Area I

Table 3
Groundwater Sampling and Analysis Plan for Area I
Phase B Source Area Investigation Work Plan
Tronox Facility - Henderson, Nevada

Laboratory [D]:								CAS Kelso, WA		Columbia Analytical Services Rochester, NY							GEL Charleston, SC	CAS Houston, TX	STL Denver, CO	Alpha Analytical Sparks, NV	Rationale for Revision	Location Description and Rationale for Investigation
Grid Location	Location Area	Monitoring Well No.	Sample ID No.[A]	Screen Interval (ft bgs)	Soil Type Expected Across Screen Interval[1,B]	Date Sampled (for Phase B)	Well Sampled for Phase A? (y/n)	Perchlorate (EPA 314.0)	Metals[2.]	VOCs[3.] (EPA 8260)	Hex Cr[4.] (EPA 7199)	Wet Chemistry[5.]	Total Cyanide[J.] (EPA 9012A)	OCPs[6.] (EPA 8081A)	SVOCs[7.] (EPA 8270C)	PCBs[8, E] (EPA 8082)	Radionuclides[9.]	PCBs[8, E] (EPA 1668A)	OPPs[10, F] (8141A)	Organic Acids[F]		
Wells are organized by grid location as shown on Plate A - Starting point is on the northwestern-most grid in Area I (A-3) and ending with the southeastern-most grid covering Area I (O-4).																						
A-3	Parcel A	H-48	H-48B	TD = 41.1 ft	Qal *	6/18/2008	No	X	X	X	X	X	X	X	X		X		X	X	F, K, N	Serves as a stepout, generally upgradient for LOU 67 (Delbert Madsen Site), for general Site coverage and for BRC Parcel A.
A-5	Parcel A	PC-40	PC-40B	15 - 55	Qal	6/18/2008	Yes	X	X	X	X	X	X	X	X		X		X	X	F, N	Located to evaluate LOU 67; as general Site coverage; and to evaluate downgradient from Area I.
B-3	Parcel A	H-49A	H-49AB	TD = 49 ft	Qal *	6/24/2008	No	X	X	X	X	X	X	X	X		X				K, N	Located to evaluate LOU 67; as general Site coverage; and to evaluate downgradient from Area I.
D-3	Parcel A	MC-62	MC-62B	TD = 59 ft	Qal *	6/23/2008	No	X	X	X	X	X	X	X	X		X				K, N	Located for general Site coverage and to evaluate downgradient from Area I.
D-4	Parcel B	PC-72	PC-72B	15 -35	Qal	6/23/2008	No	X	X	X	X	X	X	X	X		X				N	Located to serve as a lateral stepout for M-95 for general Site coverage; and to evaluate downgradient from Area I.
E-1	Parcel D	MC-45	MC-45B	TD = 35.33 ft	Qal *	6/25/2008	Yes	X	X	X	X	X	X	X	X		X		X	X	F, K, N	Located to evaluate potential offsite sources to the west; for general Site coverage downgradient from Area I.
E-3	Parcel A	MC-65	MC-65B	TD = 41.78 ft	Qal *	6/20/2008	No	X	X	X	X	X	X	X	X		X				K, N	Located for general Site coverage and to evaluate downgradient from Area I.
E-3	Parcel A	MC-66	MC-66B	TD = 47.52 ft	Qal *	6/20/2008	No	X	X	X	X	X	X	X	X		X				K, N	Located for general Site coverage and to evaluate downgradient from Area I.
E-5	Parcel B	M-44	M-44B	5 - 35	Qal/MCfg1	6/24/2008	No	X	X	X	X	X	X	X	X		X		X	X	F, N	Located to evaluate LOU 68 and as a lateral stepout for well M-95 and to evaluate BRC Parcels B and I.
E-6	Parcel I	M-94	M-94B	12 - 22	Qal	6/25/2008	No	X	X	X	X	X	X	X	X		X				N	Located to evaluate LOU 68; BRC Parcels B and I and the downgradient area of the Site.
E-6	Parcel I	M-95	M-95B	12 - 22	Qal	6/24/2008	Yes	X	X	X	X	X	X	X	X		X				N	Located to evaluate LOU 68; BRC Parcel B; and the downgradient area of the Site.
E-7	Parcel I	M-96	M-96B	10.5 - 20.5	Qal	7/9/2008	No	X	X	X	X	X	X	X	X		X				N	Located to evaluate LOU 68; BRC Parcel B; and the downgradient area of the Site.
