

SECTION THIRTEEN

PRELIMINARY
SITE CHARACTERIZATION
GARDEN PRODUCE
TECHNICAL MEMORANDUM

MOLYCORP MINE RI/FS

REVISION 0

Prepared for
Molycorp, Inc.
Questa, New Mexico

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URS

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SECTION THIRTEEN

Garden Produce

This section presents and summarizes the analytical results for samples of garden produce grown on private property potentially affected by the Molycorp tailings facility. The study was conducted to assess the impacts of produce grown in areas potentially affected by the tailings facility the garden produce. Molycorp conducted this study as part of the RI. The details of the study were included in the FSP for the RI/FS (URS 2004b). Garden produce sampling took place on August 6 to 12 of 2003.

Samples of vegetables, soils, and irrigation water were collected from three gardens located south, east, and northeast of the tailings facility (Figure 13-1). These gardens were located less than 0.5 mile from the facility. Vegetables, soil, and irrigation water were also sampled from two organic gardens located northwest and south of Questa in areas unaffected by the tailings facility. One reference garden (Gardenref1) was located approximately 5 miles northwest of Questa in Cerro, New Mexico. The second garden (Gardenref2) was located approximately 13 miles south of Questa near Arroyo Seco, New Mexico. Both are commercial farms and their produce is certified as organic. Organic vegetables were also bought from Raley's supermarket in Taos, New Mexico, to be used as another reference for the study gardens.

The numbers and types of samples collected from each garden are listed in the table below. Lettuce, beans, and zucchini were bought from the supermarket and sampled from every garden, except for Garden 2. This garden had largely gone to seed at the time of sampling and only beans were still available to be collected. Soils were collected next to the vegetables, and collected to the root depth. One soil sample was collected in each garden plot from which vegetables were taken. Two soil samples were collected at Garden1, Gardenref1, and Gardenref2. One soil sample was collected from Garden2 and Garden3. A sample was collected from the irrigation water that constituted the primary water source at each garden. Irrigation water for the study gardens in Questa comes from the irrigation ditches that divert water from the Red River or Cabresto Creek. Both of the reference gardens used groundwater. No soil or water samples associated with Raley's produce could be collected.

Vegetable, soil, and water samples were analyzed for the metals and inorganic constituents listed in Section 1.0. Concentrations of metals were determined in both the total and dissolved fraction of the water samples. Inorganic constituents were measured on the total fraction.

Section 15.4 describes an evaluation of observed field or laboratory contaminants and provides a list of analytes, by medium, that are considered as attributable to laboratory or field contamination rather than being related to presence in the medium under evaluation. These compounds are not included in the summary results tables in this section, but results for analysis of these compounds are included in the printout of the RI sample analysis results in Appendix A-13.

The results from soils, vegetables, and irrigation water analyses from the study gardens and reference gardens are summarized in Tables 13-1 to 13-6. The tables present the number of samples collected; the percent detection of each parameter; the reporting limits for any not detected analytes; and the minimum, maximum, mean, and median values for each analyte. There are no SLC for the vegetables, soils, or irrigation water related to the garden sampling

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specified for the RI/FS. Appendix A-13 presents the validated analytical data from all soils, vegetables, and irrigation water collected during the study.

Site ID	Location	Vegetables Collected	Number of Soils Collected	Number of Water Samples Collected
Garden1	Questa, south of tailings facility	Green Beans, Zucchini, Lettuce	2	1
Garden2	Questa, east of tailings facility	Green Beans	1	1
Garden3	Questa, Northeast of tailings facility	Green Beans, Zucchini, Lettuce	1	1
Gardenref1	Cerro	Green Beans, Zucchini, Lettuce	2	1
Gardenref2	Arroyo Seco	Green Beans, Zucchini, Lettuce	2	1
Produce Market	Raley's Market, Taos	Green Beans, Zucchini, Lettuce	NA	NA

NA – Not Applicable. Soil and irrigation water associated with the supermarket produce could not be sampled.

The study of garden produce included interviews with the landowners regarding their gardening techniques, application of pesticides and fertilizers, and consumption of homegrown produce through the year. The EPA also conducted a risk assessment to determine risk associated with consumption of the garden vegetables (David Riley, EPA, personal communication). Results of the interviews and risk assessment are not discussed in this memorandum.

13.1 REFERENCE GARDENS

13.1.1 Soils

Data for the reference soils are summarized in Table 13-1. Two soil samples were collected at each reference garden, one from each garden plot from which vegetables were collected. All inorganic parameters were measured in all four reference samples, except for fluoride which was detected in two samples.

Aluminum, arsenic, barium, beryllium, boron, calcium, cobalt, chromium, copper, iron, lead, magnesium, manganese, nickel, potassium, sodium, thallium, vanadium, and zinc were detected in soil samples from both reference areas. Mercury and selenium were detected in three samples, and cadmium and molybdenum were detected in two samples. Silver was detected in one sample. Antimony concentrations were non-detect in all samples.

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13.1.2 Irrigation Water

Data for the reference irrigation waters are summarized in Table 13-2. Bicarbonate, chloride, fluoride, nitrate, phosphate, phosphorus, and sulfate were detected in the total fraction of both reference samples. BOD, carbonate, hydroxide, nitrite, and TKN were non-detect for both samples. Hardness (dissolved and total), pH, specific conductance, and total dissolved solids (TDS) were measured on both samples. COD was measured in one sample. Total alkalinity and TDS were measured in both samples, and TSS was measured in one sample.

Barium, boron, calcium, magnesium, potassium, sodium, vanadium, and zinc were detected in both reference irrigation water samples in both the dissolved and total fractions. Concentrations of antimony, arsenic, beryllium, cadmium, cobalt, lead, mercury, nickel, selenium, silver, and thallium were non-detect in both fractions for both reference samples. Aluminum and chromium were each detected in one total fraction but in neither dissolved fraction. Copper was detected in both total fractions and in one dissolved fraction. Iron and molybdenum were detected in one total and one dissolved sample. Manganese was detected in the dissolved fraction of one sample.

13.1.3 Edible Plants

Reference vegetation data are summarized in Table 13-3. Boron, calcium, magnesium, manganese, potassium, and zinc were detected, and percent solids were measured, in all nine reference vegetation samples. Copper was detected in 78 percent of samples and barium in 56 percent of samples. Cadmium and iron were detected in 33 percent of samples, and sodium was detected in 22 percent of samples. Aluminum, molybdenum, and nickel were each detected in one sample. Antimony, arsenic, beryllium, chromium, cobalt, lead, mercury, selenium, silver, thallium, and vanadium were non-detect in all reference vegetation samples.

13.2 GARDENS

13.2.1 Soils

Soils data are summarized in Table 13-4. All inorganic parameters were detected in all samples, except for chloride, which was detected in two samples, and nitrate, which was detected in three samples. All metals were detected in all four soil samples with the exceptions of antimony and cadmium, which had concentrations non-detect in all samples, and silver which was detected in three samples.

13.2.2 Irrigation Water

Results of analysis of the irrigation water from the study gardens are summarized in Table 13-5. All inorganic parameters were detected in all three irrigation samples, with the following exceptions. Carbonate, nitrate, and phosphate were each detected in one sample. Hydroxide, nitrite, and TKN were non-detect in all samples, and there was no BOD or COD measurable in any of the study garden water samples.

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Barium, calcium, magnesium, and potassium were detected in both the dissolved and total fractions of all three irrigation water samples. Antimony, arsenic, beryllium, cadmium, chromium, mercury, selenium, silver, thallium, and zinc were non-detect in both the dissolved and total fraction of all samples. Aluminum was detected in one total and one dissolved fraction. Boron and cobalt were each detected in one dissolved fraction. Copper was detected in the dissolved fraction of two samples and one total fraction. Iron and lead were each detected in one total fraction. Manganese, molybdenum, nickel, and sodium were each detected in one dissolved and one total fraction. Vanadium was detected in all the total fractions and in two dissolved fractions.

13.2.3 Edible Plants

Vegetation data is presented in Table 13-6. Boron, calcium, magnesium, manganese, and potassium were detected, and percent solids were measured, in all study garden vegetables. Barium and zinc were detected in 71 percent of samples, and copper and iron were detected in 43 percent of samples. Molybdenum was detected in 29 percent of samples. Aluminum, cadmium, and chromium were each detected in 14 percent of samples. Concentrations of antimony, arsenic, beryllium, cobalt, lead, mercury, nickel, selenium, silver, sodium, thallium, and vanadium were non-detect in all samples.

13.3 SUMMARY

The results of soils, irrigation water, and vegetables analyses from study gardens are compared to reference data in the following section. There are no screening level criteria specified for the RI for garden vegetables or the associated soils and irrigation water.

13.3.1 Soils

Figure 13-2 compares the mean concentrations of metals in the four study garden soils to those in reference garden soils. Solid bars represent the means for analytes for which greater than 50 percent of the values were above detection. Patterned columns represent analytes for which fewer than 50 percent of samples had detectable concentrations. In these cases, either the maximum detectable value or the maximum reporting limit is plotted, whichever is larger.

Antimony concentrations were non-detect for all garden soils. Fifty percent or fewer samples had detectable cadmium concentrations in either the reference or study soils, and fewer than 50 percent of reference soils had detectable silver concentrations. The figure shows that mean metal concentrations are generally slightly higher in the study gardens than in the reference gardens.

13.3.2 Irrigation Waters

Two reference water samples and three study garden water samples were collected. Figures 13-3 and 13-4 compare the mean concentrations between the study garden water and reference garden water for dissolved and total fractions, respectively. For many metals, fewer than half of the irrigation water samples had detectable concentrations and mean values could not be calculated.

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For the study gardens, mean concentrations could only be calculated for barium, calcium, copper (dissolved fraction only), magnesium, potassium, and vanadium. Mean concentrations in the study gardens were generally similar to those in the reference garden waters. The only exception was vanadium for which the mean concentration for the reference samples (both dissolved and total fractions) was nearly twice that in the study gardens.

13.3.3 Edible Plants

Figure 13-5 compares the mean values for metals in the vegetable samples from the study gardens to those in the reference samples. The metals that were detected in greater than 50 percent of samples include barium, boron, calcium, magnesium, manganese, potassium, and zinc. The mean values for these metals in the reference samples were similar to those in the study samples.

Of the metals that were detected in fewer than 50 percent of the samples, aluminum, cadmium, iron, and sodium had lower ranges of concentrations in the study gardens than the reference samples. Chromium and molybdenum had higher concentration ranges in the study garden vegetables than in the reference vegetables.

SECTION 13
GARDEN PRODUCE
TABLES

Table 13-1
Garden Produce - Garden Root Zone Soils
RI/FS - Reference Gardens
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Cation-Exchange Capacity	T	meq/100g	4	100	No SLC			18.2	38.5	28.1	27.8
Chloride	T	mg/Kg-Dry	4	100	No SLC			7.9	31.2	22.4	25.3
Fluoride	T	mg/Kg-Dry	4	50	No SLC	0.21	0.21	ND	0.67	0.31	0.22
Nitrate	T	mg/Kg-Dry	4	100	No SLC			6.9	153	93.6	107
Organic Soils	T	%	4	100	No SLC			3.4	6.1	4.8	4.8
pH	T	SU	4	100	No SLC			6.7	8.3	7.4	7.2
Phosphorus	T	mg/Kg-Dry	4	100	No SLC			763	1400	993	904
Sodium Absorption Ratio	T	ratio	4	100	No SLC			0.95	1.4	1.2	1.3
Solids, Percent	T	%	4	100	No SLC			79.6	97.3	89	89.5
Specific Conductance	T	umhos/cm	4	100	No SLC			253	1900	1160	1240
Sulfate	T	mg/Kg-Dry	4	100	No SLC			46	649	287	226
Total Kjeldahl Nitrogen	T	mg/Kg-Dry	4	100	No SLC			181	1640	922	934
Total Organic Carbon	T	mg/Kg-Dry	4	100	No SLC			6090	31600	16700	14500
Metals											
Aluminum	T	mg/Kg-Dry	4	100	No SLC			11800	23200	15900	14200
Antimony	T	mg/Kg-Dry	4	0	No SLC	0.41	0.55	ND	ND		
Arsenic	T	mg/Kg-Dry	4	100	No SLC			2.4	4.1	3.1	2.9
Barium	T	mg/Kg-Dry	4	100	No SLC			75.7	226	134	117
Beryllium	T	mg/Kg-Dry	4	100	No SLC			0.86	1.1	0.95	0.93
Boron	T	mg/Kg-Dry	4	100	No SLC			3.5	7.2	4.7	4.1
Cadmium	T	mg/Kg-Dry	4	50	No SLC	0.062	0.068	ND	0.14	0.07	0.054
Calcium	T	mg/Kg-Dry	4	100	No SLC			2570	5350	3640	3320
Chromium	T	mg/Kg-Dry	4	100	No SLC			14	19	15.9	15.3
Cobalt	T	mg/Kg-Dry	4	100	No SLC			6.8	9.8	8.1	7.9
Copper	T	mg/Kg-Dry	4	100	No SLC			11.5	17.4	14.4	14.4
Iron	T	mg/Kg-Dry	4	100	No SLC			12400	20100	15200	14200
Lead	T	mg/Kg-Dry	4	100	No SLC			9.5	16.2	13.4	13.8
Magnesium	T	mg/Kg-Dry	4	100	No SLC			2450	4360	3210	3010
Manganese	T	mg/Kg-Dry	4	100	No SLC			317	594	454	453
Mercury	T	mg/Kg-Dry	4	75	No SLC	0.02	0.02	ND	0.036	0.022	0.022
Molybdenum	T	mg/Kg-Dry	4	50	No SLC	0.29	0.33	ND	0.72	0.41	0.38

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if greater than 50% of the values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if greater than 50% of the values were detected.

