i i	;	103 104	
	1	•	! !		105	
	!	<u>.</u>		1	105	
:			. :		107	
	t t	1	1		108	
	t 1	1	1	; r	109	
1	!	1 1	t 1	<u>.                                    </u>	110	
	1	1	•	! ! ! !	111	
[		1			112	
J.	;	;		;	113	
•	i r	i •	i .	;	114	
		1	<del></del>		115 116	v
1	1	!		• •	117	
		:	!	· · · · · · · · · · · · · · · · · · ·	118	
İ	:	:	:	, ! ! !	119	
I			1	· · · · · · · · · · · · · · · · · · ·	120	
	!	1	! 1	1	121	
7	1	1	1	i i	122	
1	1	1	1	t 1	123	
	1	1	1	t (	124	
	<u> </u>	•	1	t .	125	
	i	i	i	;	126	

Job Location: PALOS VERDES
Date Drilled: 9/18-24/91

Drilling Firm: LAYNE Hole Diameter: 24 INCHES

Hammer Weight: ---

Water Depth: 90 FEET

Depth to Bedrock: ESTIMATE 20 FEET

Job Number: 9-18

Boring Number: MW5

Engr. Geologist: DRM

Drill Type: E I FORE 120

Sample Type(s): ---

Hammer Drop: ---

Sround Elevation: APPROX. 340 FEET

TOTAL	1	INCHES; DRY	; NA	TURAL;	SAMPLE:	F	
BLOWS	ŀ	DRIVEN; DENSITY	/; M	OIST.;	TYPE :	e	
PER	1	; (PCF)	;c0	NTENT;	1	<del>e</del>	
FOOT	1	1	:	(%) ;	1	t	Visual Classification
	!	) 	.1	3	į I	127	
	!	;	! i	:	!	128	GROUNDWATER ENCOUNTERED AT 90 FEET.
•	1	1	i t	I	!	129	BORING TERMINATED AT 129 FEET.

Job Location: PALOS VERDES Date Drilled: 9/6-11/91 Drilling Firm: LAYNE Hole Diameter: 18"/24"

Water Depth: 54 FEET

Depth to Bedrock: 70.5 FEET

Hammer Weight: ---

Job Number: 9-6 Boring Number: MW6 Engr. Beologist: DRK

Drill Type: E Z BORE 90

Sample Type(s): ---Hagger Drop: ---

Ground Elevation: APPROX. 280 FEET

	: INCHES;				F	
	DRIVEN!DE			TYPE ;	е	
ER !			CONTENT!	1	ę	10
ODT	i i	;	(%) ;	i	t	Visual Classification
	1 1	1	1	i i	18888	[SP] FILL, SAND, light tan, moist, loose, medium-coarse grained,
	<u> </u>					with clay, with 1-3" concrete.
				1		
	<u> </u>			<u>.</u>	2 [BBB]	
	i i			;	, 1888	with start series around DNC squart squart is inside
	<u> </u>	i	<u> </u>	i	3	with steel casing around PVC covert, covert is inside auger, 10° covert.
	i i	ì	i ;	į.	4	auger, to covert.
	<u> </u>			i	* [::::::::::::::::::::::::::::::::::::	취 : : : : : : : : : : : : : : : : : : :
	1 1	,	1 1 1 1	1	5	
	1 1		<u> </u>	<u>'</u>		
	!				6	iii hit another section of steel covert, 36° auger.
	<del>                                     </del>		! !	·		
	!!!	!	. ! ! !	!	7	
	<u> </u>			<del></del> :		
	1		. ;	į	8 (1)	
	! !		1			
	t 1	1	, .   !	1	9	
	1 I		!!!	!		
			1 t	!	10	cobble size pieces of concrete, loose pieces of steel
	1 I		1 1	1		casing.
	<u> </u>		<u> </u>		11	[CL] FILL, CLAY, light-medium brown, wet, soft, plastic, with
	1 1 1 1		! 1 ! !	1		6" layer of concrete just below 11', with steel casing.
	<u>!                                    </u>		1 ! !i	,	12	7
	!		! ! ! !	1		A
	<u> </u>		! !		13	concrete, with steel casing to 15'.
			: !	-		/ · · · · · · · · · · · · · · · · · · ·
	<del>;                                    </del>		! ! !		14	4
			; ;	}	, j.	
	<u> </u>		<u> </u>	i	15	with 1-2" gravel, with well casing, no concrete.
	1 1		i i	į	16	4
	<u> </u>		<u> </u>		10	4
	1 1				17	4 .
	1 1		! I		• • • • • • • • • • • • • • • • • • • •	4
	1 1		1 1		18	18" x 18" pieces of concrete, with PVC casing in the middle
	! !		!	<u> </u>	- "[//	of concrete.
	! !		• •	: I	19	
**	!!	<del>-,,</del>	<u> </u>	<u>'</u>	- "[//	4
	!!!		!	!	20	4
	!!!		1	<u>'</u>		4
	;			. !	21	4
				······································		<u> </u>