F-2	Parcel D	MC-53	MC-53B	20 - 40	Qal *	6/25/2008	No	X	X	X	X	X	X	X	X		X				N	Located to evaluate potential offsite sources to the west; for general Site coverage downgradient from Area I.
F-4	Parcel B	PC-37	PC-37B	16.8 - 41.8	Qal	6/20/2008	No	X	X	X	X	X	X	X	X		X				N	Located to serve as a downgradient stepout for LOU 68; to evaluate downgradient areas; and for general Site coverage.
G-1	Olin	MC-3	MC-3B	TD = 44.25 ft	Qal *		No	X	X	X	X	X	X	X	X		X				K, N	Located offsite to the west for general Site coverage; to evaluate potential offsite sources to the west; and to evaluate BRC Parcels C and E.
G-2	Parcel D	MC-94	MC-94B	TD = 40 ft	Qal *		No	X	X	X	X	X	X	X	X		X				K, N	Located to evaluate potential offsite sources to the west; for general Site coverage; and to evaluate downgradient from Area I.
G-2	Parcel E	MC-97	MC-97B	TD = 42 ft	Qal *	6/25/2008	No	X	X	X	X	X	X	X	X		X				K, N	Located to evaluate potential offsite sources to the west; for general Site coverage; and to evaluate downgradient from Area I.
G-3	Parcel D	MC-55	MC-55B	TD = 23 ft	Qal *		No	X	X	X	X	X	X	X	X		X				K, N	Located to evaluate potential offsite sources to the west; for general Site coverage downgradient from Area I.
H-2	Parcel C	H-28A	H-28AB	TD = 51 ft	MCfg1 *		No	X	X	X	X	X	X	X	X		X				K, N	Serves as a close stepout downgradient for LOU 1 and LOU 10; for general Site coverage; and to evaluate potential offsite sources to the west.
H-2	Parcel C	MC-32	MC-32B	TD = 34 ft	Qal *	6/25/2008	No	X	X	X	X	X	X	X	X		X				K, N	Located to serve as a downgradient stepout for LOU 10; to evaluate potential offsite sources to the west; to provide general Site coverage; and to evaluate BRC Parcels C and E. This was a dry well - no water sample collected in June 2008.
H-2	I	M-6A	M-6AB	26.8 - 41.5	Qal/MCfg1	6/27/2008	No	X	X	X	X	X	X	X	X	X	X	X	X	X	E, F, G	Located as a downgradient stepout for LOU 1 and LOU 10; to evaluate possible offsite sources to the west; and for general Site coverage.
H-3	I	M-7B	M-7BB	25.5 - 50.5	Qal/MCfg1	6/26/2008	Yes	X	X	X	X	X	X	X	X	X	X	X	X	X	E, F	Located as a downgradient stepout for LOU 1and LOU 10; to evaluate possible offsite sources to the west; and for general Site coverage.
H-3	Parcel D	MC-59	MC-59B	TD = 32.58 ft	Qal *		No	X	X	X	X	X	X	X	X		X				K, N	Located to evaluate potential offsite sources to the west; for general Site coverage downgradient from Area I.
H-6	Parcel D	M-23	M-23B	9.4 - 37.4	Qal	6/25/2008	No	X	X	X	X	X	X	X	X		X		X	X	F, N	Located to serve as a upgradient stepout for LOU 68; as a downgradient stepout for LOU 1; to evaluate BRC Parcels C and D; and for general Site coverage.
H-8	Parcel J	M-48	M-48B	6.1 - 36.1	Qal/MCfg1	7/9/2008	Yes	X	X	X	X	X	X	X	X		X				N	Located to evaluate LOU 69 and to evaluate BRC Parcels B and J.
I-4	I	M-98	M-98B	19 - 29	Qal		Yes	X	X	X	X	X	X	X	X		X					Located to evaluate LOU 1 and for general Site coverage.
I-5	I	M-99	M-99B	16 - 31	Qal		No	X	X	X	X	X	X	X	X		X					Located to evaluate LOU 1; as a downgradient stepout for LOUs 22, 23, and 32; as an upgradient stepout for LOU 69; and for general Site coverage.
I-6	I	M-100	M-100B	19 - 29	Qal		No	X	X	X	X	X	X	X	X		X					Located to evaluate LOU 1; as a downgradient stepout for LOUs 22, 23, and 32; as an upgradient stepout for LOU 69; and for general Site coverage.