T = Total Fraction
D = Filtered Fraction (0.45 micron filter)
A = Filtered Fraction (0.1 micron filter)
ND = Non-Detected Value

Table 13-1
Garden Produce - Garden Root Zone Soils
RI/FS - Reference Gardens
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Nickel	T	mg/Kg-Dry	4	100	No SLC			9.9	14.8	12.2	12
Potassium	T	mg/Kg-Dry	4	100	No SLC			1770	2970	2220	2070
Selenium	T	mg/Kg-Dry	4	75	No SLC	0.33	0.33	ND	0.45	0.37	0.43
Silver	T	mg/Kg-Dry	4	25	No SLC	0.12	0.13	ND	0.19		
Sodium	T	mg/Kg-Dry	4	100	No SLC			343	504	419	415
Thallium	T	mg/Kg-Dry	4	100	No SLC			0.16	0.22	0.19	0.2
Vanadium	T	mg/Kg-Dry	4	100	No SLC			21.9	37.3	27.6	25.6
Zinc	T	mg/Kg-Dry	4	100	No SLC			36.7	70.1	54.5	55.7

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
 Median Value determined using 1/2 the Reporting Limit value for Non-Detects if greater than 50% of the values were detected.
 Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if greater than 50% of the values were detected.

T = Total Fraction
 D = Filtered Fraction (0.45 micron filter)
 A = Filtered Fraction (0.1 micron filter)
 ND = Non-Detected Value

Table 13-2
Garden Produce - Irrigation Water
RI/FS - Reference Gardens
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Hardness	D	mg/L	2	100	No SLC			71.4	152	112	112
Bicarbonate (as CaCO3)	T	mg/L	2	100	No SLC			90.1	181	136	136
Biochemical Oxygen Demand	T	mg/L	2	0	No SLC	1.3	1.4	ND	ND		
Carbonate (as CaCO3)	T	mg/L	2	0	No SLC	1	1	ND	ND		
Chemical Oxygen Demand	T	mg/L	2	50	No SLC	20	20	ND	49	29.5	29.5
Chloride	T	mg/L	2	100	No SLC			1.8	2.4	2.1	2.1
Fluoride	T	mg/L	2	100	No SLC			0.56	0.73	0.65	0.65
Hardness	T	mg/L	2	100	No SLC			80.4	153	117	117
Hydroxide (as CaCO3)	T	mg/L	2	0	No SLC	1	1	ND	ND		
Nitrate	T	mg/L	2	100	No SLC			0.56	0.59	0.57	0.57
Nitrite	T	mg/L	2	0	No SLC	0.005	0.005	ND	ND		
pH	T	SU	2	100	No SLC			7.2	7.4	7.3	7.3
Phosphate, Ortho As P	T	mg/L	2	100	No SLC			0.018	0.071	0.045	0.045
Phosphorus	T	mg/L	2	100	No SLC			0.026	0.076	0.051	0.051
Specific Conductance	T	umhos/cm	2	100	No SLC			187	318	253	253
Sulfate	T	mg/L	2	100	No SLC			9	14.7	11.8	11.8
Total Alkalinity	T	mg/L	2	100	No SLC			90.1	181	136	136
Total Dissolved Solids	T	mg/L	2	100	No SLC			180	204	192	192
Total Kjeldahl Nitrogen	T	mg/L	2	0	No SLC	0.24	0.24	ND	ND		
Total Suspended Solids	T	mg/L	2	50	No SLC	0.5	0.5	ND	1.2	0.73	0.73
Metals											
Aluminum	D	mg/L	2	0	No SLC	0.18	0.18	ND	ND		
Antimony	D	mg/L	2	0	No SLC	0.001	0.001	ND	ND		
Arsenic	D	mg/L	2	0	No SLC	0.0004	0.0004	ND	ND		
Barium	D	mg/L	2	100	No SLC			0.039	0.058	0.048	0.048
Beryllium	D	mg/L	2	0	No SLC	0.0002	0.00026	ND	ND		
Boron	D	mg/L	2	100	No SLC			0.0056	0.017	0.011	0.011
Cadmium	D	mg/L	2	0	No SLC	0.0003	0.0003	ND	ND		
Calcium	D	mg/L	2	100	No SLC			21.6	41.1	31.4	31.4
Chromium	D	mg/L	2	0	No SLC	0.0006	0.0006	ND	ND		
Cobalt	D	mg/L	2	0	No SLC	0.0018	0.0018	ND	ND		

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Median Value determined using 1/2 the Reporting Limit value for Non-Detects if greater than 50% of the values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if greater than 50% of the values were detected.

T = Total Fraction
D = Filtered Fraction (0.45 micron filter)
A = Filtered Fraction (0.1 micron filter)
ND = Non-Detected Value

Table 13-2
Garden Produce - Irrigation Water
RI/FS - Reference Gardens
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Copper	D	mg/L	2	50	No SLC	0.0014	0.0014	ND	0.009	0.0048	0.0048
Iron	D	mg/L	2	50	No SLC	0.17	0.17	ND	0.23	0.16	0.16
Lead	D	mg/L	2	0	No SLC	0.0002	0.001	ND	ND		
Magnesium	D	mg/L	2	100	No SLC			4.2	12	8.1	8.1
Manganese	D	mg/L	2	50	No SLC	0.007	0.007	ND	0.008	0.0058	0.0058
Mercury	D	mg/L	2	0	No SLC	0.0001	0.0001	ND	ND		
Molybdenum	D	mg/L	2	50	No SLC	0.0018	0.0018	ND	0.0034	0.0022	0.0022
Nickel	D	mg/L	2	0	No SLC	0.002	0.002	ND	ND		
Potassium	D	mg/L	2	100	No SLC			1.3	1.4	1.3	1.3
Selenium	D	mg/L	2	0	No SLC	0.0016	0.0016	ND	ND		
Silver	D	mg/L	2	0	No SLC	0.0002	0.0002	ND	ND		
Sodium	D	mg/L	2	100	No SLC			11	22.4	16.7	16.7
Thallium	D	mg/L	2	0	No SLC	0.0002	0.0002	ND	ND		
Vanadium	D	mg/L	2	100	No SLC			0.0012	0.0027	0.002	0.002
Zinc	D	mg/L	2	100	No SLC			0.22	0.79	0.5	0.5
Aluminum	T	mg/L	2	50	No SLC	0.18	0.18	ND	0.28	0.18	0.18
Antimony	T	mg/L	2	0	No SLC	0.001	0.0011	ND	ND		
Arsenic	T	mg/L	2	0	No SLC	0.0004	0.0004	ND	ND		
Barium	T	mg/L	2	100	No SLC			0.039	0.064	0.051	0.051
Beryllium	T	mg/L	2	0	No SLC	0.00021	0.00033	ND	ND		
Boron	T	mg/L	2	100	No SLC			0.006	0.018	0.012	0.012
Cadmium	T	mg/L	2	0	No SLC	0.0003	0.0003	ND	ND		
Calcium	T	mg/L	2	100	No SLC			24.4	41.4	32.9	32.9
Chromium	T	mg/L	2	50	No SLC	0.0006	0.0006	ND	0.00072	0.00051	0.00051
Cobalt	T	mg/L	2	0	No SLC	0.0018	0.0018	ND	ND		
Copper	T	mg/L	2	100	No SLC			0.0028	0.0053	0.0041	0.0041
Iron	T	mg/L	2	50	No SLC	0.17	0.17	ND	0.21	0.14	0.14
Lead	T	mg/L	2	0	No SLC	0.0002	0.0019	ND	ND		
Magnesium	T	mg/L	2	100	No SLC			4.7	12.2	8.5	8.5
Manganese	T	mg/L	2	0	No SLC	0.007	0.007	ND	ND		
Mercury	T	mg/L	2	0	No SLC	0.0001	0.0001	ND	ND		
Molybdenum	T	mg/L	2	50	No SLC	0.0031	0.0031	ND	0.0034	0.0025	0.0025

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if greater than 50% of the values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if greater than 50% of the values were detected.

T = Total Fraction
D = Filtered Fraction (0.45 micron filter)
A = Filtered Fraction (0.1 micron filter)
ND = Non-Detected Value

Table 13-2
Garden Produce - Irrigation Water
RI/FS - Reference Gardens
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Nickel	T	mg/L	2	0	No SLC	0.002	0.002	ND	ND		
Potassium	T	mg/L	2	100	No SLC			1.2	1.3	1.3	1.3
Selenium	T	mg/L	2	0	No SLC	0.0016	0.0016	ND	ND		
Silver	T	mg/L	2	0	No SLC	0.0002	0.0002	ND	ND		
Sodium	T	mg/L	2	100	No SLC			11.1	24.9	18	18
Thallium	T	mg/L	2	0	No SLC	0.0002	0.0002	ND	ND		
Vanadium	T	mg/L	2	100	No SLC			0.0013	0.0029	0.0021	0.0021
Zinc	T	mg/L	2	100	No SLC			0.091	0.78	0.43	0.43

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
 Median Value determined using 1/2 the Reporting Limit value for Non-Detects if greater than 50% of the values were detected.
 Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if greater than 50% of the values were detected.

T = Total Fraction
 D = Filtered Fraction (0.45 micron filter)
 A = Filtered Fraction (0.1 micron filter)
 ND = Non-Detected Value

Table 13-3
Garden Produce - Edible Plant
RI/FS - Reference Gardens
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	9	100	No SLC			5.7	9.8	7.9	7.6
Metals											
Aluminum	T	mg/Kg	9	11.1	No SLC	2.7	9.9	ND	26.7		
Antimony	T	mg/Kg	9	0	No SLC	0.4	0.49	ND	ND		
Arsenic	T	mg/Kg	9	0	No SLC	0.16	0.2	ND	ND		
Barium	T	mg/Kg	9	55.6	No SLC	0.69	0.72	ND	5.6	1.4	0.66
Beryllium	T	mg/Kg	9	0	No SLC	0.016	0.02	ND	ND		
Boron	T	mg/Kg	9	100	No SLC			1.8	3.3	2.4	2.3
Cadmium	T	mg/Kg	9	33.3	No SLC	0.024	0.03	ND	0.45		
Calcium	T	mg/Kg	9	100	No SLC			171	1430	529	438
Chromium	T	mg/Kg	9	0	No SLC	0.16	0.2	ND	ND		
Cobalt	T	mg/Kg	9	0	No SLC	0.15	0.18	ND	ND		
Copper	T	mg/Kg	9	77.8	No SLC	0.57	0.73	ND	2.2	0.97	0.92
Iron	T	mg/Kg	9	33.3	No SLC	3.9	8.4	ND	33.5		
Lead	T	mg/Kg	9	0	No SLC	0.12	0.15	ND	ND		
Magnesium	T	mg/Kg	9	100	No SLC			138	406	239	236
Manganese	T	mg/Kg	9	100	No SLC			1.2	7.6	3.3	2.5
Mercury	T	mg/Kg	9	0	No SLC	0.015	0.017	ND	ND		
Molybdenum	T	mg/Kg	9	11.1	No SLC	0.13	0.16	ND	0.41		
Nickel	T	mg/Kg	9	11.1	No SLC	0.17	0.2	ND	0.51		
Potassium	T	mg/Kg	9	100	No SLC			2280	4220	3090	2890
Selenium	T	mg/Kg	9	0	No SLC	0.24	0.3	ND	ND		
Silver	T	mg/Kg	9	0	No SLC	0.073	0.089	ND	ND		
Sodium	T	mg/Kg	9	22.2	No SLC	22.4	144	ND	510		
Thallium	T	mg/Kg	9	0	No SLC	0.081	0.099	ND	ND		
Vanadium	T	mg/Kg	9	0	No SLC	0.18	0.22	ND	ND		
Zinc	T	mg/Kg	9	100	No SLC			3.5	7	4.8	4.8

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if greater than 50% of the values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if greater than 50% of the values were detected.

