

APPENDIX Q

Remedy Material Balances

**APPENDIX Q
WASTE DISPOSITION SUMMARY (MASS BALANCES) FOR REMEDY
ALTERNATIVES**

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Table Q-1
Waste Disposition Summary
Alternative 2 Conservative
Ascon Landfill Site

Waste Streams	Dispose Offsite - Landfill/Waste Recycler	Remain Onsite - Undisturbed	Stabilize and Remain Onsite	Remain Onsite - Disturbed	Site Totals
	(cy)	(cy)	(cy)	(cy)	(cy)
Tarry Liquids	28,000	0	0	0	
Minimally Impacted Fill	0	308,000	0	56,000	364,000
Impacted Soil	6,000	285,000	0	0	291,000
Drilling Muds (All Except Lagoons 4 + 5)	0	456,000	40,000	0	496,000
Pit Wastes	41,000	16,000	0	0	57,000
Lagoon 4 & 5 Wastes	0	19,000	40,000	0	59,000
Concrete	0	69,000	0	0	69,000
Impacted Clay	0	61,000	0	0	61,000
Area Waste Subtotals	75,000	1,214,000	80,000	56,000	1,425,000

Material Disposed Offsite =	75,000	5%
Materials Undisturbed and Remaining <i>In situ</i> =	1,214,000	85%
Material Stabilized & Left onsite =	80,000	6%
Materials Disturbed & Remaining <i>In situ</i> =	56,000	4%
	1,425,000	

Notes:

- 1.) During final site grading, both minimally impact soils and impacted soils in the top few feet of the Site will be moved. Estimated volume is about 62,000 cy. It is expected that about 10% of these materials will be VOC-contaminated and require offsite disposal due to SCAQMD Rule 1166.
- 2.) Lagoons 1 to 3 and Pit F will be backfilled with imported soils. The volume required will be about 50,000 cy.
- 3.) Lagoon 4 and 5 materials are stabilized (with cement slurry) and left in place.
- 4.) Concrete will be disturbed during backfilling Lagoons 1 to 3 (quantity undetermined).
- 5.) Volumes are *in situ*.
- 6.) See Table 6.4-1 for additional notes.
- 7.) The volume of tarry liquids reflects the volume of additives required to make these materials pumpable. This volume is about 3,000 cy.
- 8.) The volume of Lagoon 4 and 5 drilling muds reflects volume removed during Summer/Fall 2005 EA activities.

Table Q-2
Waste Disposition Summary
Alternative 2 Best
Ascon Landfill Site

Waste Streams	Dispose Offsite - Landfill/Waste Recycler	Remain Onsite - Undisturbed	Remain Onsite - Disturbed	Site Totals
	(cy)	(cy)	(cy)	(cy)
Tarry Liquids	25,000	0	0	25,000
Minimally Impacted Fill	13,000	302,000	49,000	364,000
Impacted Soil	0	291,000	0	291,000
Drilling Muds (All Except Lagoons 4 + 5)	0	496,000	0	496,000
Pit Wastes	41,000	16,000	0	57,000
Lagoon 4 & 5 Wastes	0	59,000	0	59,000
Concrete	0	69,000	0	69,000
Impacted Clay	0	61,000	0	61,000
Area Waste Subtotals	79,000	1,294,000	49,000	1,422,000

Material Disposed Offsite =	79,000	6%
Material Undisturbed & Remaining <i>In situ</i> =	1,294,000	91%
Material Stabilized & Left Onsite =	0	0%
Materials Disturbed & Remaining <i>In situ</i> =	49,000	3%
	1,422,000	

Notes:

- 1.) During final site grading, both minimally impacted soils and impacted soils in the top few feet of the Site will be moved. Estimated volume is about 60,000 cy. 13,000 cy will be mixed with tarry liquids to facilitate handling.
- 2.) Lagoons 1 to 3 will be backfilled with minimally impacted soils from the Site. The volume required will be about 25,000 cy. Drilling muds beneath tars are stabilized (with geogrid/geotextile) prior to infilling.
- 3.) Lagoon 4 and 5 materials are stabilized (with geogrid/geotextile) and left in place.
- 4.) Concrete will be disturbed during backfilling of Lagoons 1 to 3 (quantity undetermined).
- 5.) Volumes are *in situ*.
- 6.) See Table 6.4-1 for additional notes.
- 7.) The volume of Lagoon 4 and 5 drilling muds reflects volume removed during Summer/Fall 2005 EA activities.