I-7	I	M-101	M-101B	17 - 27	Qal		No	X	X	X	X	X	X	X	X		X					Located to evaluate LOU 1; as a downgradient stepout for LOUs 22, 23, and 32; as an upgradient stepout for LOU 69; and for general Site coverage.
J-2	BRC	AA-BW-02	AA-BW-02B	33 - 53	MCfg1 *		No	X	X	X	X	X	X	X	X		X					Located to evaluate constituents from off-Site sources to the west, and for general Site coverage.
J-8	I	M-102	M-102B	19.4 - 39.4	Qal		No	X	X	X	X	X	X	X	X		X					Located to evaluate LOU 1; as a downgradient stepout for LOUs 22, 23, and 32; as an upgradient stepout for LOU 69; and for general Site coverage.
K-2	I	M-5A	M-5AB	40 - 50	MCfg1	6/26/2008	Yes	X	X	X	X	X	X	X	X	X	X	X	X	X	E, F	Located to evaluate LOU 2 (Open Area South of the Trade Effluent Ponds); as an upgradient stepout for LOU 1 and LOU 10; to evaluate possible offsite sources to the west; and for general Site coverage.

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Laboratory [D]:								CAS Kelso, WA		Columbia Analytical Services Rochester, NY							GEL Charleston, SC	CAS Houston, TX	STL Denver, CO	Alpha Analytical Sparks, NV	Rationale for Revision	Location Description and Rationale for Investigation
Grid Location	Location Area	Monitoring Well No.	Sample ID No.[A]	Screen Interval (ft bgs)	Soil Type Expected Across Screen Interval[1,B]	Date Sampled (for Phase B)	Well Sampled for Phase A? (y/n)	Perchlorate (EPA 314.0)	Metals[2.]	VOCs[3.] (EPA 8260)	Hex Cr[4.] (EPA 7199)	Wet Chemistry[5.]	Total Cyanide[J.] (EPA 9012A)	OCPs[6.] (EPA 8081A)	SVOCs[7.] (EPA 8270C)	PCBs[8, E] (EPA 8082)	Radionuclides[9.]	PCBs[8, E] (EPA 1668A)	OPPs[10, F] (8141A)	Organic Acids[F]		
Wells are organized by grid location as shown on Plate A - Starting point is on the northwestern-most grid in Area I (A-3) and ending with the southeastern-most grid covering Area I (O-4).																						
K-2	I	TR-2	TR-2B	144.5 - 174.5	MCfg1	7/8/2008	No	X	X	X	X	X	X	X	X	X	X	X	X	X	E, F	To evaluate for SRCs in upper Muddy Creek Fm.
K-3	I	MW-16	MW-16B	24.7 - 39.7	MCfg1	6/26/2008	No	X	X	X	X	X	X	X	X		X					New monitoring well to evaluate SRCs in upper Muddy Creek from offsite sources from west.
K-5	I	M-69	M-69B	19.9 - 39.3	Qal/MCfg1	7/8/2008	No	X	X	X	X	X	X	X	X		X					Located to evaluate LOU 32 and to evaluate the western end of the Groundwater Barrier Wall.
K-5	I	M-79	M-79B	10.8 - 35.4	Qal/MCfg1	6/29/2008	No	X	X	X	X	X	X	X	X		X					Located to evaluate LOU 1; LOU 32 and the western end of the Groundwater Injection Trenches; and for general Site coverage.
K-6	I	M-83	M-83B	10.8-40.3	Qal/MCfg1		No	X	X	X	X	X	X	X	X		X		X	X	F	Located to evaluate LOU 32 and the Groundwater Injection Area; as an upgradient stepout for LOU 1, and LOUs 22 and 23; and for general Site coverage.
K-6	I	M-84	M-84B	11.8 - 34.1	Qal/MCfg1	6/29/2008	No	X	X	X	X	X	X	X	X		X					Located to evaluate LOU 32 and the Groundwater Injection Trench area; as an upgradient stepout for LOU 1 and LOUs 22 and 23; and for general Site coverage.
K-7	I	M-86	M-86B	11.3 -40.9	Qal/MCfg1		No	X	X	X	X	X	X	X	X		X				G	Located to evaluate LOU 32 and the Groundwater Injection Trench area; as an upgradient stepout for LOU 1, LOUs 22 and 23; and for general Site coverage.
K-8	I	M-88	M-88B	7.3 - 36.8	Qal/MCfg1	6/25/2008	No	X	X	X	X	X	X	X	X		X					Located to serve as an upgradient stepout for LOU 1; as a downgradient stepout for LOU 32; to evaluate possible offsite sources to the east; and for general Site coverage.