T = Total Fraction
D = Filtered Fraction (0.45 micron filter)
A = Filtered Fraction (0.1 micron filter)
ND = Non-Detected Value

Table 13-4
Garden Produce - Garden Root Zone Soils
RI/FS - Gardens
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Cation-Exchange Capacity	T	meq/100g	4	100	No SLC			19.9	26.8	23.1	22.9
Chloride	T	mg/Kg-Dry	4	50	No SLC	2.4	2.5	ND	9.2	3.8	2.3
Fluoride	T	mg/Kg-Dry	4	100	No SLC			0.35	0.6	0.45	0.42
Nitrate	T	mg/Kg-Dry	4	75	No SLC	2.5	2.5	ND	53.8	18.2	8.9
Organic Soils	T	%	4	100	No SLC			5.6	6.2	5.9	6
pH	T	SU	4	100	No SLC			7.7	8.7	8.2	8.2
Phosphorus	T	mg/Kg-Dry	4	100	No SLC			142	508	292	258
Sodium Absorption Ratio	T	ratio	4	100	No SLC			0.12	0.21	0.17	0.17
Solids, Percent	T	%	4	100	No SLC			83.3	86.3	84.8	84.8
Specific Conductance	T	umhos/cm	4	100	No SLC			116	537	258	190
Sulfate	T	mg/Kg-Dry	4	100	No SLC			4.2	114	42.8	26.5
Total Kjeldahl Nitrogen	T	mg/Kg-Dry	4	100	No SLC			238	1050	503	363
Total Organic Carbon	T	mg/Kg-Dry	4	100	No SLC			11700	24500	18100	18200
Metals											
Aluminum	T	mg/Kg-Dry	4	100	No SLC			17600	23900	21100	21400
Antimony	T	mg/Kg-Dry	4	0	No SLC	0.45	0.53	ND	ND		
Arsenic	T	mg/Kg-Dry	4	100	No SLC			4.8	6.1	5.5	5.6
Barium	T	mg/Kg-Dry	4	100	No SLC			144	226	191	197
Beryllium	T	mg/Kg-Dry	4	100	No SLC			1.1	1.1	1.1	1.1
Boron	T	mg/Kg-Dry	4	100	No SLC			7.9	9.5	8.9	9.2
Cadmium	T	mg/Kg-Dry	4	0	No SLC	0.065	0.074	ND	ND		
Calcium	T	mg/Kg-Dry	4	100	No SLC			7230	19300	13000	12800
Chromium	T	mg/Kg-Dry	4	100	No SLC			19.4	25.3	22.2	22.1
Cobalt	T	mg/Kg-Dry	4	100	No SLC			10.4	11	10.7	10.7
Copper	T	mg/Kg-Dry	4	100	No SLC			19.7	28.8	23.6	22.9
Iron	T	mg/Kg-Dry	4	100	No SLC			22100	23400	22800	22800
Lead	T	mg/Kg-Dry	4	100	No SLC			16.5	26.3	20.6	19.8
Magnesium	T	mg/Kg-Dry	4	100	No SLC			5130	6270	5740	5780
Manganese	T	mg/Kg-Dry	4	100	No SLC			541	613	562	548
Mercury	T	mg/Kg-Dry	4	100	No SLC			0.026	0.062	0.04	0.036
Molybdenum	T	mg/Kg-Dry	4	100	No SLC			1.3	4.1	2.5	2.3

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if greater than 50% of the values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if greater than 50% of the values were detected.

T = Total Fraction
D = Filtered Fraction (0.45 micron filter)
A = Filtered Fraction (0.1 micron filter)
ND = Non-Detected Value

Table 13-4
Garden Produce - Garden Root Zone Soils
RI/FS - Gardens
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Nickel	T	mg/Kg-Dry	4	100	No SLC			15.3	21.6	18	17.4
Potassium	T	mg/Kg-Dry	4	100	No SLC			3270	3680	3490	3500
Selenium	T	mg/Kg-Dry	4	100	No SLC			0.43	0.57	0.51	0.52
Silver	T	mg/Kg-Dry	4	75	No SLC	0.16	0.16	ND	0.26	0.18	0.2
Sodium	T	mg/Kg-Dry	4	100	No SLC			391	618	523	542
Thallium	T	mg/Kg-Dry	4	100	No SLC			0.15	0.23	0.19	0.19
Vanadium	T	mg/Kg-Dry	4	100	No SLC			33.3	45.5	40.3	41.1
Zinc	T	mg/Kg-Dry	4	100	No SLC			62.4	109	84.9	84

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
 Median Value determined using 1/2 the Reporting Limit value for Non-Detects if greater than 50% of the values were detected.
 Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if greater than 50% of the values were detected.

T = Total Fraction
 D = Filtered Fraction (0.45 micron filter)
 A = Filtered Fraction (0.1 micron filter)
 ND = Non-Detected Value

Table 13-5
Garden Produce - Irrigation Water
RI/FS - Gardens
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Hardness	D	mg/L	3	100	No SLC			70.4	178	109	79.1
Bicarbonate (as CaCO3)	T	mg/L	3	100	No SLC			48.3	58.3	54.9	58.2
Biochemical Oxygen Demand	T	mg/L	3	0	No SLC	1.3	1.5	ND	ND		
Carbonate (as CaCO3)	T	mg/L	3	33.3	No SLC	1	1	ND	2.4		
Chemical Oxygen Demand	T	mg/L	3	0	No SLC	20	20	ND	ND		
Chloride	T	mg/L	3	100	No SLC			0.34	3.3	1.4	0.61
Fluoride	T	mg/L	3	100	No SLC			0.32	0.73	0.46	0.34
Hardness	T	mg/L	3	100	No SLC			70.9	183	112	81.8
Hydroxide (as CaCO3)	T	mg/L	3	0	No SLC	1	1	ND	ND		
Nitrate	T	mg/L	3	33.3	No SLC	0.2	0.2	ND	0.23		
Nitrite	T	mg/L	3	0	No SLC	0.005	0.005	ND	ND		
pH	T	SU	3	100	No SLC			7.7	10.1	8.8	8.5
Phosphate, Ortho As P	T	mg/L	3	33.3	No SLC	0.01	0.01	ND	0.013		
Phosphorus	T	mg/L	3	100	No SLC			0.017	0.027	0.023	0.026
Specific Conductance	T	umhos/cm	3	100	No SLC			149	322	209	156
Sulfate	T	mg/L	3	100	No SLC			24.3	132	62.7	31.9
Total Alkalinity	T	mg/L	3	100	No SLC			50.7	58.3	55.7	58.2
Total Dissolved Solids	T	mg/L	3	100	No SLC			150	250	190	170
Total Kjeldahl Nitrogen	T	mg/L	3	0	No SLC	0.24	0.24	ND	ND		
Total Suspended Solids	T	mg/L	3	100	No SLC			5.5	7.2	6.5	6.8
Metals											
Aluminum	D	mg/L	3	33.3	No SLC	0.63	0.63	ND	0.37		
Antimony	D	mg/L	3	0	No SLC	0.001	0.001	ND	ND		
Arsenic	D	mg/L	3	0	No SLC	0.0004	0.0004	ND	ND		
Barium	D	mg/L	3	100	No SLC			0.018	0.033	0.025	0.025
Beryllium	D	mg/L	3	0	No SLC	0.0002	0.00051	ND	ND		
Boron	D	mg/L	3	33.3	No SLC	0.0048	0.011	ND	0.0048		
Cadmium	D	mg/L	3	0	No SLC	0.0003	0.0006	ND	ND		
Calcium	D	mg/L	3	100	No SLC			22.5	52.8	33.7	25.7
Chromium	D	mg/L	3	0	No SLC	0.0006	0.0014	ND	ND		
Cobalt	D	mg/L	3	33.3	No SLC	0.0018	0.002	ND	0.0029		

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
 Median Value determined using 1/2 the Reporting Limit value for Non-Detects if greater than 50% of the values were detected.
 Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if greater than 50% of the values were detected.

T = Total Fraction
 D = Filtered Fraction (0.45 micron filter)
 A = Filtered Fraction (0.1 micron filter)
 ND = Non-Detected Value

Table 13-5
Garden Produce - Irrigation Water
RI/FS - Gardens
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Copper	D	mg/L	3	66.7	No SLC	0.0024	0.0024	ND	0.0051	0.0036	0.0045
Iron	D	mg/L	3	0	No SLC	0.17	0.67	ND	ND		
Lead	D	mg/L	3	0	No SLC	0.0002	0.0002	ND	ND		
Magnesium	D	mg/L	3	100	No SLC			3.5	11.2	6.1	3.7
Manganese	D	mg/L	3	33.3	No SLC	0.007	0.019	ND	0.091		
Mercury	D	mg/L	3	0	No SLC	0.0001	0.0001	ND	ND		
Molybdenum	D	mg/L	3	33.3	No SLC	0.00068	0.0017	ND	0.0038		
Nickel	D	mg/L	3	33.3	No SLC	0.002	0.0021	ND	0.0071		
Potassium	D	mg/L	3	100	No SLC			0.96	1.3	1.1	1
Selenium	D	mg/L	3	0	No SLC	0.0016	0.0016	ND	ND		
Silver	D	mg/L	3	0	No SLC	0.0002	0.0009	ND	ND		
Sodium	D	mg/L	3	33.3	No SLC	2.2	5.3	ND	11.9		
Thallium	D	mg/L	3	0	No SLC	0.0002	0.0002	ND	ND		
Vanadium	D	mg/L	3	66.7	No SLC	0.0004	0.0004	ND	0.00053	0.00042	0.00053
Zinc	D	mg/L	3	0	No SLC	0.016	0.057	ND	ND		
Aluminum	T	mg/L	3	33.3	No SLC	0.63	0.63	ND	0.73		
Antimony	T	mg/L	3	0	No SLC	0.001	0.0015	ND	ND		
Arsenic	T	mg/L	3	0	No SLC	0.0004	0.0004	ND	ND		
Barium	T	mg/L	3	100	No SLC			0.019	0.038	0.028	0.027
Beryllium	T	mg/L	3	0	No SLC	0.0002	0.00051	ND	ND		
Boron	T	mg/L	3	0	No SLC	0.0046	0.011	ND	ND		
Cadmium	T	mg/L	3	0	No SLC	0.0003	0.0006	ND	ND		
Calcium	T	mg/L	3	100	No SLC			22.5	54.1	34.3	26.4
Chromium	T	mg/L	3	0	No SLC	0.0006	0.0014	ND	ND		
Cobalt	T	mg/L	3	0	No SLC	0.0018	0.002	ND	ND		
Copper	T	mg/L	3	33.3	No SLC	0.0014	0.0024	ND	0.0088		
Iron	T	mg/L	3	33.3	No SLC	0.67	0.72	ND	0.27		
Lead	T	mg/L	3	33.3	No SLC	0.0002	0.00023	ND	0.00092		
Magnesium	T	mg/L	3	100	No SLC			3.6	11.6	6.3	3.8
Manganese	T	mg/L	3	33.3	No SLC	0.007	0.019	ND	0.12		
Mercury	T	mg/L	3	0	No SLC	0.0001	0.0001	ND	ND		
Molybdenum	T	mg/L	3	33.3	No SLC	0.00069	0.0017	ND	0.0048		

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if greater than 50% of the values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if greater than 50% of the values were detected.