Table Q-3
Waste Disposition Summary
Alternative 3 Conservative
Ascon Landfill Site

Waste Streams	Dispose Offsite - Landfill/Waste Recycler	Remain Onsite - Undisturbed	Remain Onsite - Stabilized	Remain Onsite - Disturbed	Site Totals
	(cy)	(cy)	(cy)	(cy)	(cy)
Tarry Liquids	28,000	0	0	0	28,000
Minimally Impacted Fill	0	253,000	0	111,000	364,000
Impacted Soil	32,000	0	0	259,000	291,000
Drilling Muds (All Except Lagoons 4 + 5)	22,000	434,000	40,000	0	496,000
Pit Wastes	41,000	16,000	0	0	57,000
Lagoon 4 & 5 Wastes	1,500	57,500	0	0	59,000
Concrete	0	46,000	0	23,000	69,000
Impacted Clay	0	61,000	0	0	61,000
Area Waste Subtotals	124,500	867,500	40,000	393,000	1,425,000

Material Disposed Offsite =	124,500	9%
Material Undisturbed and Remaining <i>In situ</i> =	867,500	61%
Material Stabilized =	40,000	3%
Material Disturbed and Remaining <i>In situ</i> =	393,000	28%
	1,425,000	

Notes:

- 1.) During final site grading, both minimally impacted soils and impacted soils in the top few feet of the Site will be moved. About 10% of these materials are expected to be VOC contaminated and require offsite disposal per SCAQMD Rule 1166. Expected volume is about 12,000 cy.
- 2.) Lagoons 1 to 3 and Pit F will be backfilled with imported soils. The volume required will be about 50,000 cy.
- 3.) Volume of impacted soils disposed offsite includes materials used for mixing with Lagoon 4 and 5 drilling muds and materials disturbed during Site grading that exceed SCAQMD Rule 1166 requirements.
- 4.) Top 5 feet of Lagoons 1 to 3 drilling muds (40,000 cy) will be stabilized with cement admixture prior to infilling.
- 5.) Approximately 23,000 cy of concrete will be encountered on Site surface and will need to be managed prior to grading and installing cap.
- 6.) Additional (unquantified) concrete will be disturbed during infilling Lagoons 1 to 3.
- 7.) Volumes are *in situ*.
- 8.) See Table 6.4-1 for additional notes.
- 9.) The volume of Lagoon 4 and 5 drilling muds reflects volume removed during Summer/Fall 2005 EA activities.
- 10.) The volume of tarry liquids reflects the volume of additives required to make these materials pumpable. This volume is about 3,000 cy.
- 11.) Non Lagoon 4 and 5 drilling muds volume is material contained in North and East berms that will be removed to construct cap.
- 12.) The volume of impacted soil includes about 20,000 cy of material that will be removed from the North and East berms to construct cap.

Table Q-4
Waste Disposition Summary
Alternative 3 Best
Ascon Landfill Site

Waste Streams	Dispose Offsite - Landfill/Waste Recycler	Remain Onsite - Undisturbed	Remain Onsite - Disturbed	Site Totals
	(cy)	(cy)	(cy)	(cy)
Tarry Liquids	25,000	0	0	25,000
Minimally Impacted Fill	13,000	241,000	110,000	364,000
Impacted Soil	20,000	271,000	0	291,000
Drilling Muds (All Except Lagoons 4 + 5)	22,000	474,000	0	496,000
Pit Wastes	41,000	16,000	0	57,000
Lagoon 4 & 5 Wastes	1,500	57,500	0	59,000
Concrete	0	46,000	23,000	69,000
Impacted Clay	0	61,000	0	61,000
Area Waste Subtotals	122,500	1,166,500	133,000	1,422,000

