Well Development Form

TD = 62.3 TOC
WL = 44.25 TOC
1 well volume = 12 T 11.8

Job Number: 4098042051, 5000, 3

Project: Casmalia Landfill

Development Method: Bail & Surge

Well No.: RIMW-10

Personel: D. Browne Steve Hacker

Date: 10/11/06

Time	Depth to water ft.	Gallons Removed	Turbidity (Ntu)	ph	Temp C	Electrical Conductivity	D.O. mg/liter	Redox Mv	Recovery Rate Inches/min.	Recovery Rate gpm	
1130	44.25	Initial	39.2	~~5.17~~ 7.98	13.5	7.97 m/s	5.08	038			
1135	59.63	20 gal	>1000	5.84	18.4	7.71	3.77	015			DRY - Wait for Recovery
1245	58.69	23	>1000	7.71	19.3	7.80 m/s	2.93	-006			1205 WL = 59.00 1235 58.71
0700	57.00	25	164	5.55	17.5	7.82	4.97	043			
0715	Dry	30	>1000	6.55	17.4	7.69	3.94	018			
1530	59.77	Initial	25.0	5.65	19.1	8.08	3.95	043			Dry @ 1 gallon 31 gallons
0740	59.12	Initial	85.9	5.32	17.8	8.01	5.25	870			Dry @ 1 gallon 32

Total Gallons Removed: 32

MACTEC

2.7 well volumes removed

Reviewed by WH

TD = 57.5 TOC
WL = 44.45
1 casing Volume = 8.5 gallons

Well Development Form

Job Number: 409804205-1, 5000.3

Project: Casmalia Landfill

Development Method: Bail, Surge

Well No. RIMW-11

Personel: D. Brown, Steve Hacker

Date: 10/11/06

Time	Depth to water ft.	Gallons Removed	Turbidity (Ntu)	ph	Temp C	Electrical Conductivity	D.O. mg/liter	Redox Mv	Recovery Rate Inches/min.	Recovery Rate gpm	
0840	44.45	Initial	>1000	7.23	18.2	2912	12.05	0.56			
0855	50.70	20	>100	6.95	18.3	2827	5.20	0.66			
0915	51.82	40	>1000	7.25	18.5	2913	4.76	0.18			
0925	52.68	55	708	7.25	18.3	2851	3.25	-005			
0940		60	601	7.25	18.4	2870 52.5 uS/cm	3.30	-022			
0950	53.14	75	143	6.56	18.4	2900	3.53	-012			
1005	54.41	80	300	6.70	18.7	2946	3.15	-017			DRY - wait for Recovery
~~1030~~	~~47.13~~	~~85~~	~~18.5~~	~~6.87~~	~~2012~~	~~3089~~	~~2.86~~		DSB		
1030	47.13	85	18.5	6.97	18.7	2978	3.02	-012			

Total Gallons Removed: 85

MACTEC

10 well volumes removed

Reviewed by

TD = 48.3' TOC
WL = 37.48 TOC
1 one well casing Volume = 1.8

Well Development Form

Job Number: 4098042051.5000.3

Project: Casmalia Land Fill

Development Method: Swab & Bail

Well No. RIPZ-29

Personel: D. Browne / WDC

Date: 10/11/06

Time	Depth to water ft.	Gallons Removed	Turbidity (Ntu)	ph	Temp C	Electrical Conductivity	D.O. mg/liter	Redox Mv	Recovery Rate Inches/min.	Recovery Rate gpm	
0950	37.48	Initial	>1000								
1000	38.38	15	>1000								color is dark gray Slight Sheen on Surface
1024	41.60	20 gall	>1000								pump set @ 46' @ 3 gpm
1043	Dry	55	>1000								wait for Recharge
1112	45.20	57	748								1110 WL = 44.80 continue pumping from 46
1230	42.60	57	743								continue pumping from 46' @ 1/2 gpm
1345	44.80	60	233								
1355	44.91	65	153								
1305	45.20	70	92.0								
1310	45.20	75	69.4								