K-9	I	M-129	M-129B	20 - 40	MCfg1		No	X	X	X	X	X	X	X	X		X				H	Located to evaluate the eastern end of the barrier wall. Well was drilled and installed in March 2008.
K-9	TIMET	CLD1-R	CLD1-RB	25 -35	Qal/MCfg1	7/10/2008	No	X	X	X	X	X	X	X	X		X					Serves as a close stepout downgradient of LOU 5 (Beta Ditch) and general Site coverage. Located on Timet.
L-2	I	M-127	M-127B	35-50	MCfg1		No	X	X	X	X	X	X	X	X	X	X	X	X	X	E, F, H	New monitoring well located to evaluate LOU 2; to evaluate potential offsite sources to the west; and for general Site coverage. Well was drilled and installed in June 2008, but not yet sampled for Phase B.
L-3	I	M-126	M-126B	19.7 - 39.7	MCfg1	6/29/2008	No	X	X	X	X	X	X	X	X		X					New monitoring well located to serve as an up- to crossgradient stepout for LOU 2; to evaluate potential offsite sources from the west; and for general Site coverage.
L-4	I	M-14A	M-14AB	20 - 40	MCfg1	6/30/2008	No	X	X	X	X	X	X	X	X		X					Located as an upgradient stepout for LOUs 30, 56, and 58; as a downgradient well for LOU 39; and for general Site coverage.
L-4	I	M-57A	M-57AB	20 - 40	MCfg1	6/27/2008	No	X	X	X	X	X	X	X	X		X					Located to serve as an upgradient stepout for LOU 32; to evaluate the west end of the Groundwater Barrier Wall; and for general Site coverage.
L-5	I	I-B	I-BB	17.8 - 42.5	Qal/MCfg1	7/8/2008	No	X	X	X	X	X	X	X	X		X					Located as a downgradient stepout for LOU 56 and LOU 58; as an upgradient stepout for LOU 57, and for general Site coverage.
L-6	I	M-55	M-55B	14.6 - 44.6	Qal/MCfg1	7/1/2008	Yes	X	X	X	X	X	X	X	X		X					Located just upgradient of the groundwater barrier wall; to evaluate LOU 32; to serve as a downgradient stepout for LOUs 19, 31, and 55 and for general Site coverage.
L-6	I	M-65	M-65B	14.4 - 39	Qal/MCfg1	7/2/2008	No	X	X	X	X	X	X	X	X		X					Located to serve as an upgradient stepout for LOU 32; as a downgradient stepout for LOU 57; and for general Site coverage.
L-6	I	M-78	M-78B	21.5 - 41.5	Qal/MCfg1		No	X	X	X	X	X	X	X	X		X					Located to evaluate LOU 32; as a downgradient stepout for LOU 55; and for general Site coverage.
L-8	I	M-61	M-61B	9.3 - 38.8	Qal/MCfg1	6/26/2008	No	X	X	X	X	X	X	X	X		X					Located to evaluate LOU 32 and the eastern end of the Groundwater Barrier Wall.
L-8	I	M-67	M-67B	7.8 - 37.8	Qal/MCfg1	6/27/2008	No	X	X	X	X	X	X	X	X		X					Located to serve as an upgradient stepout for LOU 32 and for general Site coverage.
L-8	I	M-68	M-68B	11.2 - 39.8	Qal/MCfg1	6/27/2008	No	X	X	X	X	X	X	X	X		X					Located to serve as a downgradient stepout for LOU 5 and 20; as an upgradient stepout for LOU 32; as an evaluation of the east end of the Groundwater Barrier Wall; and for general Site coverage.
L-9	TIMET	CLD2-R	CLD2-RB	20 - 40.27	Qal	7/10/2008	No	X	X	X	X	X	X	X	X		X				O	Serves as a close stepout downgradient of LOU 5; and a further downgradient stepout for LOU 20 (Pond C-1 and Associated Piping), and for general Site coverage. Located on Timet.
L-9	I	M-130	M-130B	20 - 40	MCfg1		No	X	X	X	X	X	X	X	X		X				H	Located to evaluate LOU 5 and the eastern end of the barrier wall. Well was installed in March 2008 but not yet sampled for Phase B.
L-10	TIMET	CLD3-R	CLD3-RB	nr	MCfg1*	7/10/2008	No	X	X	X	X	X	X	X	X		X				O	Located to evaluate LOU 67; as general Site coverage; and to evaluate downgradient from Area I. Located on Timet.