Job Location: PALOS VERDES
Date Drilled: 9/6-11/91

Drilling Fire: LAYNE Hole Diameter: 18"/24" Hammer Weight: ---

Water Depth: 54 FEET

Depth to Bedrock: 70.5 FEET

Job Number: 9-6 Boring Number: MW& Engr. Geologist: DRK

Drill Type: E I BORE 90

Sample Type(s): ---Hammer Drop: ---

Ground Elevation: APPROX. 280 FEET

	INCHES; DE				F	
	DRIVEN; DENS			TYPE :	e	
PER :	; (PL		ONTENT:		e +	Visual Classification
	1	· · · · · · · · · · · · · · · · · · ·	1			/ / 1
1		; •	i r	!	22	FILL, SILTY CLAY, light brown, wet, soft, plastic, with
!	i i	;	!		[.	rock, no concrete.
	<u> </u>			!	23	4//
•	i i	1	!	1	24	//
		I 1	<del></del>		- [	7/3
				!	25	4/4
;	! ! ! ! !	:	;	1	26	<u> </u>
<u>.</u> !	<u> </u>		<u>_</u>		20 L	//
		i		! !	27	
1		! !	! i	1	22	
<u>;</u>	<u>i i</u>	<u>;</u> !	<del>-                                    </del>	<u> </u>	28	18" layer of concrete to 30', with PVC casing inside.
	! ! ! !	1 1		: :	29	///
!	! !	! !		t i		4/4
	<u> </u>	<u>:</u>			30	///
!	) ! !	:	! !	,	31	//
!	! !	I I	!	!	<u></u>	Z/A
				!	32	///
i	! !		!	i !	33 (	//
;	! !	<u> </u>	:	<u> </u>		7/4
				!	34	4/A
} }	! ! !	,		: 	35 L	<u> </u>
			i		33 }	
	! !			i	36 [	// <del>/</del>
!	! ! ! !	t t	! ;	1 i	77	· · · · · · · · · · · · · · · · · · ·
i	<u> </u>	i	<del>i</del>	—— <u> </u>	37	/4
	, , , , , , , , , , , , , , , , , , ,				38	7/3
1		!	!	1	ļ	4/4
!	<u> </u>		<u> </u>		39	//
1 4 1	1 I 1 I	!		! !	40	3-6" pieces of gravel or concrete at 40'.
1	:	!	1	!	1	
	<u> </u>	1	<u>.</u>	<u>!</u>	41	
:	i i	i	i	;	42	//

Log Continued on Next Page

Job Location: PALOS VERDES
Date Drilled: 9/6-11/51
Drilling Firm: LAYNE
Hole Diameter: 18"/24"