T = Total Fraction
D = Filtered Fraction (0.45 micron filter)
A = Filtered Fraction (0.1 micron filter)
ND = Non-Detected Value

Table 13-5
Garden Produce - Irrigation Water
RI/FS - Gardens
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Nickel	T	mg/L	3	33.3	No SLC	0.002	0.0021	ND	0.0084		
Potassium	T	mg/L	3	100	No SLC			1	1.5	1.2	1.1
Selenium	T	mg/L	3	0	No SLC	0.0016	0.0016	ND	ND		
Silver	T	mg/L	3	0	No SLC	0.0002	0.0009	ND	ND		
Sodium	T	mg/L	3	33.3	No SLC	2.2	5.3	ND	6.2		
Thallium	T	mg/L	3	0	No SLC	0.0002	0.0002	ND	ND		
Vanadium	T	mg/L	3	100	No SLC			0.00043	0.00083	0.00062	0.00061
Zinc	T	mg/L	3	0	No SLC	0.016	0.096	ND	ND		

"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if greater than 50% of the values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if greater than 50% of the values were detected.

T = Total Fraction
D = Filtered Fraction (0.45 micron filter)
A = Filtered Fraction (0.1 micron filter)
ND = Non-Detected Value

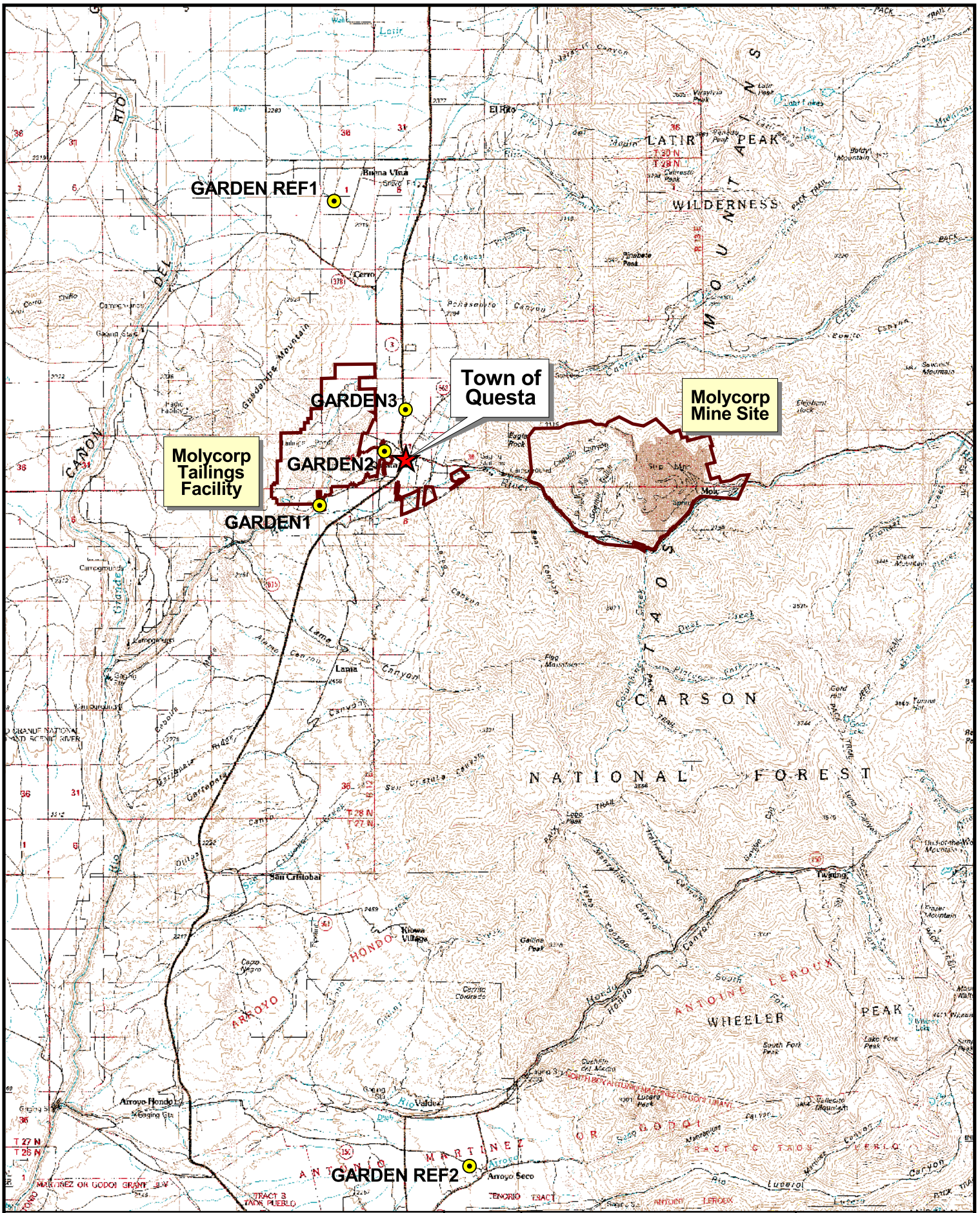
Table 13-6
Garden Produce - Edible Plant
RI/FS - Gardens
Summary of Results

Analyte	Sample Fraction	Units	Total Number of Samples	Percent Detects (%)	SLC	Min RL for ND	Max RL for ND	Min Value	Max Value	Mean Value	Median Value
Inorganics											
Solids, Percent	T	%	7	100	No SLC			2.9	14.9	9.3	9.7
Metals											
Aluminum	T	mg/Kg	7	14.3	No SLC	1.5	9.7	ND	18.1		
Antimony	T	mg/Kg	7	0	No SLC	0.44	0.49	ND	ND		
Arsenic	T	mg/Kg	7	0	No SLC	0.18	0.19	ND	ND		
Barium	T	mg/Kg	7	71.4	No SLC	0.6	0.66	ND	2.3	1.3	1.8
Beryllium	T	mg/Kg	7	0	No SLC	0.016	0.02	ND	ND		
Boron	T	mg/Kg	7	100	No SLC			1.2	3.7	2.5	2.3
Cadmium	T	mg/Kg	7	14.3	No SLC	0.025	0.029	ND	0.032		
Calcium	T	mg/Kg	7	100	No SLC			96.2	1530	605	535
Chromium	T	mg/Kg	7	14.3	No SLC	0.18	0.19	ND	0.22		
Cobalt	T	mg/Kg	7	0	No SLC	0.15	0.18	ND	ND		
Copper	T	mg/Kg	7	42.9	No SLC	0.22	0.74	ND	1		
Iron	T	mg/Kg	7	42.9	No SLC	1.4	6.9	ND	18.5		
Lead	T	mg/Kg	7	0	No SLC	0.12	0.15	ND	ND		
Magnesium	T	mg/Kg	7	100	No SLC			90	372	219	214
Manganese	T	mg/Kg	7	100	No SLC			0.45	9.5	4.3	2.9
Mercury	T	mg/Kg	7	0	No SLC	0.015	0.016	ND	ND		
Molybdenum	T	mg/Kg	7	28.6	No SLC	0.13	0.16	ND	2.1		
Nickel	T	mg/Kg	7	0	No SLC	0.16	0.2	ND	ND		
Potassium	T	mg/Kg	7	100	No SLC			1930	4350	2940	2750
Selenium	T	mg/Kg	7	0	No SLC	0.26	0.29	ND	ND		
Silver	T	mg/Kg	7	0	No SLC	0.074	0.088	ND	ND		
Sodium	T	mg/Kg	7	0	No SLC	21.5	123	ND	ND		
Thallium	T	mg/Kg	7	0	No SLC	0.088	0.097	ND	ND		
Vanadium	T	mg/Kg	7	0	No SLC	0.18	0.22	ND	ND		
Zinc	T	mg/Kg	7	71.4	No SLC	2.5	3.5	ND	5.4	3.3	3.4

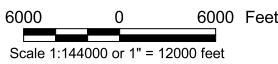
"No SLC" indicates that there is not a Screening Level Criterion for this medium specified for the RI/FS.
Median Value determined using 1/2 the Reporting Limit value for Non-Detects if greater than 50% of the values were detected.
Mean Value calculated using 1/2 the Reporting Limit for Non-Detects if greater than 50% of the values were detected.

T = Total Fraction
D = Filtered Fraction (0.45 micron filter)
A = Filtered Fraction (0.1 micron filter)
ND = Non-Detected Value

SECTION 13
GARDEN PRODUCE
FIGURES



● Garden Location



URS

URS Center
8181 East Tufts Avenue
Denver, CO 80237-2637
(303) 694-2770

APPLICATION	ArcView GIS
FILE NAME	veg_techmemo.apr
DRAWN BY	GCK - Denver
DATE	3/16/05