M-1	Olin	H-38	H-38B	25 - 50	Qal*		No	X	X	X	X	X	X	X	X		X					To evaluate possible offsite sources from the west, as an upgradient stepout to LOU 5 (Beta Ditch) and for general Site coverage. Depth of screen will be confirmed in the field.
M-2	I	TR-4	TR-4B	124.5 - 144.5	MCfg1	7/9/2008	No	X	X	X	X	X	X	X	X	X	X	X	X	X	E, F	Located to serve as a downgradient stepout for LOU 5; to evaluate possible offsite sources to the west (particularly for VOCs); and for general Site coverage.
M-3	I	M-125	M-125B	35-50	MCfg1		No	X	X	X	X	X	X	X	X	X	X	X	X	X	E, H, M, F	New monitoring well located to serve as a downgradient stepout for LOUs 5 and 54; to evaluate potential offsite sources from the west; and for general Site coverage. Well was installed in June 2008 but not yet sampled for Phase B.
M-8	I	M-39	M-39B	24.9 - 39.9	Qal/MCfg1	7/8/2008	Yes	X	X	X	X	X	X	X	X		X		X	X	F	Located to serve as a downgradient stepout for LOUs 5, 18, 20, and 21; and for general Site coverage.
N-4	I	M-142	M-142B	30-45	MCfg1		No	X	X	X	X	X	X	X	X		X		X	X	F, H	New monitoring well constructed in borehole for SA87 to evaluate LOU 39 (Satellite Accumulation Point, AP Maintenance Shop). Well was installed in June 2008 but not yet sampled for Phase B.
O-2	I	M-123	M-123B	34-51	MCfg1	7/11/2008	No	X	X	X	X	X	X	X	X	X	X	X	X	X	E, F, H, M	New monitoring well located to evaluate LOU 35; as an upgradient stepout for LOUs 38 and 54; to evaluate potential offsite sources to the west; and for general Site coverage. PCB analysis for groundwater requested by NDEP at this location. Well was installed in June 2008 but not yet sampled for Phase B.
O-4	I	M-124	M-124B	34-49	MCfg1	7/11/2008	No	X	X	X	X	X	X	X	X		X				H	New monitoring well located to evaluate LOU 64; serve as a downgradient stepout for LOU 63; as an upgradient stepout for LOU 39; and for general Site coverage. Well was installed in June 2008 but not yet sampled for Phase B.

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Grid Location	Location Area	Monitoring Well No.	Sample ID No.[A]	Screen Interval (ft bgs)	Soil Type Expected Across Screen Interval[1,B]	Date Sampled (for Phase B)	Well Sampled for Phase A? (y/n)	Perchlorate (EPA 314.0)	Metals[2.]	VOCs[3.] (EPA 8260)	Hex Cr[4.] (EPA 7199)	Wet Chemistry[5.]	Total Cyanide[J.] (EPA 9012A)	OCPs[6.] (EPA 8081A)	SVOCs[7.] (EPA 8270C)	PCBs[8, E] (EPA 8082)	Radionuclides[9.]	PCBs[8, E] (EPA 1668A)	OPPs[10, F] (8141A)	Organic Acids[F]		
Wells are organized by grid location as shown on Plate A - Starting point is on the northwestern-most grid in Area I (A-3) and ending with the southeastern-most grid covering Area I (O-4).																						
O-4	I	M-128	M-128B	40-55	MCfg1		No	X	X	X	X	X	X	X	X		X				H	New monitoring well to serve as a downgradient stepout for LOUs 35 and 64; as an upgradient stepout for LOUs 39, 52, and 57; and for general Site coverage. Well was installed in June 2008 but not yet sampled for Phase B.
							Number of Field Samples:	**64**	**64**	**64**	**64**	**64**	**64**	**64**	**64**	**8**	**64**	**8**	**16**	**16**		
QA/QC Samples:																						
			Field Duplicates (10%)					7	7	7	7	7	7	7	7	1	7	0	2	2		
			Field Blanks					1	1	1	1	1	1	1	1	1	1	0	1	1		
			Equipment Rinseate Blanks					3	3	3	3	3	3	3	3	0	3	0	1	1		
			Trip Blank Samples					0	0	14	0	0	0	0	0	0	0	0	0	0		
			Matrix Spike (5%)					4	4	4	4	3	3	4	3	1	4	0	1	4		
			Matrix Spike Duplicate (5%)					4	4	4	4	3	3	4	3	1	4	0	1	4		
							Total Samples:	**83**	**83**	**97**	**83**	**81**	**81**	**83**	**81**	**12**	**83**	**8**	**22**	**28**		

Notes:

*	Well completion information or boring log not available. Soil type inferred from nearby wells and geologic cross-section provided in the Phase A Source Area Investigation Report (ENSR, 2007). ENSR is in the process of obtaining screen interval information from BMI.