Hammer Weight: ---Water Depth: 54 FEET

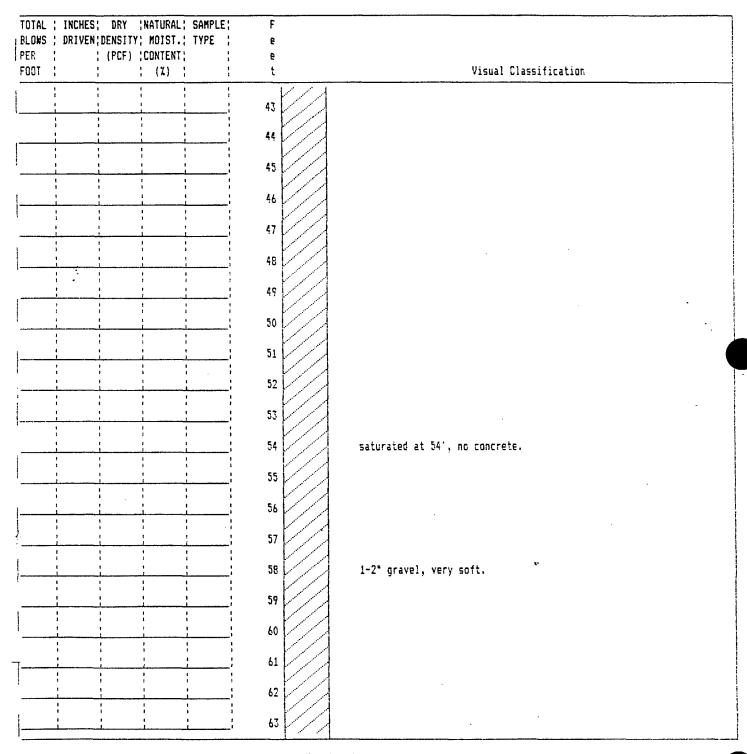
Depth to Bedrock: 70.5 FEET

Job Number: 9-6 Boring Number: MW6

Engr. Seplogist: DRK
Drill Type: E Z BORE 90

Sample Type(s): ---Hammer Drop: ---

Ground Elevation: APPROX. 280 FEET



Job Location: PALOS VERDES Data Drillad: 9/6-11/91

Drilling Firm: LAYNE
Hole Diameter: 18"/24"
Hammer Weight: ---

Water Depth: 54 FEET

Depth to Bedrock: 70.5 FEET

Job Number: 9-6 Boring Number: MW6 Engr. Beologist: DRK

Drill Type: E Z BORE 90

Sample Type(s): ---Hammer Drop: ---

Ground Elevation: APPROX. 280 FEET

			; MOIST.;			
PER ;			CONTENT;		e	
FOOT ;			; (%) ;		t t	Visual Classification
j						
1	<u> </u>		<u>i                                      </u>		64	
! !			! !		65	
	1		;	!	1 1	
i		····	1 1		, 66	K//
1	; ;		! ! ! !	!	: 67	
	! !		1 1		! !	
			1 1		; 68	K/A
	i ;		1 1	1	; ¦ 69	
1			! ! ! !		; U,	
,			! !		70	
			1 1		!	[ ] BEDROCK, ALTAMIRA SHALE, brown, saturated, dense.
	<u></u>		<u>; · </u>		71	
1 ;			1 ; 1 ;	!	72	GROUNDWATER ENCOUNTERED AT 54 FEET.
1	,		1 1		! !	BORING TERMINATED AT 72.5 FEET.

. . .

Job Location: PALOS VERDES
Date Drilled: 9-18-91
Drilling Firm: LAYNE
Hole Diameter: 11.75"
Hammer Weight: ---

Water Depth: 92 FEET

Depth to Bedrock: 90 FEET

Job Number: 9-18
Boring Number: 69
Engr. Seclogist: DRK

Drill Type: CB 95

Sample Type(s): ---Hammer Drop: ---

Ground Elevation: APPROX. 300 FEET

			;NATURAL;		F .
			; MOIST.;		e
I PER FOOT			CONTENT;		e t Visual Classification
-001	1 1	<del></del>	; (%) ;	1	
	; ;		; ;	;	1 this [SM] FILL, SILTY SAND, light tan, dry, loose, fine-medium 2 this grained, with 1" gravel, with concrete casing.
•	: :		1 !	1 4	3 (Similar) graines, with 1 graver, with contract casing.
	· · · · · · · · · · · · · · · · · · ·		t t		4
	1 1		1 1	!	5 [3 [3 ] ]
	: :		: :	1	
i	i i	ı I	i i	; •	7 [2] (1) (1) (1) 8 [3] (1) (1)
1	1 1		1 1		9 10 20 20 20 20 20 20 20 20 20 20 20 20 20
				,	10 with rubbish at 10'.
	1		1 1		
1		! !	1	! ! ! !	12 問題目
	; - ;	;	1	i i	13 福岡田 14 福岡田 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	1 1	) !	1	i 1 1 1	-
1	i t	:	1	1	16
	;	:	i	: :	17 [[[]]]
1		) i	1	, , , ,	18 [CL] FILL, SILTY CLAY, light-medium brown, moist, soft, plastic,
,	• •	! !	1		packed voiclay seal to 90'.
, <del></del>	!	!	! !	! ! ! !	21
	;	! !	1	! !	22
		1 1	;		23
į	i	!	1		24 25
ļ	!	! !	<u></u> !	! !	26 26
		1 1	1	!	27
	;	t 1	i i	! ! ! !	28
}	1	t •		1 ! 1 !	29
· <del></del>	i .	<u>i                                     </u>	<u> </u>	<u> </u>	30
ļ	1	! !	:	1	32 ,
+	1	!	!		33
•	1	:	:	:	34
	<u></u>	<u> </u>	<del>-</del>	<u> </u>	35 36
,	!	!	1	<u>.</u>	37
Т	•	1 1	1	: :	38
	;	•	;	:	39
	<u> </u>	<u> </u>	<u> </u>	!	40
1	;	1	1	1	41 42
}	1	1	1	1	<u> </u>