MOLYCORP - QUESTA MINE RI/FS

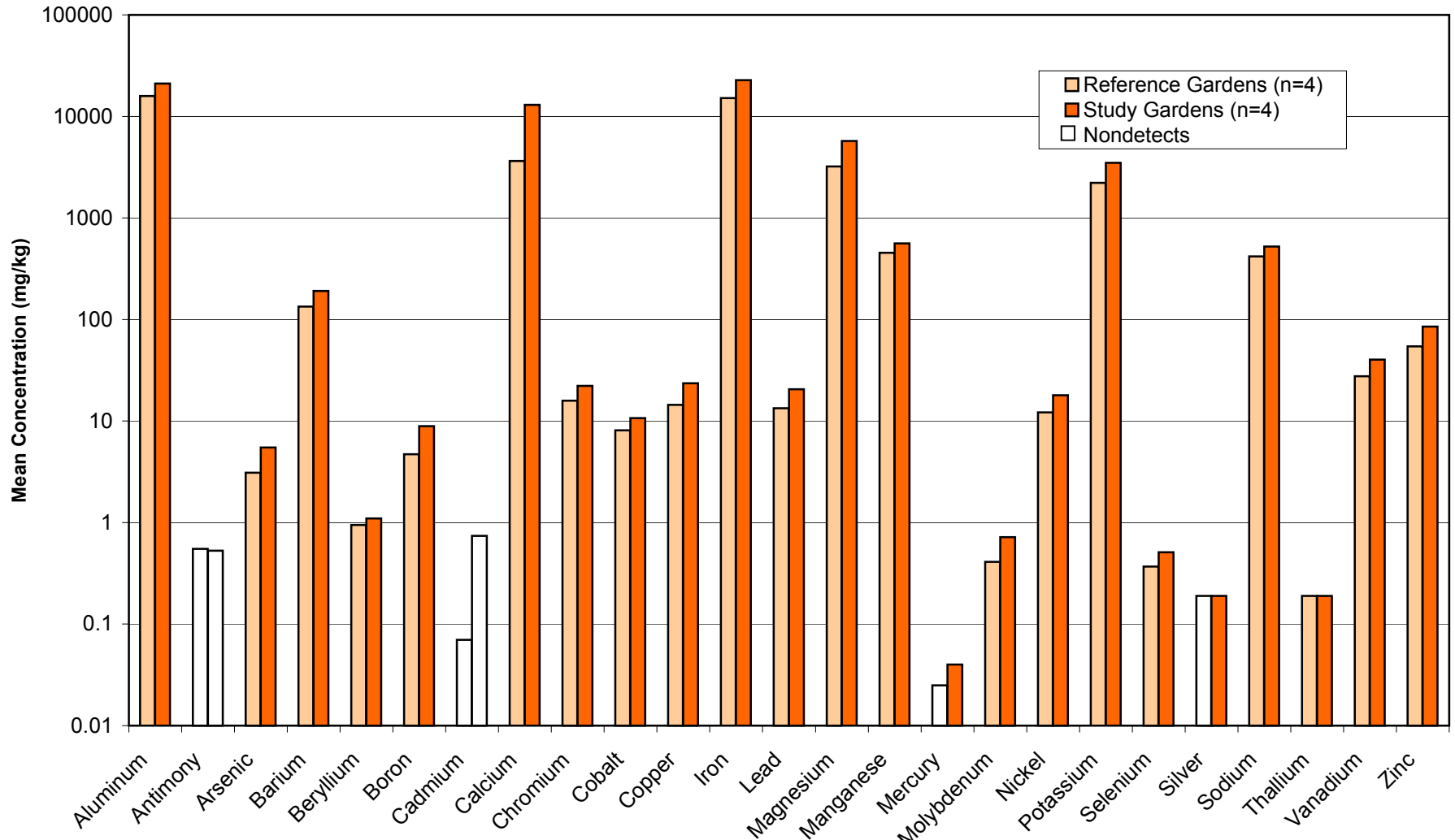
PROJECT 22236244

GARDEN LOCATIONS

Figure 13-1

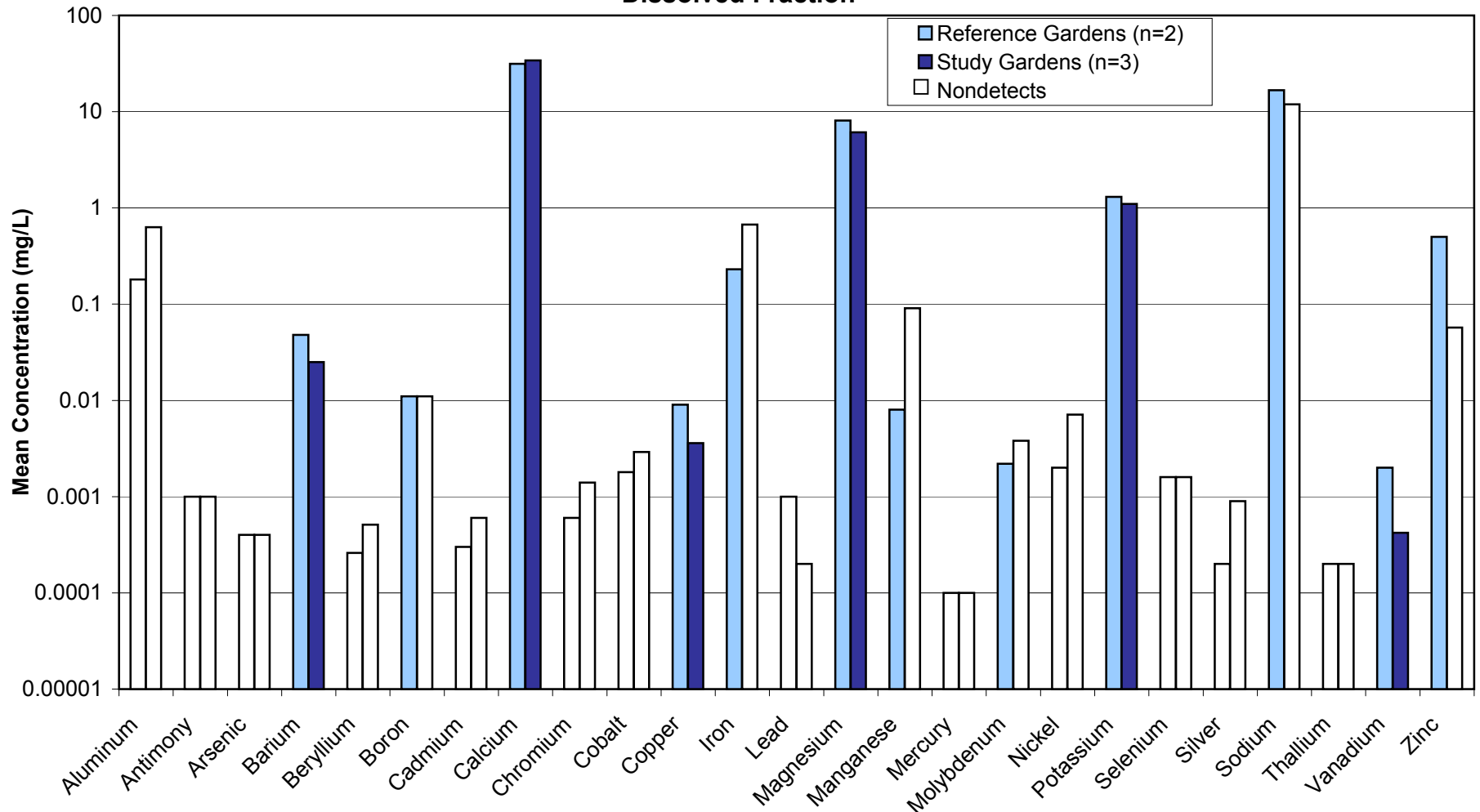
Preliminary Site
Characterization Report

Figure 13-2
Mean Metal Concentrations in Garden Soils



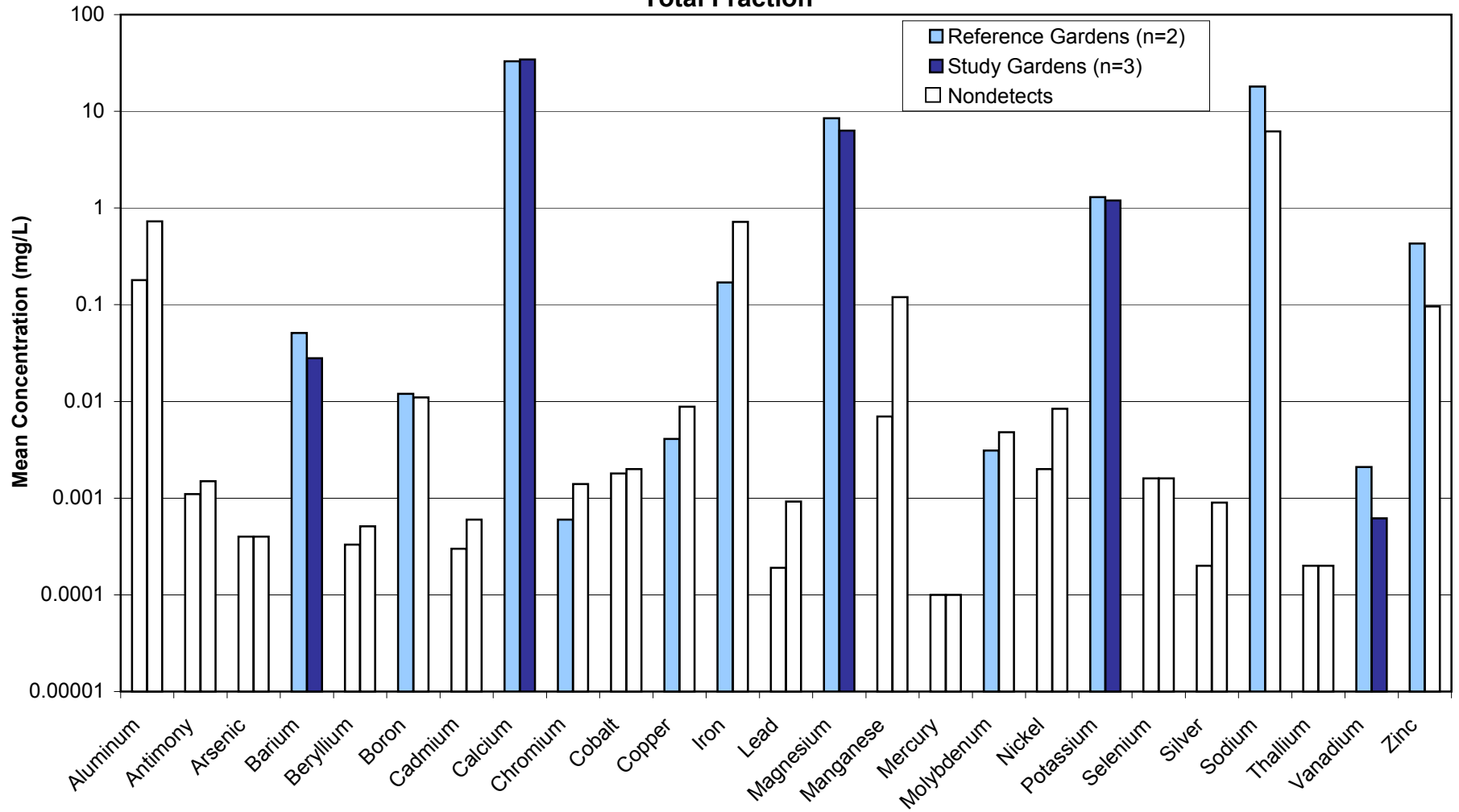
Note: White bars indicate that 50% or more of the values were not detected, and a mean was not calculated. In these cases, the maximum detected value or the maximum reporting limit, whichever was greater, was plotted.

Figure 13-3
Mean Concentrations of Metals in Irrigation Water
Dissolved Fraction



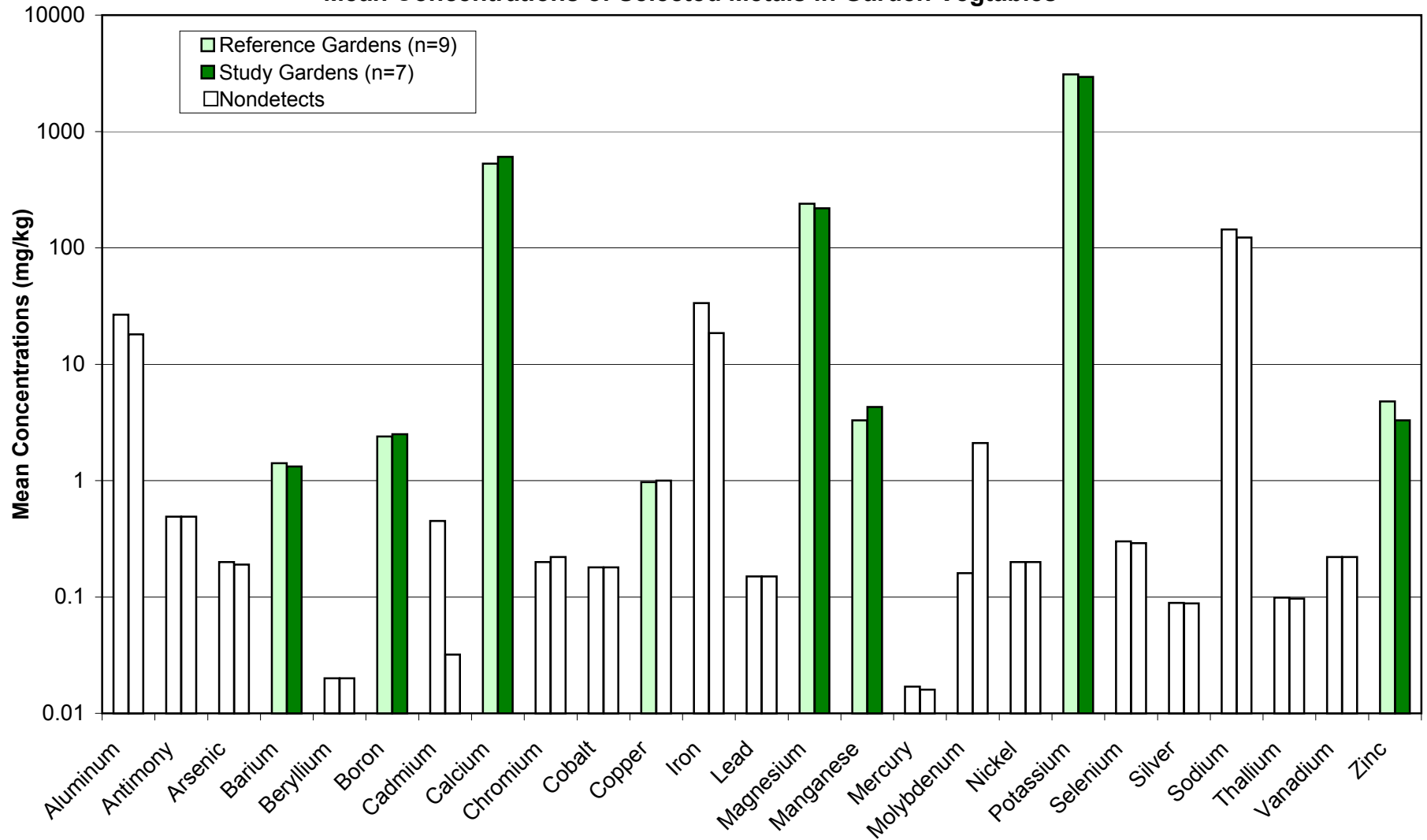
Note: White bars indicate that 50% or more of the values were not detected, and a mean was not calculated. In these cases, the maximum detected value or the maximum reporting limit, whichever was greater, was plotted.