Material Disposed Offsite =		122,500	9%
Material Undisturbed and remaining <i>In situ</i> =		1,166,500	82%
Material Stabilized & Left onsite =		0	0%
Material Disturbed and remaining <i>In situ</i> =		133,000	9%
		1,422,000	

Notes:

- 1.) During final site grading, both minimally impacted soils and impacted soils in the top few feet of the Site will be moved. Minimally impacted soils (about 13K cy) will be used to mix with tarry liquids from Lagoons 1 to 3.
- 2.) Lagoons 1 to 3 will be backfilled with minimally impacted soils from the Site. The volume required will be about 25,000 cy. The Lagoons will be stabilized with geogrid/geotextile prior to infilling.
- 3.) Estimated approximately 23,000 cy of concrete will be encountered on Site surface and will need to be managed prior to grading and installing cap.
- 4.) Additional (unquantified) concrete will be disturbed during backfilling Lagoons 1 to 3.
- 5.) *In situ* volumes.
- 6.) See Table 6.4-1 for additional notes.
- 7.) The volume of Lagoon 4 and 5 drilling muds reflects volume removed during Summer/Fall 2005 EA activities.
- 8.) The volume of tarry liquids does not reflect the volume of additives required to make these materials pumpable. This volume is about 3,000 cy.
- 9.) Non-Lagoon 4 and 5 drilling muds volume is material contained in North and East berms that will be removed to construct cap.
- 10.) The volume of impacted soil constitutes about 20,000 cy of material that will be removed from the North and East berms to construct cap.

Table Q-5
Waste Disposition Summary
Alternative 4 Conservative
Ascon Landfill Site

Waste Streams	Dispose Offsite - Landfill/Waste Recycler	Remain Onsite Undisturbed	Remain Onsite - Stabilized	Remain Onsite - Disturbed	Site Totals
	(cy)	(cy)	(cy)	(cy)	(cy)
Tarry Liquids	28,000	0	0	0	28,000
Minimally Impacted Fill	0	241,000	0	123,000	364,000
Impacted Soil	31,500	259,500	0	0	291,000
Drilling Muds (All Except Lagoons 4 + 5)	22,000	434,000	40,000	0	496,000
Pit Wastes	57,000	0	0	0	57,000
Lagoon 4 & 5 Wastes	48,000	11,000	0	0	59,000
Concrete	0	46,000	0	23,000	69,000
Impacted Clay	0	61,000	0	0	61,000
Area Waste Subtotals	186,500	1,052,500	40,000	146,000	1,425,000

Material Disposed Offsite =	186,500	13%
Material Undisturbed and remaining <i>In situ</i> =	1,052,500	74%
Material Stabilized & Left onsite =	40,000	3%
Material Disturbed and remaining <i>In situ</i> =	146,000	10%
	1,425,000	

Notes:

- 1.) Lagoons 1 to 3 will be backfilled with imported soils. The volume required will be about 25,000 cy.
- 2.) Volume of impacted soils disposed offsite includes materials disturbed during Site grading that exceed SCAQMD Rule 1166 requirements.
- 3.) Top 5 feet of Lagoons 1 to 3 drilling muds (40,000 cy) will be stabilized with cement admixture prior to infilling.
- 4.) An estimated 23,000 cy of concrete will be encountered on Site surface and will need to be managed prior to grading and installing cap.
- 5.) *In situ* volumes.
- 6.) See Table 6.4-1 for additional notes.
- 7.) The volume of tarry liquids reflects the volume of additives required to make these materials pumpable. This volume is about 3,000 cy.
- 8.) Lagoon 4 and 5 volumes reflect material removed during Summer/Fall 2005 EA work.
- 9.) Impacted soil from berm removal can be used for mixing with drilling muds contained in berm and Lagoons 4 and 5.
- 10.) Drilling mud volume removed from Lagoons 4 and 5 reflects materials removed down to street elevation.