Job Location: PALOS VERDES
Date Drilled: 9-18-91

Date Drilled: 9-18-91
Drilling Fire: LAYNE
Hole Diameter: 11.75*
Hammaer Weight: --Water Depth: 92 FEET

Depth to Bedrock: 90 FEET

Job Number: 9-18 Boring Number: 69

Engr. Seologist: DRK
Drill Type: CB 95

Sample Type(s): ---Hammer Drop: ---

Ground Elevation: APPROX. 300 FEET

OTAL	INCHES	DRY	NATURAL;	SAMPLE;	F	
LOWS	DRIVEN	DENSITY	MOIST.;	TYPE !		
ER :			CONTENT;		6	Warran Observations the
T00T	···	i	(%) ;	i	t	Visual Classification
1		! }	1 1	1	43	
	! !	: :	! ! ! !	i	44 45	packed volclay seal to 90'.
		1	1 1		40 46	K//
	; !	i #	, , , ,	:	47	
		! !	1 ! 1 1	į	48	$V/\lambda$
1	! !	† †	t 1 ;	1	49	V/\dagger
	<u> </u>	t 	1 1		50	Y/A
!	!!	t !	!!!	:	51	K/A
	; i	!	; ; , ,	i	52 53	K/A
	† 1	1 !	! !	!	54	
		t i	: · · · · ·	_ :	55	
	1	I I	i †	1	56	V/1
!	! !	! !	; f	1	57	Y/X
	! !	t t	!! !!	;	58	K/A
1	, !		i i	i	59 60	K//1
	). I	<i>t</i> I	1 1	<u> </u>	61	
1	, :	a 1		, ,	62	
	!	1 1		1	63	
1	,	; ;	: :	!	64	V/1
	<u> </u>	!	<del>! !</del>	!	65	K/A
;	: :	i i	; ;	į	66 67	K/A
1	!	1 •	1 I	i !	88	[//]
	! !	, 4 ,			69	
	! !		<u> </u>	<u> </u>	70	V/1
	1	!	: !	;	71	Y/J
	<u>.</u>	:	: :	:	72	K//I
	; ; ;	; :	; ;	;	73 74	•
j	l !	! !	. i ! !	1	75	1//1
	<u>                                      </u>	! !	! !		76	
;	1 1	) !		:	77	K/1
!	† 1	;	; ;	;	78	Y/1
	t 1		: :	:	79	K//
	,	<u>.                                    </u>	<u> </u>	:	80 81	Y/1
	1	!		1	82	[//]
	! !	4 1	! ! ! !	:	83	
	:			:	84	V/J

Job Location: PALOS VERDES Date Drilled: 9-18-91

Drilling Firm: LAYNE Hole Diameter: 11.75° Hammer Weight: ---

Water Depth: 92 FEET

Depth to Bedrock: 90 FEET

Job Number: 9-18

Boring Number: 69 Engr. Geologist: DRK

Drill Type: CB 95

Sample Type(s): ---Hammer Drop: ---

Ground Elevation: APPROX. 300 FEET

TOTAL :	INCHES;	DRY	;NATURAL;	SAMPLE;	F	
BLOWS :	DRIVEN;	DENSITY	: MOIST.;	TYPE ;	e	
PER ;	1 1	(PCF)	CONTENT;	t 1	6	
FOOT !	1		; (%) ;	;	t	Visual Classification
1			1 1		85	
;			1 1		86	
1			[ ]		87	V/J
, ;	; ;		; ;	;	88	Y/A
					89	
			1	<u> </u>	90	[ ] BEDROCK, ALTAMIRA SHALE, light-medium brown, moist, dense.
1			i i	i	91	
					92	saturated at 92'.
i	, i	: I	i i	i i	93 94	
	) 1 i	1	1 1	: !	7 <del>4</del> 95	
	! <u>.                                    </u>		1	1 1	96	
1		!	1 !	! !	97	
				: : ! !	98	
1					99	
·				i 1	100	
	) 	!	1 1	:	101	
1	1	!	1	r (	102	· · · · · · · · · · · · · · · · · · ·
i	;	!	1 1	t !	103	
1	t t	:	1	! ! !	104	
	! !			! !	105	
1	, 1		1	1	106	
	!		i	;	107	and of DUD coning
f	i	i I	i		108	end of PVC casing. 6ROUNDWATER ENCOUNTERED AT 92 FEET.
	i 1	i i	1	; ;	109 110	i i
	<del></del>	L	. <b></b>	i	110	PONTINO IERMINIMIED MI 110 FEET.