Figure 13-4
Mean Concentrations of Metals in Irrigation Water
Total Fraction



Note: White bars indicate that 50% or more of the values were not detected, and a mean was not calculated. In these cases, the maximum detected value or the maximum reporting limit, whichever was greater, was plotted.

Figure 13-5
Mean Concentrations of Selected Metals in Garden Vegetables



Note: White bars indicate that 50% or more of the values were not detected, and a mean was not calculated. In these cases, the maximum detected value or the maximum reporting limit, whichever was greater, was plotted.

APPENDIX A-13
GARDEN PRODUCE
VALIDATED ANALYTICAL RESULTS

Appendix A-13a
Garden Produce - Root Zone Soils
Validated Analytical Results

Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	Garden 1	Garden 1	Garden 1 Reference	Garden 1 Reference	Garden 2	Garden 2 Reference
			8/6/2003 GARDEN1-LET-T01 N-SOL GARD	8/6/2003 GARDEN1-BNS-T02 N-SOL GARD	8/10/2003 GARDENREF1-LET- T02N-SOL RGARD	8/10/2003 GARDENREF1-BNS- T02N-SOL RGARD	8/7/2003 GARDEN2-BNS-T02 N-SOL GARD	8/12/2003 GARDENREF2-ZUC- T01N-SOL RGARD
General Chemistry								
Ammonia	mg/kg-dry	T	107. :	70.8 :	55. :	42.6 :	37. :	110. :
Chloride	mg/kg-dry	T	3.4 :	9.2 :	29.1 :	31.2 :	<2.5 :	7.9 :
Fluoride	mg/kg-dry	T	0.35 :	0.6 :	<0.21 :	<0.21 :	0.47 :	0.67 :
Nitrate	mg/kg-dry	T	14.9 J	53.8 J	153. J	150. J	<2.5 J	6.9 J
Phosphorus	mg/kg-dry	T	217. :	508. :	763. :	999. :	299. :	808. :
Sulfate	mg/kg-dry	T	46. :	114. :	350. :	649. :	4.2 :	46. :
Total Kjeldahl Nitrogen	mg/kg-dry	T	367. :	358. :	227. :	181. :	238. :	1640. J
Total Organic Carbon	mg/kg-dry	T	23400. :	24500. :	14100. :	6090. :	11700. :	14900. :
Laboratory Parameters								
pH	SU	T	8. :	7.7 :	6.7 :	6.8 :	8.7 :	8.3 :
Solids, Percent	%	T	86.3 :	83.4 :	97.2 :	97.3 :	83.3 :	81.8 :
Specific Conductance	umhos/cm	T	252. :	537. :	1700. :	1900. :	128. :	253. :
Geotechnical								
Organic Soils	%	T	6.1 :	6.2 :	4.1 :	3.4 :	5.8 :	5.4 :
Physical Properties								
Cation-Exchange Capacity	meq/100g	T	19.9 :	22.6 :	21.6 :	18.2 :	26.8 :	34.1 :
Sodium Absorption Ratio	ratio	T	0.21 :	0.21 :	1.28 :	1.37 :	0.12 :	0.95 :
Metals								
Aluminum	mg/kg-dry	T	19200. :	17600. :	11800. :	12600. :	23600. :	15800. :
Antimony	mg/kg-dry	T	<0.45 :	<0.45 :	<0.41 :	<0.47 :	<0.53 :	<0.47 :
Arsenic	mg/kg-dry	T	5.8 :	6.1 :	2.4 :	2.8 :	5.3 :	3.1 :
Barium	mg/kg-dry	T	172. :	144. :	75.7 :	90.2 :	222. :	144. :
Beryllium	mg/kg-dry	T	1.1 :	1.1 :	0.86 :	0.93 :	1.1 :	0.92 :
Boron	mg/kg-dry	T	9.5 :	7.9 :	3.7 :	3.5 :	9. :	4.5 :
Cadmium	mg/kg-dry	T	<0.067 :	<0.074 :	0.073 :	0.14 :	<0.065 :	<0.062 :
Calcium	mg/kg-dry	T	8810. :	7230. :	2570. :	2960. :	16700. :	3670. :
Chromium	mg/kg-dry	T	24.5 :	25.3 :	14.3 :	16.3 :	19.6 :	14. :
Cobalt	mg/kg-dry	T	10.6 :	10.4 :	7.4 :	8.3 :	11. :	6.8 :
Copper	mg/kg-dry	T	25.9 :	28.8 :	13.5 :	15.3 :	19.9 :	11.5 :
Iron	mg/kg-dry	T	22300. :	22100. :	12400. :	14200. :	23300. :	14100. :
Lead	mg/kg-dry	T	21.9 :	26.3 :	14.3 :	16.2 :	16.5 :	9.5 :
Magnesium	mg/kg-dry	T	5130. :	5390. :	2450. :	2960. :	6160. :	3060. :
Manganese	mg/kg-dry	T	546. :	613. :	411. :	594. :	549. :	317. :

J = Qualified as estimated during data validation

R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

R:\Projects\22236252_Database_Management\Task_01\7.0_Project_Working_files\TechMemo\Appendix\ZZZ-TechMemoII-F_Sections 13 Garden Produce\appendix a-13a.rpt

Appendix A-13a
Garden Produce - Root Zone Soils
Validated Analytical Results

Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	Garden 1	Garden 1	Garden 1 Reference	Garden 1 Reference	Garden 2	Garden 2 Reference
			8/6/2003 GARDEN1-LET-T01 N-SOL GARD	8/6/2003 GARDEN1-BNS-T02 N-SOL GARD	8/10/2003 GARDENREF1-LET- T02N-SOL RGARD	8/10/2003 GARDENREF1-BNS- T02N-SOL RGARD	8/7/2003 GARDEN2-BNS-T02 N-SOL GARD	8/12/2003 GARDENREF2-ZUC- T01N-SOL RGARD
Mercury	mg/kg-dry	T	0.043	0.062	0.02	0.036	0.026	0.024
Molybdenum	mg/kg-dry	T	4.1	3.3	0.6	0.72	1.3	<0.33
Nickel	mg/kg-dry	T	19.3	21.6	10.1	14.8	15.6	9.9
Potassium	mg/kg-dry	T	3680. J	3330. J	2150. J	1770. J	3270. J	1990. J
Selenium	mg/kg-dry	T	0.53	0.51	0.45	0.44	0.43	0.42
Silver	mg/kg-dry	T	0.17 J	<0.16	<0.13	<0.12	0.26 J	<0.13
Sodium	mg/kg-dry	T	470.	391.	402.	428.	613.	343.
Thallium	mg/kg-dry	T	0.18	0.15	0.19	0.16	0.2	0.2
Vanadium	mg/kg-dry	T	37.6	33.3	21.9	24.3	44.7	26.9
Zinc	mg/kg-dry	T	89.8	109.	58.1	70.1	62.4	36.7

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Appendix A-13a
Garden Produce - Root Zone Soils
Validated Analytical Results

Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	Garden 2 Reference	Garden 3	---	---	---	---
			8/12/2003 GARDENREF2-BNS- T01N-SOL RGARD	8/7/2003 GARDEN3-BNS-T02 N-SOL GARD				
General Chemistry								
Ammonia	mg/kg-dry	T	112. J	50.2 :	-	-	-	-
Chloride	mg/kg-dry	T	21.4 :	<2.4 :	-	-	-	-
Fluoride	mg/kg-dry	T	0.34 :	0.38 :	-	-	-	-
Nitrate	mg/kg-dry	T	64.6 J	2.9 J	-	-	-	-
Phosphorus	mg/kg-dry	T	1400. :	142. :	-	-	-	-
Sulfate	mg/kg-dry	T	102. :	7.1 :	-	-	-	-
Total Kjeldahl Nitrogen	mg/kg-dry	T	1640. :	1050. :	-	-	-	-
Total Organic Carbon	mg/kg-dry	T	31600. :	12900. :	-	-	-	-
Laboratory Parameters								
pH	SU	T	7.6 :	8.4 :	-	-	-	-
Solids, Percent	%	T	79.6 :	86.2 :	-	-	-	-
Specific Conductance	umhos/cm	T	785. :	116. :	-	-	-	-
Geotechnical								
Organic Soils	%	T	6.1 :	5.6 :	-	-	-	-
Physical Properties								
Cation-Exchange Capacity	meq/100g	T	38.5 :	23.2 :	-	-	-	-
Sodium Absorption Ratio	ratio	T	1.22 :	0.14 :	-	-	-	-
Metals								
Aluminum	mg/kg-dry	T	23200. :	23900. :	-	-	-	-
Antimony	mg/kg-dry	T	<0.55 :	<0.46 :	-	-	-	-
Arsenic	mg/kg-dry	T	4.1 :	4.8 :	-	-	-	-
Barium	mg/kg-dry	T	226. :	226. :	-	-	-	-
Beryllium	mg/kg-dry	T	1.1 :	1.1 :	-	-	-	-
Boron	mg/kg-dry	T	7.2 :	9.4 :	-	-	-	-
Cadmium	mg/kg-dry	T	<0.068 :	<0.066 :	-	-	-	-
Calcium	mg/kg-dry	T	5350. :	19300. :	-	-	-	-
Chromium	mg/kg-dry	T	19. :	19.4 :	-	-	-	-
Cobalt	mg/kg-dry	T	9.8 :	10.8 :	-	-	-	-
Copper	mg/kg-dry	T	17.4 :	19.7 :	-	-	-	-
Iron	mg/kg-dry	T	20100. :	23400. :	-	-	-	-
Lead	mg/kg-dry	T	13.4 :	17.7 :	-	-	-	-
Magnesium	mg/kg-dry	T	4360. :	6270. :	-	-	-	-
Manganese	mg/kg-dry	T	494. :	541. :	-	-	-	-

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Appendix A-13a
Garden Produce - Root Zone Soils
Validated Analytical Results

Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	Garden 2 Reference	Garden 3	---	---	---	---
			8/12/2003 GARDENREF2-BNS- T01N-SOL RGARD	8/7/2003 GARDEN3-BNS-T02 N-SOL GARD				
Mercury	mg/kg-dry	T	<0.02	0.029	-	-	-	-
Molybdenum	mg/kg-dry	T	<0.29 J	1.3	-	-	-	-
Nickel	mg/kg-dry	T	13.9	15.3	-	-	-	-
Potassium	mg/kg-dry	T	2970. J	3660. J	-	-	-	-
Selenium	mg/kg-dry	T	<0.33	0.57	-	-	-	-
Silver	mg/kg-dry	T	0.19 J	0.23 J	-	-	-	-
Sodium	mg/kg-dry	T	504.	618.	-	-	-	-
Thallium	mg/kg-dry	T	0.22	0.23	-	-	-	-
Vanadium	mg/kg-dry	T	37.3	45.5	-	-	-	-
Zinc	mg/kg-dry	T	53.3	78.2	-	-	-	-