Total Gallons Removed: 75 gall

MACTEC

41.7 Well Volumes removed

Reviewed by WK

TD = 58.3 TOC
WL = 52.0
1 Casing Volume = 1.03 gallons

Well Development Form

409B042051.5000.3

Project: Casmalia Land Fill Development Method Bail & Swab Well No. P1PZ-30

Personel: D. Bowers Date: 10/11/06

Time	Depth to water ft.	Gallons Removed	Turbidity (Ntu)	ph	Electrical Conductivity	D.O. mg/liter	Redox Mv	Recovery Rate Inches/min.	Recovery Rate gpm	
1608	52.00	Initial	155							
1620	55.80	2gall	>1000							Sheen on the surface Color is Reddish gray
1630	Dry	4gall	>1000							
0900	56.79	Initial	>1000							
0920	Dry	5gall	>1000							
1500	57.75	Initial	>1000							
1510	Dry	6 gall	>1000							
0865	57.89	Initial	682		DRY @	1/2 gallon				Color is gray sheen on the surface No floating product

Total Gallons Removed: 6.5

MACTEC

6.5 Well Volumes

Reviewed by WK

TD= 27.38
WL= 13.24
1 casing Volume = 2.3 gall

Well Development Form

4098042051.5000.3

Project: Casmalia Landfill Development Method: Bail Swap Well No. R1PZ-31B

Personel: D. Browne Date: 10/11/06

Time	Depth to water ft.	Gallons Removed	Turbidity (Ntu)	ph	Electrical Conductivity	D.O. mg/liter	Redox Mv	Recovery Rate Inches/min.	Recovery Rate gpm	
1510	13.34	Initial	11.6							
1515	19.61	5	395							
1525	25.35	8	386							Wait for Recharge 1540 Continue bailing - Black goo
1540	DRY	10	>1000							did not get WL or Turb due to product
10/12 0820	22.65	11	>1000							@ 8 gall color of water changed drastically Visable product Frothy water, sheen
0825	DRY	15	>1000							
1435	24.15	15	57.2							
1445	Dry	18	>1000							
10/13 0825	23.78	Initial	16.3							Chunks of floating product in turb bottle
10/13 0840	25.50	20	248							↓
0845	Dry	21	522							

Total Gallons Removed: 21

MACTEC

9.1 well Volumes

Reviewed by WOK

Well Development Form

TD = 26.90
WL = 13.68
1 well Volume = 2.2 gallon

Job Number: 4098042051.5000.3

Project: Cosmalia Land Fill

Development Method: Swab & Bail

Well No. RIPZ-33B

Personel: D Brown Steve Hackey

Date: 10/11/06

Time	Depth to water ft.	Gallons Removed	Turbidity (Ntu)	ph	Temp C	Electrical Conductivity	D.O. mg/liter	Redox Mv	Recovery Rate Inches/min.	Recovery Rate gpm	
1355	13.68	Initial	192								
1405	17.9	1 5gal	288								PID = 0
1410	26.22	8gall ~~10gall~~	938								wait for Recharge
1440	26.30	12gall	>1000								1425 WL = 25.90 1430 25.27
0740	17.63	13gall	49.0								
0750	24.7	18	246								
0755	Dry	20	537								continue baby
1355	21.68	20	16.7								
1410	Dry	22	39.4								

Total Gallons Removed: 22 gallons

MACTEC

10 well Volumes

Reviewed by WR

Well Development Form

Job Number: 40980420 51.4000.2

Project: Casmalia

Development Method: Bail/Surge

Well No.: R1 P2-37

Personel: DB, LC

Date: 8/16/06

Time	Depth to water ft.	Gallons Removed	Turbidity (Ntu)	ph	Temp C	Electrical Conductivity	D.O. mg/liter	Redox Mv	Recovery Rate Inches/min.	Recovery Rate gpm	
1135	34.01	Initial	>1000	—	—	—	—	—			
1156	34.56	0.5	>1000								Black color Slight hydrocarbon odor
1400	34.22	0.5	>1000								Start to Surge the well

Total Gallons Removed: _____

MACTEC

Reviewed by _____

MACTEC Engineering and Consulting Inc.