X	Sample will be collected and analyzed.
blank	No sample collected under Phase B sampling plan.
1.	It is anticipated that the large majority of the flow to the well will be from the coarse-grained sediments. As such, in the cases where there are two lithologies present across the screen interval, the water sampled will represent conditions in the coarse-grained interval.
2.	Metals analyses includes Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Platinum, Potassium, Selenium, Silver, Sodium, Strontium, Tin, Titanium, Thallium, Tungsten, Uranium, Vanadium, Zinc
3.	VOCs = Volatile organic compounds (to include analysis for naphthalene).
4.	Hexavalent Chromium.
5.	Complete list of wet chemistry parameters is shown on Table 1. All groundwater samples will have pH measured in the field.
6.	OCPs = Organochlorine pesticides (to include analysis for hexachlorobenzene).
7.	SVOCs = Semi volatile organic compounds.
8.	Polychlorinated Biphenyls.
9.	Radionuclides consists of alpha spec reporting for isotopic Thorium and isotopic Uranium, and Radium-226, plus Radium-228 by beta counting (per NDEP).
10.	OPPs = Organophosphorous Pesticides
TBD	To Be Determined when well is constructed.
nr	Not recorded in Tronox database (screen intervals to be acquired from BMI).
Qal	Quaternary Alluvium.
6/25/2008	Yellow indicates sample was collected on the date shown.
MS/MSD	Matrix Spike sample and Matrix Spike Duplicate sample (fill 2nd set of bottles for MS sample and 3rd set of bottles for MSD sample).
MCfg1	Muddy Creek Formation - first fine-grained facies.
X	Green-shading indicates items that have been added or changed from Table 3 in the April 2008 Area I Work Plan originally reviewed by NDEP.
A	Sample ID was added to convey sample ID nomenclature to field sampling team ("B" suffix denotes sample is associated with Phase B).
B	Soil type column was added to conform with NDEP request.
D	Laboratory information was added to assist field sampling personnel in shipping the sample containers to the appropriate laboratory.
E	PCB columns were added per NDEP (May 6, 2008).
F	OPPs and Organic Acids were added per NDEP (July 21, 2008).
G	Well was added to Table 3 per NDEP (May 6 , 2008).
H	Screen interval was added to Table 3 after this well was drilled and installed in July 2008.
J	Column was added by Tronox because it was unclear in previous tables that cyanide will be analyzed in all proposed wells. Cyanide is conducted as part of the Wet Chemistry analysis.
K	For screen intervals marked as "TD=", total well depth is given where screen interval is not known. A downhole camera will be used to determine actual screen intervals.
M	Based on Phase A results, these locations were selected for PCB sampling.
N	The listed location area was revised to more clearly indicate the Parcel ID number (or other location indicator) that the well is in.
O	Well was sampled as part of the Phase B Area I investigation in June-July 2008.

Table 3 (Field Version)
Groundwater Sampling and Analysis Plan for Area I
Phase B Source Area Investigation Work Plan
Tronox Facility - Henderson, Nevada

									Laboratory :	CAS Kelso, WA	Columbia Analytical Services Rochester, NY							GEL Charleston, SC	CAS Houston, TX	STL Denver, CO	Alpha Analytical Sparks, NV	
Grid Location	Location Area	Monitoring Well No.	Sample ID No.[A]	Screen Interval (ft bgs)	Soil Type Expected Across Screen Interval[1,B]	Date Sampled (for Phase B)	Well Sampled for Phase A? (y/n)	Matrix Spike/MS Duplicate	Perchlorate (EPA 314.0)	Metals[2.]	VOCs[3.] (EPA 8260)	Hex Cr[4.] (EPA 7199)	Wet Chemistry[5.]	Total Cyanide[J.] (EPA 9012A)	OCPs[6.] (EPA 8081A)	SVOCs[7.] (EPA 8270C)	PCBs[8,E] (EPA 8082)	Radionuclides[9.]	PCBs[8,E] (EPA 1668A)	OPPs[10,F] (8141A)	Organic Acids[F]	Location Description and Rationale for Investigation
Wells are organized by grid location as shown on Plate A - Starting point is on the northwestern-most grid in Area I (A-3) and ending with the southeastern-most grid covering Area I (O-4).																						