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T = Total Fraction

Appendix A-13b
Garden Produce - Irrigation Water
Validated Analytical Results

Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	Garden 1	Garden 1	Garden 1 Reference	Garden 1 Reference	Garden 2	Garden 2
			8/6/2003 GARDEN1-T01N-IR W GARD	8/6/2003 GARDEN1-D01N-IR W GARD	8/10/2003 GARDENREF1-T01 N-GRW RGARD	8/10/2003 GARDENREF1-D01 N-GRW RGARD	8/9/2003 GARDEN2-T01N-IR W GARD	8/9/2003 GARDEN2-D01N-IR W GARD
General Chemistry								
Ammonia	mg/L	T	<0.04	-	0.041	-	0.054	-
Bicarbonate (as CaCO3)	mg/L	T	58.2	-	90.1	-	58.3	-
Biochemical Oxygen Demand	mg/L	T	<1.5	-	<1.4	J	R	-
Carbonate (as CaCO3)	mg/L	T	<1.	-	<1.	-	<1.	-
Chemical Oxygen Demand	mg/L	T	<20.	-	49.	-	<20.	-
Chloride	mg/L	T	3.3	-	1.8	-	0.61	-
Fluoride	mg/L	T	0.73	-	0.73	-	0.32	-
Hydroxide (as CaCO3)	mg/L	T	<1.	-	<1.	-	<1.	-
Nitrate	mg/L	T	0.23	-	0.59	-	<0.2	J
Nitrite	mg/L	T	<0.005	-	<0.005	J	<0.005	J
Phosphate, Ortho As P	mg/L	T	<0.01	-	0.071	J	0.013	J
Phosphorus	mg/L	T	0.027	-	0.076	-	0.026	-
Sulfate	mg/L	T	132.	J	14.7	J	24.3	J
Total Alkalinity	mg/L	T	58.2	-	90.1	-	58.3	-
Total Dissolved Solids	mg/L	T	250.	-	180.	-	150.	-
Total Kjeldahl Nitrogen	mg/L	T	<0.24	-	<0.24	-	<0.24	-
Total Suspended Solids	mg/L	T	7.2	J	<0.5	J	5.5	J
Laboratory Parameters								
pH	SU	T	10.1	J	7.2	J	7.7	J
Specific Conductance	umhos/cm	T	322.	-	187.	-	156.	-
Physical Properties								
Hardness	mg/L	T	183.	-	80.4	-	81.8	-
Hardness	mg/L	D	-	178.	-	71.4	-	79.1
Metals								
Aluminum	mg/L	T	<0.631	-	0.277	-	0.725	-
Antimony	mg/L	T	<0.0015	-	<0.0011	-	<0.001	-
Arsenic	mg/L	T	<0.0004	-	<0.0004	-	<0.0004	-
Barium	mg/L	T	0.0376	-	0.0639	-	0.0271	-
Beryllium	mg/L	T	<0.0002	-	<0.00033	-	<0.00051	-
Boron	mg/L	T	<0.0112	-	0.006	-	<0.0046	-
Cadmium	mg/L	T	<0.0006	-	<0.0003	-	<0.0003	-
Calcium	mg/L	T	54.1	-	24.4	-	26.4	-
Chromium	mg/L	T	<0.0014	-	0.00072	-	<0.0006	-

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T = Total Fraction D = Dissolved Fraction

Appendix A-13b
Garden Produce - Irrigation Water
Validated Analytical Results

Parameter	Site ID		Garden 1	Garden 1	Garden 1 Reference	Garden 1 Reference	Garden 2	Garden 2
	Sample Date		8/6/2003	8/6/2003	8/10/2003	8/10/2003	8/9/2003	8/9/2003
	Sample ID		GARDEN1-T01N-IR	GARDEN1-D01N-IR	GARDENREF1-T01	GARDENREF1-D01	GARDEN2-T01N-IR	GARDEN2-D01N-IR
Exposure Area		W	W	N-GRW	N-GRW	W	W	
Units	Fraction	GARD	GARD	RGARD	RGARD	GARD	GARD	
Cobalt	mg/L	T	<0.002	-	<0.0018	-	<0.0018	-
Copper	mg/L	T	0.0088	-	0.0028	J	<0.0014	J
Iron	mg/L	T	<0.717	-	0.205	-	0.267	-
Lead	mg/L	T	0.00092	-	<0.0019	-	<0.00023	-
Magnesium	mg/L	T	11.6	-	4.73	-	3.84	-
Manganese	mg/L	T	0.124	-	<0.007	-	<0.007	-
Mercury	mg/L	T	<0.0001	-	<0.0001	-	<0.0001	-
Molybdenum	mg/L	T	0.0048	-	0.0034	-	<0.00069	-
Nickel	mg/L	T	0.0084	J	<0.002	J	<0.002	J
Potassium	mg/L	T	1.47	-	1.21	-	1.	-
Selenium	mg/L	T	<0.0016	-	<0.0016	-	<0.0016	-
Silver	mg/L	T	<0.0009	J	<0.0002	-	<0.0002	-
Sodium	mg/L	T	6.2	-	11.1	J	<2.19	J
Thallium	mg/L	T	<0.0002	-	<0.0002	-	<0.0002	-
Vanadium	mg/L	T	0.00043	-	0.0013	-	0.00083	-
Zinc	mg/L	T	<0.0963	-	0.0906	-	<0.057	-
Aluminum	mg/L	D	-	<0.631	-	<0.183	-	0.373
Antimony	mg/L	D	-	<0.001	-	<0.001	-	<0.001
Arsenic	mg/L	D	-	<0.0004	-	<0.0004	-	<0.0004
Barium	mg/L	D	-	0.0334	-	0.0581	-	0.0254
Beryllium	mg/L	D	-	<0.0002	-	<0.00026	-	<0.00051
Boron	mg/L	D	-	<0.0105	-	0.0056	-	0.0048
Cadmium	mg/L	D	-	<0.0006	-	<0.0003	-	<0.0003
Calcium	mg/L	D	-	52.8	-	21.6	-	25.7
Chromium	mg/L	D	-	<0.0014	-	<0.0006	-	<0.0006
Cobalt	mg/L	D	-	0.0029	-	<0.0018	-	<0.0018
Copper	mg/L	D	-	0.0045	-	<0.0014	J	0.0051
Iron	mg/L	D	-	<0.667	-	0.226	-	<0.168
Lead	mg/L	D	-	<0.0002	-	<0.001	-	<0.0002
Magnesium	mg/L	D	-	11.2	-	4.22	-	3.66
Manganese	mg/L	D	-	0.0905	-	<0.007	-	<0.007
Mercury	mg/L	D	-	<0.0001	-	<0.0001	-	<0.0001
Molybdenum	mg/L	D	-	0.0038	-	0.0034	-	<0.00068
Nickel	mg/L	D	-	0.0071	J	<0.002	J	<0.002

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Appendix A-13b
Garden Produce - Irrigation Water
Validated Analytical Results

Appendix A

Revision No. 0

April 4, 2005

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Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	Garden 1	Garden 1	Garden 1 Reference	Garden 1 Reference	Garden 2	Garden 2
			8/6/2003 GARDEN1-T01N-IR W GARD	8/6/2003 GARDEN1-D01N-IR W GARD	8/10/2003 GARDENREF1-T01 N-GRW RGARD	8/10/2003 GARDENREF1-D01 N-GRW RGARD	8/9/2003 GARDEN2-T01N-IR W GARD	8/9/2003 GARDEN2-D01N-IR W GARD
Potassium	mg/L	D	-	1.31	-	1.26	-	0.955
Selenium	mg/L	D	-	<0.0016	-	<0.0016	-	<0.0016
Silver	mg/L	D	-	<0.0009	-	<0.0002	-	<0.0002
Sodium	mg/L	D	-	11.9	-	11.	-	<2.19
Thallium	mg/L	D	-	<0.0002	-	<0.0002	-	<0.0002
Vanadium	mg/L	D	-	<0.0004	-	0.0012	-	0.00053
Zinc	mg/L	D	-	<0.0536	-	0.221	-	<0.057

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D = Dissolved Fraction

Appendix A-13b
Garden Produce - Irrigation Water
Validated Analytical Results

Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	Garden 2 Reference	Garden 2 Reference	Garden 3	Garden 3	----	----
			8/12/2003 GARDENREF2-T01 N-GRW RGARD	8/12/2003 GARDENREF2-D01 N-GRW RGARD	8/12/2003 GARDEN3-T01N-IR W GARD	8/12/2003 GARDEN3-D01N-IR W GARD		
General Chemistry								
Ammonia	mg/L	T	<0.04	-	<0.04	-	-	-
Bicarbonate (as CaCO3)	mg/L	T	181.	-	48.3	-	-	-
Biochemical Oxygen Demand	mg/L	T	<1.3	J	<1.3	J	-	-
Carbonate (as CaCO3)	mg/L	T	<1.	-	2.4	-	-	-
Chemical Oxygen Demand	mg/L	T	<20.	-	<20.	-	-	-
Chloride	mg/L	T	2.4	-	0.34	-	-	-
Fluoride	mg/L	T	0.56	-	0.34	-	-	-
Hydroxide (as CaCO3)	mg/L	T	<1.	-	<1.	-	-	-
Nitrate	mg/L	T	0.56	J	<0.2	J	-	-
Nitrite	mg/L	T	<0.005	J	<0.005	J	-	-
Phosphate, Ortho As P	mg/L	T	0.018	J	<0.01	J	-	-
Phosphorus	mg/L	T	0.026	-	0.017	-	-	-
Sulfate	mg/L	T	9.	J	31.9	J	-	-
Total Alkalinity	mg/L	T	181.	-	50.7	-	-	-
Total Dissolved Solids	mg/L	T	204.	-	170.	-	-	-
Total Kjeldahl Nitrogen	mg/L	T	<0.24	-	<0.24	-	-	-
Total Suspended Solids	mg/L	T	1.2	J	6.8	J	-	-
Laboratory Parameters								
pH	SU	T	7.4	J	8.5	J	-	-
Specific Conductance	umhos/cm	T	318.	-	149.	-	-	-
Physical Properties								
Hardness	mg/L	T	153.	-	70.9	-	-	-
Hardness	mg/L	D	-	152.	-	70.4	-	-
Metals								
Aluminum	mg/L	T	<0.183	-	<0.631	-	-	-
Antimony	mg/L	T	<0.001	-	<0.001	-	-	-
Arsenic	mg/L	T	<0.0004	-	<0.0004	-	-	-
Barium	mg/L	T	0.039	-	0.0185	-	-	-
Beryllium	mg/L	T	<0.00021	-	<0.0002	-	-	-
Boron	mg/L	T	0.0176	-	<0.0048	-	-	-
Cadmium	mg/L	T	<0.0003	-	<0.0006	-	-	-
Calcium	mg/L	T	41.4	-	22.5	-	-	-
Chromium	mg/L	T	<0.0006	-	<0.0014	-	-	-

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Appendix A-13b
Garden Produce - Irrigation Water
Validated Analytical Results

Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	Garden 2 Reference	Garden 2 Reference	Garden 3	Garden 3	----	----
			8/12/2003 GARDENREF2-T01 N-GRW RGARD	8/12/2003 GARDENREF2-D01 N-GRW RGARD	8/12/2003 GARDEN3-T01N-IR W GARD	8/12/2003 GARDEN3-D01N-IR W GARD		
Cobalt	mg/L	T	<0.0018	-	<0.002	-	-	-
Copper	mg/L	T	0.0053	-	<0.0024	-	-	-
Iron	mg/L	T	<0.168	-	<0.667	-	-	-
Lead	mg/L	T	<0.0002	-	<0.0002	-	-	-
Magnesium	mg/L	T	12.2	-	3.56	-	-	-
Manganese	mg/L	T	<0.007	-	<0.019	-	-	-
Mercury	mg/L	T	<0.0001	-	<0.0001	-	-	-
Molybdenum	mg/L	T	<0.0031	-	<0.0017	-	-	-
Nickel	mg/L	T	<0.002	J	<0.0021	J	-	-
Potassium	mg/L	T	1.31	J	1.07	J	-	-
Selenium	mg/L	T	<0.0016	-	<0.0016	-	-	-
Silver	mg/L	T	<0.0002	-	<0.0002	-	-	-
Sodium	mg/L	T	24.9	-	<5.32	J	-	-
Thallium	mg/L	T	<0.0002	-	<0.0002	-	-	-
Vanadium	mg/L	T	0.0029	-	0.00061	-	-	-
Zinc	mg/L	T	0.779	-	<0.016	-	-	-
Aluminum	mg/L	D	-	<0.183	-	<0.631	-	-
Antimony	mg/L	D	-	<0.001	-	<0.001	-	-
Arsenic	mg/L	D	-	<0.0004	-	<0.0004	-	-
Barium	mg/L	D	-	0.0386	-	0.0176	-	-
Beryllium	mg/L	D	-	<0.0002	-	<0.0002	-	-
Boron	mg/L	D	-	0.0169	-	<0.0048	-	-
Cadmium	mg/L	D	-	<0.0003	-	<0.0006	-	-
Calcium	mg/L	D	-	41.1	-	22.5	-	-
Chromium	mg/L	D	-	<0.0006	-	<0.0014	-	-
Cobalt	mg/L	D	-	<0.0018	-	<0.002	-	-
Copper	mg/L	D	-	0.009	-	<0.0024	-	-
Iron	mg/L	D	-	<0.168	-	<0.667	-	-
Lead	mg/L	D	-	<0.0002	-	<0.0002	-	-
Magnesium	mg/L	D	-	12.	-	3.47	-	-
Manganese	mg/L	D	-	0.008	-	<0.019	-	-
Mercury	mg/L	D	-	<0.0001	-	<0.0001	-	-
Molybdenum	mg/L	D	-	<0.0018	-	<0.0017	-	-
Nickel	mg/L	D	-	<0.002	J	<0.0021	J	-