Job Number: 4098042051, 50
Date: 8/16/06
To: Dan Graig
Initials: DSB
Reviewed by:

Well Name	Date	Time	First Reading	Second Reading	Initials	Comments Top of Casing to Ground Surface
RIPZ-37	8/16/06	0945	34.10	34.10	DSB	
RIPZ-32	8/16/06	0950	3.96	3.96	DSB	TOC = 31"
RIPZ-33	8/16/06	1000	12.57	12.57	DSB	TOC = 32"
RIPZ-31	8/16/06	1010	8.22	8.22	DSB	TOC = 30"
RIPZ-35	8/16/06	1020	18.98	18.98	DSB	TOC = 27"
* RIPZ-37	8/17/06	0650	34.20	34.20	DSB	
RIPZ-37	8/21/06	0605	34.18	34.18	DSB	
RIPZ-32	8/21/06	0706	4.07	4.07	DSB	
RIPZ-33	8/21/06	0705	12.67	12.67	DSB	
RIPZ-31	8/21/06	0707	8.43	8.43	DSB	
RIPZ-34	8/21/06	0715	DRY	DRY	DSB	Stick up = 5'
RIPZ-35	8/21/06	0720	18.93	18.93	DSB	

MACTEC

Well Development Form

1

Project: Casmalia Development Method: surge Well No.: 4098047051. 5000.3

Personel: DB, LC Date: 8/21/06

8/21/06 Time	Depth to water ft.	Gallons Removed	Turbidity (Ntu)	ph	Electrical Conductivity	D.O. mg/liter	Redox Mv	Recovery Rate Inches/min.	Recovery Rate gpm	Well	Volume
1100	4.07	Initial	>1000							RIPZ-32	4.7 gal (1 vol)
1345	13.80	1 gall	>1000							1130 - Swab the well 1345 Start pumping	
1445	Initial 13.54	Initial 17 oz	71500							RIPZ-33	TD 27.5' / 4. (1 vol)
2pm											
0935/1420										RIPZ-37	
1010	/	2								RIPZ-32 - remove 2 gallons	
1045	/	2								RIPZ-33	remove 2 gallons
1115	8.50'									RIPZ-31	TD 18.55'
2pm 0980	13532									RIPZ-14	TD 1520 / DTW 35.22'
1125	134.51									RIPZ-37	
1330	7.39									RIPZ-32	airlift success
1905	15.66									RIPZ-33	airlift success
1430	9.84									RIPZ-31	
1445	19.22									RIPZ-35	
										RIPZ-37	

Total Gallons Removed: _____

1500 ÷ 1 gall = 50

MACTEC

Reviewed by _____

Screen Volume = 0.58 gallons

LNAPPL = 73.97

WL = 82.85

DNAPPL = 90.40

TD = 99.30

Well Development Form

Job Number: 409804205I.5000.3

Project: Cosmalon Landfill

Development Method: Bail & water Pump

Well No. RIP2-13

Personel: D Browne

Date: _____

for 1

Time	Depth to water ft.	Gallons Removed	Turbidity (Ntu)	ph	Temp C	Electrical Conductivity	D.O. mg/liter	Redox Mv	Recovery Rate Inches/min.	Recovery Rate gpm	
8/29	2000	0.5	0.5								Bailer
8/30	1520	6.75	1.25 ~~0.00~~								"
8/31	1120	0.25	1.50								"
9/4	1400	5.0	6.50								Water pump @ 85'
9/10	1705	31.0	37.50								"
9/11	1448	60.0	97.50								
9/12	1630	60.0	157.50								
9/13		76.0	233.5								

Total Gallons Removed: 233.5

403 Well Volumes

MACTEC

Reviewed by _____

WL = 40.93
TD = 77.30
1 casing Volume = 0.83 gallons

Well Development Form

Job Number: 409804205I.5000.B

Project: Casmalia Landfill Development Method Airlifting Well No. RIP2-27

Personel: D. Browne Date: 1 of 2

Time	Depth to water ft.	Gallons Removed	Turbidity (Ntu) TOTAL Purged	ph	Temp C	Electrical Conductivity	D.O. mg/liter	Redox Mv	Recovery Rate Inches/min.	Recovery Rate gpm	
9/4	0945	4.0	4.0								
9/4	1340	5.0	9.0								
9/4	1605	1.5	10.5								
9/4	1730	4.0	14.5								
9/5	1010	12.0	26.5								
9/5	1455	11.0	37.5								
9/6	0915	8.0	45.5								
9/6	1109	8.0	53.5								
9/6	1201	7.0	60.5								
9/6	1400	8.0	68.5								
9/6	1520	13.0	81.5								
9/6	1625	8.0	89.5								