A-3	Parcel A	H-48	H-48B	TD = 41.1 ft	Qal *	6/18/2008	No		X	X	X	X	X	X	X	X		X		X	X	Serves as a stepout, generally upgradient for LOU 67 (Delbert Madsen Site), for general Site coverage and for BRC Parcel A.
A-5	Parcel A	PC-40	PC-40B	15 - 55	Qal	6/18/2008	Yes		X	X	X	X	X	X	X	X		X		X	X	Located to evaluate LOU 67; as general Site coverage; and to evaluate downgradient from Area I.
			PC-40BD	15 - 55 (dup)					X	X	X	X	X	X	X	X		X		X	X	This is a duplicate sample of PC-40B.
B-3	Parcel A	H-49A	H-49AB	TD = 49 ft	Qal *	6/24/2008	No		X	X	X	X	X	X	X	X		X				Located to evaluate LOU 67; as general Site coverage; and to evaluate downgradient from Area I.
D-3	Parcel A	MC-62	MC-62B	TD = 59 ft	Qal *	6/23/2008	No		X	X	X	X	X	X	X	X		X				Located for general Site coverage and to evaluate downgradient from Area I.
D-4	Parcel B	PC-72	PC-72B	15 -35	Qal	6/23/2008	No		X	X	X	X	X	X	X	X		X				Located to serve as a lateral stepout for M-95 for general Site coverage; and to evaluate downgradient from Area I.
E-1	Parcel D	MC-45	MC-45B	TD = 35.33 ft	Qal *	6/25/2008	Yes		X	X	X	X	X	X	X	X		X		X	X	Located to evaluate potential offsite sources to the west; for general Site coverage downgradient from Area I.
E-3	Parcel A	MC-65	MC-65B	TD = 41.78 ft	Qal *	6/20/2008	No		X	X	X	X	X	X	X	X		X				Located for general Site coverage and to evaluate downgradient from Area I.
E-3	Parcel A	MC-66	MC-66B	TD = 47.52 ft	Qal *	6/20/2008	No		X	X	X	X	X	X	X	X		X				Located for general Site coverage and to evaluate downgradient from Area I.
E-5	Parcel B	M-44	M-44B	5 - 35	Qal/MCfg1	6/24/2008	No		X	X	X	X	X	X	X	X		X		X	X	Located to evaluate LOU 68 and as a lateral stepout for well M-95 and to evaluate BRC Parcels B and I.
E-6	Parcel I	M-94	M-94B	12 - 22	Qal	6/25/2008	No		X	X	X	X	X	X	X	X		X				Located to evaluate LOU 68; BRC Parcels B and I and the downgradient area of the Site.
E-6	Parcel I	M-95	M-95B	12 - 22	Qal	6/24/2008	Yes		X	X	X	X	X	X	X	X		X				Located to evaluate LOU 68; BRC Parcel B; and the downgradient area of the Site.
			M-95B	12 - 22				X	X	X	X	X	X	X	X	X		X				This is a matrix spike / matrix spike duplicate sample. Fill one set of bottles for MS sample & second set of bottles for MSD sample. Label both sets of bottles as M-95B.
E-7	Parcel I	M-96	M-96B	10.5 - 20.5	Qal	7/9/2008	No		X	X	X	X	X	X	X	X		X				Located to evaluate LOU 68; BRC Parcel B; and the downgradient area of the Site.
F-2	Parcel D	MC-53	MC-53B	20 - 40	Qal *	6/25/2008	No		X	X	X	X	X	X	X	X		X				Located to evaluate potential offsite sources to the west; for general Site coverage downgradient from Area I.
F-4	Parcel B	PC-37	PC-37B	16.8 - 41.8	Qal	6/20/2008	No		X	X	X	X	X	X	X	X		X				Located to serve as a downgradient stepout for LOU 68; to evaluate downgradient areas; and for general Site coverage.
G-1	Olin	MC-3	MC-3B	TD = 44.25 ft	Qal *		No		X	X	X	X	X	X	X	X		X				Located offsite to the west for general Site coverage; to evaluate potential offsite sources to the west; and to evaluate BRC Parcels C and E.