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R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction D = Dissolved Fraction

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Appendix A-13b
Garden Produce - Irrigation Water
Validated Analytical Results

Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	Garden 2 Reference	Garden 2 Reference	Garden 3	Garden 3	----	----
			8/12/2003 GARDENREF2-T01 N-GRW RGARD	8/12/2003 GARDENREF2-D01 N-GRW RGARD	8/12/2003 GARDEN3-T01N-IR W GARD	8/12/2003 GARDEN3-D01N-IR W GARD		
Potassium	mg/L	D	-	1.36 J	-	1.02 J	-	-
Selenium	mg/L	D	-	<0.0016 :	-	<0.0016 :	-	-
Silver	mg/L	D	-	<0.0002 :	-	<0.0002 :	-	-
Sodium	mg/L	D	-	22.4 :	-	<5.32 J	-	-
Thallium	mg/L	D	-	<0.0002 :	-	<0.0002 :	-	-
Vanadium	mg/L	D	-	0.0027 :	-	0.00053 :	-	-
Zinc	mg/L	D	-	0.786 :	-	<0.016 :	-	-

J = Qualified as estimated during data validation

R = Qualified as rejected value from data validation and results are considered unusable for any purpose

T = Total Fraction

D = Dissolved Fraction

Appendix A-13c
Garden Produce - Edible Plants
Validated Analytical Results

Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	Garden 1	Garden 1	Garden 1	Garden 1 Reference	Garden 1 Reference	Garden 1 Reference
			8/6/2003 GARDEN1-ZUC-T01 N-VEG GARD	8/6/2003 GARDEN1-LET-T01 N-VEG GARD	8/6/2003 GARDEN1-BNS-T01 N-VEG GARD	8/10/2003 GARDENREF1-ZUC- T01N-VEG RGARD	8/10/2003 GARDENREF1-LET- T01N-VEG RGARD	8/10/2003 GARDENREF1-BNS- T01N-VEG RGARD
Laboratory Parameters								
Solids, Percent	%	T	7.3	9.7	10.7	6.5	9.8	7.6
Metals								
Aluminum	mg/Kg	T	<3.4	18.1	<3.6	<3.4	<9.9	<2.7
Antimony	mg/Kg	T	<0.49	<0.45	<0.48	<0.44	<0.48	<0.4
Arsenic	mg/Kg	T	<0.19	<0.18	<0.19	<0.18	<0.19	<0.16
Barium	mg/Kg	T	<0.66	1.8	0.83	<0.72	2.4	0.77
Beryllium	mg/Kg	T	<0.018	<0.018	<0.018	<0.02	<0.018	<0.017
Boron	mg/Kg	T	1.8	3.	2.3	2.	3.3	2.3
Cadmium	mg/Kg	T	<0.027	0.032	<0.028	<0.03	0.17	<0.026
Calcium	mg/Kg	T	126.	1530.	535.	171.	832.	438.
Chromium	mg/Kg	T	<0.19	0.22	<0.19	<0.18	<0.19	<0.16
Cobalt	mg/Kg	T	<0.16	<0.16	<0.17	<0.18	<0.16	<0.15
Copper	mg/Kg	T	<0.53	0.8	<0.74	1.3	<0.57	1.1
Iron	mg/Kg	T	<3.9	18.5	<6.9	<5.2	11.2	<5.7
Lead	mg/Kg	T	<0.14	<0.14	<0.14	<0.15	<0.13	<0.13
Magnesium	mg/Kg	T	139.	256.	214.	256.	195.	221.
Manganese	mg/Kg	T	1.	7.3	1.8	1.9	7.6	2.5
Mercury	mg/Kg	T	<0.015	<0.016	<0.016	<0.017	<0.016	<0.015
Molybdenum	mg/Kg	T	<0.14	<0.15	2.1	<0.16	<0.14	0.41
Nickel	mg/Kg	T	<0.18	<0.18	<0.18	<0.2	<0.18	<0.17
Potassium	mg/Kg	T	2060.	4350.	2500.	3510.	4220.	2280.
Selenium	mg/Kg	T	<0.29	<0.27	<0.29	<0.27	<0.29	<0.24
Silver	mg/Kg	T	<0.081	<0.082	<0.083	<0.089	<0.079	<0.077
Sodium	mg/Kg	T	<53.2	<123.	<35.8	<58.4	<144.	<28.
Thallium	mg/Kg	T	<0.097	<0.091	<0.095	<0.088	<0.095	<0.081
Vanadium	mg/Kg	T	<0.2	<0.2	<0.2	<0.22	<0.19	<0.19
Zinc	mg/Kg	T	<2.5	5.4	<3.5	7.	3.5	4.8

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Appendix A-13c
Garden Produce - Edible Plants
Validated Analytical Results

Appendix A

Revision No. 0

April 4, 2005

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Parameter	Site ID		Garden 2 8/7/2003 GARDEN2-BNS-T01 N-VEG GARD	Garden 2 Reference 8/12/2003 GARDENREF2-ZUC -T01N-VEG RGARD	Garden 2 Reference 8/12/2003 GARDENREF2-LET- T01N-VEG RGARD	Garden 2 Reference 8/12/2003 GARDENREF2-BNS- T01N-VEG RGARD	Garden 3 8/7/2003 GARDEN3-ZUC-T01 N-VEG GARD	Garden 3 8/7/2003 GARDEN3-LET-T01 N-VEG GARD
	Sample Date	Sample ID						
	Exposure Area							
	Units	Fraction						
Laboratory Parameters								
Solids, Percent	%	T	14.9	6.9	8.9	9.6	2.9	8.3
Metals								
Aluminum	mg/Kg	T	<5.6	<6.7	26.7	<8.8	<1.5	<6.7
Antimony	mg/Kg	T	<0.46	<0.47	<0.47	<0.4	<0.44	<0.48
Arsenic	mg/Kg	T	<0.18	<0.19	<0.19	<0.16	<0.18	<0.19
Barium	mg/Kg	T	2.3	<0.72	5.6	1.8	<0.6	1.8
Beryllium	mg/Kg	T	<0.019	<0.02	<0.017	<0.017	<0.016	<0.019
Boron	mg/Kg	T	3.7	1.8	3.	2.2	1.2	1.5
Cadmium	mg/Kg	T	<0.028	<0.03	0.061	<0.025	<0.025	<0.028
Calcium	mg/Kg	T	754.	182.	1430.	623.	96.2	664.
Chromium	mg/Kg	T	<0.18	<0.19	<0.19	<0.16	<0.18	<0.19
Cobalt	mg/Kg	T	<0.17	<0.18	<0.15	<0.15	<0.15	<0.17
Copper	mg/Kg	T	1.	0.92	<0.73	1.1	<0.22	<0.53
Iron	mg/Kg	T	10.1	<4.7	33.5	<7.8	<1.4	<5.6
Lead	mg/Kg	T	<0.14	<0.15	<0.14	<0.12	<0.12	<0.14
Magnesium	mg/Kg	T	372.	278.	406.	236.	90.	165.
Manganese	mg/Kg	T	9.5	1.7	6.	2.4	0.45	2.9
Mercury	mg/Kg	T	<0.016	<0.016	<0.016	<0.016	<0.016	<0.016
Molybdenum	mg/Kg	T	0.77	<0.16	<0.13	<0.13	<0.13	<0.15
Nickel	mg/Kg	T	<0.19	<0.2	<0.17	<0.17	<0.16	<0.19
Potassium	mg/Kg	T	3100.	2890.	3960.	2370.	1930.	2750.
Selenium	mg/Kg	T	<0.28	<0.28	<0.28	<0.24	<0.26	<0.29
Silver	mg/Kg	T	<0.084	<0.089	<0.075	<0.075	<0.074	<0.084
Sodium	mg/Kg	T	<45.2	<60.3	510.	<32.8	<27.5	<74.1
Thallium	mg/Kg	T	<0.092	<0.093	<0.094	<0.081	<0.088	<0.095
Vanadium	mg/Kg	T	<0.21	<0.22	<0.18	<0.18	<0.18	<0.21
Zinc	mg/Kg	T	4.6	4.6	4.	5.3	2.1	3.4

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Appendix A-13c
Garden Produce - Edible Plants
Validated Analytical Results

Parameter	Units	Site ID Sample Date Sample ID Exposure Area Fraction	Garden 3	Produce Market	Produce Market	Produce Market	----	----
			8/7/2003 GARDEN3-BNS-T01 N-VEG GARD	8/9/2003 PRODUCE1-ZUC-T 01N-VEG RGARD	8/9/2003 PRODUCE1-LET-T0 1N-VEG RGARD	8/9/2003 PRODUCE1-BNS-T0 1N-VEG RGARD		
Laboratory Parameters								
Solids, Percent	%	T	11.1	6.8	5.7	9.	-	-
Metals								
Aluminum	mg/Kg	T	<9.7	<4.6	<7.7	<3.6	-	-
Antimony	mg/Kg	T	<0.47	<0.46	<0.43	<0.49	-	-
Arsenic	mg/Kg	T	<0.19	<0.18	<0.17	<0.2	-	-
Barium	mg/Kg	T	1.9	<0.69	<0.7	0.66	-	-
Beryllium	mg/Kg	T	<0.02	<0.019	<0.019	<0.016	-	-
Boron	mg/Kg	T	3.7	2.	2.3	2.7	-	-
Cadmium	mg/Kg	T	<0.029	<0.028	0.45	<0.024	-	-
Calcium	mg/Kg	T	530.	193.	407.	487.	-	-
Chromium	mg/Kg	T	<0.19	<0.18	<0.17	<0.2	-	-
Cobalt	mg/Kg	T	<0.18	<0.17	<0.17	<0.15	-	-
Copper	mg/Kg	T	0.99	0.75	0.75	2.2	-	-
Iron	mg/Kg	T	11.	<3.9	10.3	<8.4	-	-
Lead	mg/Kg	T	<0.15	<0.14	<0.14	<0.15	-	-
Magnesium	mg/Kg	T	297.	175.	138.	248.	-	-
Manganese	mg/Kg	T	6.9	1.2	3.1	3.	-	-
Mercury	mg/Kg	T	<0.016	<0.016	<0.016	<0.015	-	-
Molybdenum	mg/Kg	T	<0.16	<0.15	<0.15	<0.13	-	-
Nickel	mg/Kg	T	<0.2	<0.19	<0.19	0.51	-	-
Potassium	mg/Kg	T	3890.	2850.	3100.	2660.	-	-
Selenium	mg/Kg	T	<0.28	<0.28	<0.26	<0.3	-	-
Silver	mg/Kg	T	<0.088	<0.085	<0.086	<0.073	-	-
Sodium	mg/Kg	T	<21.5	<22.4	414.	<66.3	-	-
Thallium	mg/Kg	T	<0.093	<0.092	<0.087	<0.099	-	-
Vanadium	mg/Kg	T	<0.22	<0.21	<0.21	<0.18	-	-
Zinc	mg/Kg	T	4.3	3.5	5.8	4.9	-	-

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