Total Gallons Removed: 89.5 gallons

MACTEC

Reviewed by

Well Development Form

Job Number: 409804205L, 560013

Project: Cosmalia Landfill Development Method Airlifting Well No. RIPZ-27

Personel: D. Browne Date: 2 of 2

Time	Depth to water ft.	Gallons Removed	Turbidity (Ntu)	ph	Temp C	Electrical Conductivity	D.O. mg/liter	Redox Mv	Recovery Rate Inches/min.	Recovery Rate gpm	
0917	0947	5.0	94.5								
9/7	1100	6.0	100.5								
9/7	1205 +140	10.0	110.5								
9/7	1425	6.0	116.5								

Total Gallons Removed: 116.5 TOTAL 6-INCH

140 well volumes

MACTEC

Reviewed by

1 casing Volume = 0.82 gallons

~~LNAPPL = 73.97~~ DSB

WL = ~~82.35~~ DSB 43.73

TD = ~~99.30~~ DSB 79.70

Well Development Form

Job Number: 4098042051.5000.3

Project: Carmalia Land Fill

Development Method: Airlifting

Well No. RIPZ-38

Personel: D Browne

Date:

1 of 2

Date ~~Time~~	time ~~Depth to water ft.~~	Gallons Removed	Total gallons Turbidity Remain (Ntu)	ph	Temp C	Electrical Conductivity	D.O. mg/liter	Redox Mv	Recovery Rate Inches/min.	Recovery Rate gpm	
8/28	1300	0.8	0.8								
8/29	0907	1.5	2.3								
8/29	1335	3.5	5.8								
8/29	1620	1.0	6.8								
8/29	1825	0.5	7.3								
8/30	0934	0.5	7.8								
8/30	1330	0.5	8.3								
8/30	1530	0.5	8.8								
8/31	0905	2.0	10.8								
8/31	1110	0.5	11.3								
8/31	1310	2.0	13.3								
8/31	1410	3.0	16.3								

Total Gallons Removed: 16.3

MACTEC

Reviewed by [signature]

Well Development Form

Job Number: 4098042051.5000.3

Project: Casmalia Landfill

Development Method: Air lifting

Well No. RIPZ-38

Personel: D. Browne

Date: 2002

Time	Depth to water ft.	Gallons Removed	Turbidity (Ntu)	ph	Temp C	Electrical Conductivity	D.O. mg/liter	Redox Mv	Recovery Rate Inches/min.	Recovery Rate gpm	
9/4	0920	2.0	18.3								
9/4	1355	2.0	20.3								
9/4	1545	1.5	21.8								
9/4	1745	4.0	25.8								

Total Gallons Removed: 25.8 Total Gallons

31.5 well volumes

MACTEC

Reviewed by CK

1 Casing Volume = 0.33

LDNPPL = 108.55
WL = 114.70
TD = 123.25

Well Development Form

Job Number: 4098042051.5000.3

Project: Casmalia Landfill

Development Method: Airlifting

Well No. RIPZ-39

Personel: D Browne

Date:

1 of 2

Date ~~Time~~	Time ~~Depth to water ft.~~	Gallons Removed	Total gallons Turbidity ~~(Ntu)~~ Remove	ph	Temp C	Electrical Conductivity	D.O. mg/liter	Redox Mv	Recovery Rate Inches/min.	Recovery Rate gpm	
8/31	1500	4.0	4.0								
9/4	1135	1.0	5.0								
9/4	1440	3.0	8.0								
9/4	1623	2.0	10.0								
9/4	1805	4.0	14.0								
9/5	1145	3.0	17.0								
9/5	1700	5.0	22.0								
9/6	1050	2.0	24.0								
9/6	1130	2.0	26.0								
9/6	1330	1.5	27.5								
9/6	1555	1.5	29.0								
9/7	0920	1.5	30.5								

Total Gallons Removed: 30.5

MACTEC

Reviewed by CLR

Well Development Form

Job Number: 409804205L.5000.3

Project: Casmalia Landfill Development Method Airlifting Well No. RBPZ-39

Personel: D. Browne Date:

2 of 2

Time	Depth to water ft.	Gallons Removed	Turbidity (Ntu)	ph	Temp C	Electrical Conductivity	D.O. mg/liter	Redox Mv	Recovery Rate Inches/min.	Recovery Rate gpm	
9/07	1020	1.0	31.5								
9/7	1130	1.5	33.0								
9/7	1310	2.0	35.0								
9/7	1600	2.0	37.0								

Total Gallons Removed: 37 total gallons
112 well volumes

MACTEC

Reviewed by CLK