Table Q-6
Waste Disposition Summary
Alternative 4 Best
Ascon Landfill Site

	Dispose Offsite Landfill/Waste Recycler	Remain Onsite - Undisturbed	Remain Onsite - Stabilized	Remain Onsite - Disturbed	Site Totals
	(cy)	(cy)	(cy)	(cy)	(cy)
Tarry Liquids	25,000	0	0	0	25,000
Minimally Impacted Fill	0	216,000	0	148,000	364,000
Impacted Soil	32,500	39,000	0	219,500	291,000
Drilling Muds (All Except Lagoons 4 + 5)	22,000	0	0	474,000	496,000
Pit Wastes	57,000	0	0	0	57,000
Lagoon 4 & 5 Wastes	48,000	11,000	0	0	59,000
Concrete	0	46,000	0	23,000	69,000
Impacted Clay	0	61,000	0	0	61,000
Area Waste Subtotals	184,500	373,000	0	864,500	1,422,000

Material Disposed Offsite =	184,500	13%
Material Undisturbed and remaining <i>In situ</i> =	373,000	26%
Material Stabilized & Left onsite =	0	0%
Material Disturbed and remaining <i>In situ</i> =	864,500	61%
	1,422,000	

Notes:

- 1.) Lagoons 1 to 3 will be backfilled with impacted or minimally soils from the Site. The volume required will be about 25,000 cy. The Lagoons will be stabilized with geogrid/geotextile prior to infilling.
- 2.) An estimated 13,000 cy of concrete will be encountered on Site surface and will need to be managed prior to grading and installing cap.
- 3.) *In situ* volumes.
- 4.) See Table 6.4-1 for additional notes.
- 5.) Lagoon 4 and 5 reflect volumes removed during Summer 2005 Emergency Action activities.
- 6.) Impacted soil in berms can be used to mix with drilling muds in berm and Lagoons 4 and 5.
- 7.) Drilling mud volume removed from Lagoons 4 and 5 reflects materials removed down to street elevation.

Table Q-7
Waste Disposition Summary
Alternative 5 Conservative
Ascon Landfill Site

Waste Streams	Dispose Offsite - Landfill/Waste Recycler	Dispose Offsite - SIT	Remain in Clean Closed Area	Site Totals
	(cy)	(cy)	(cy)	(cy)
Tarry Liquids		28,000	0	28,000
Minimally Impacted Fill	364,000	0	0	364,000
Impacted Soil	291,000	0	0	291,000
Drilling Muds (All Except Lagoons 4 + 5)	33,000	463,000	0	496,000
Pit Wastes	57,000	0	0	57,000
Lagoon 4 & 5 Wastes	0	59,000	0	59,000
Concrete	0	0	69,000	69,000
Impacted Clay	61,000	0	0	61,000
Area Waste Subtotals	806,000	550,000	69,000	1,425,000

Material Disposed Offsite =		806,000	57%
Material Disposed Offsite (SIT) =		550,000	39%
Materials Disturbed and Remaining <i>In situ</i> =		69,000	5%
		1,425,000	

Notes:

- 1.) All waste materials removed.
- 2.) Volume of pumpable wastes exceeds well volume (1 well). Balance of pumpable wastes disposed offsite.
- 3.) *In situ* volumes.
- 4.) See Table 6.4-1 for additional notes.
- 5.) Lagoon 4 and 5 volumes reflect material removed during Summer/Fall 2005 EA work.

Table Q-8
Waste Disposition Summary
Alternative 5 Best
Ascon Landfill Site

Waste Streams	Dispose Offsite - Landfill/Waste Recycler	Dispose Offsite - SIT	Remain in Clean Closed Area	Site Totals
	(cy)	(cy)	(cy)	(cy)
Tarry Liquids	0	28,000	0	28,000
Minimally Impacted Fill	126,000	0	238,000	364,000
Impacted Soil	291,000	0	0	291,000
Drilling Muds (all Except Lagoons 4 + 5)	33,000	463,000	0	496,000
Pit Wastes	57,000	0	0	57,000
Lagoon 4 & 5 Wastes	0	59,000	0	59,000
Concrete	0	0	69,000	69,000
Impacted Clay	15,000	0	46,000	61,000
Area Waste Subtotals	522,000	550,000	353,000	1,425,000

Material Disposed Offsite =	522,000	37%
Material Disposed Offsite (SIT) =	550,000	39%
Materials Disturbed and Remaining <i>In situ</i> =	307,000	22%
Material Undisturbed and Remaining <i>In situ</i> =	46,000	3%
	1,425,000	

Notes:

- 1.) All Waste Materials Removed (except stabilized/tested MIS).
- 2.) Volume of pumpable wastes exceeds well volume (1 well). Balance of pumpable wastes disposed offsite.
- 3.) Impacted native clay - assume only 15,000 cy is removed - based on 1/2 foot over 1/2 of Site.
- 4.) *In situ* volumes.
- 5.) See Table 6.4-1 for additional notes.
- 6.) Lagoon 4 and 5 reflect volumes removed during Summer 2005 Emergency Action activities.
- 7.) Minimally impacted fill remaining onsite will be stabilized onsite for soluble lead prior to backfilling.

Table Q-9
Waste Disposition Summary
Alternative 6 Conservative
Ascon Landfill Site

Waste Streams	Dispose Offsite - Landfill/Waste Recycler	Remain in Clean Closed Area	Site Totals
	(cy)	(cy)	(cy)
Tarry Liquids	28,000	0	28,000
Minimally Impacted Fill	364,000	0	364,000
Impacted Soil	291,000	0	291,000
Drilling Muds (All Except Lagoons 4 + 5)	496,000	0	496,000
Pit Wastes	57,000	0	57,000
Lagoon 4 & 5 Wastes	59,000	0	59,000
Concrete	0	69,000	69,000
Impacted Clay	61,000	0	61,000
Area Waste Subtotals	1,356,000	69,000	1,425,000

Material Disposed Offsite =	1,356,000	1,356,000	95%
Materials Disturbed and Remaining <i>In situ</i> =	69,000	69,000	5%

Notes:

- 1.) All waste materials removed.
- 2.) Minimal impact fill and crushed concrete reused onsite.
- 3.) *In situ* volumes.
- 4.) See Table 6.4-1 for additional notes.
- 5.) The volume of tarry liquids does not reflect the volume of additives required to make these materials pumpable.
This volume is about 3,000 cy.
- 6.) Lagoon 4 and 5 volumes reflect material removed during Summer/Fall 2005 EA work.

Table Q-10
Waste Disposition Summary
Alternative 6 Best
Ascon Landfill Site

Waste Streams	Dispose Offsite - Landfill/Waste Recycler	Remain in Clean Closed Area	Site Totals
	(cy)	(cy)	(cy)
Tarry Liquids	25,000	0	25,000
Minimally Impacted Fill	126,000	238,000	364,000
Impacted Soil	291,000	0	291,000
Drilling Muds (All Except Lagoons 4 + 5)	496,000	0	496,000
Pit Wastes	57,000	0	57,000
Lagoon 4 & 5 Wastes	59,000	0	59,000
Concrete	0	69,000	69,000
Impacted Clay	15,000	46,000	61,000
Area Waste Subtotals	1,069,000	353,000	1,422,000

Material Disposed Offsite =	1,069,000	75%
Materials Disturbed and Remaining <i>In situ</i> =	307,000	22%
Materials Undisturbed and Remaining <i>In situ</i> =	46,000	3%
	1,422,000	

Notes:

- 1.) All Waste Materials Removed.
- 2.) Minimal Impact Fill and Crushed Concrete Reused onsite.
- 3.) Impacted native clay - assume only 15,000 cy is removed - based on 1/2 foot over 1/2 of site.
- 4.) *In situ* volumes.
- 5.) See Table 6.4-1 for additional notes.
- 6.) Minimally impacted fill remaining onsite will be stabilized onsite for soluble lead prior to backfilling.
Excess material not needed for backfilling will be disposed offsite.
- 7.) Lagoon 4 and 5 reflect volumes removed during Summer 2005 Emergency Action activities.