G-2	Parcel D	MC-94	MC-94B	TD = 40 ft	Qal *		No		X	X	X	X	X	X	X	X		X				Located to evaluate potential offsite sources to the west; for general Site coverage; and to evaluate downgradient from Area I.
G-2	Parcel E	MC-97	MC-97B	TD = 42 ft	Qal *	6/25/2008	No		X	X	X	X	X	X	X	X		X				Located to evaluate potential offsite sources to the west; for general Site coverage; and to evaluate downgradient from Area I.
G-3	Parcel D	MC-55	MC-55B	TD = 23 ft	Qal *		No		X	X	X	X	X	X	X	X		X				Located to evaluate potential offsite sources to the west; for general Site coverage downgradient from Area I.
H-2	Parcel C	H-28A	H-28AB	TD = 51 ft	MCfg1 *		No		X	X	X	X	X	X	X	X		X				Serves as a close stepout downgradient for LOU 1 and LOU 10; for general Site coverage; and to evaluate potential offsite sources to the west.
H-2	Parcel C	MC-32	MC-32B	TD = 34 ft	Qal *	6/25/2008	No		X	X	X	X	X	X	X	X		X				Located to serve as a downgradient stepout for LOU 10; to evaluate potential offsite sources to the west; to provide general Site coverage; and to evaluate BRC Parcels C and E. This was a dry well - no water sample collected in Ju 2008.
H-2	I	M-6A	M-6AB	26.8 - 41.5	Qal/MCfg1	6/27/2008	No		X	X	X	X	X	X	X	X	X	X	X	X	X	Located as a downgradient stepout for LOU 1 and LOU 10; to evaluate possible offsite sources to the west; and for general Site coverage.
H-3	I	M-7B	M-7BB	25.5 - 50.5	Qal/MCfg1	6/26/2008	Yes		X	X	X	X	X	X	X	X	X	X	X	X	X	Located as a downgradient stepout for LOU 1and LOU 10; to evaluate possible offsite sources to the west; and for general Site coverage.
H-3	Parcel D	MC-59	MC-59B	TD = 32.58 ft	Qal *		No		X	X	X	X	X	X	X	X		X				Located to evaluate potential offsite sources to the west; for general Site coverage downgradient from Area I.
H-6	Parcel D	M-23	M-23B	9.4 - 37.4	Qal	6/25/2008	No		X	X	X	X	X	X	X	X		X		X	X	Located to serve as a upgradient stepout for LOU 68; as a downgradient stepout for LOU 1; to evaluate BRC Parcel C and D; and for general Site coverage.
			M-23BD	9.4 - 37.4 (dup)					X	X	X	X	X	X	X	X		X		X	X	This is a duplicate sample of M-23B.
H-8	Parcel J	M-48	M-48B	6.1 - 36.1	Qal/MCfg1	7/9/2008	Yes		X	X	X	X	X	X	X	X		X				Located to evaluate LOU 69 and to evaluate BRC Parcels B and J.
I-4	I	M-98	M-98B	19 - 29	Qal		Yes		X	X	X	X	X	X	X	X		X				Located to evaluate LOU 1 and for general Site coverage.
I-5	I	M-99	M-99B	16 - 31	Qal		No		X	X	X	X	X	X	X	X		X				Located to evaluate LOU 1; as a downgradient stepout for LOUs 22, 23, and 32; as an upgradient stepout for LOU 69; and for general Site coverage.
I-6	I	M-100	M-100B	19 - 29	Qal		No		X	X	X	X	X	X	X	X		X				Located to evaluate LOU 1; as a downgradient stepout for LOUs 22, 23, and 32; as an upgradient stepout for LOU 69; and for general Site coverage.
I-7	I	M-101	M-101B	17 - 27	Qal		No		X	X	X	X	X	X	X	X		X				Located to evaluate LOU 1; as a downgradient stepout for LOUs 22, 23, and 32; as an upgradient stepout for LOU 69; and for general Site coverage.

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Tronox Facility - Henderson, Nevada

									Laboratory :	CAS Kelso, WA		Columbia Analytical Services Rochester, NY							GEL Charleston, SC	CAS Houston, TX	STL Denver, CO	Alpha Analytical Sparks, NV	
Grid Location	Location Area	Monitoring Well No.	Sample ID No.[A]	Screen Interval (ft bgs)	Soil Type Expected Across Screen Interval[1,B]	Date Sampled (for Phase B)	Well Sampled for Phase A? (y/n)	Matrix Spike/MS Duplicate	Perchlorate (EPA 314.0)	Metals[2.]	VOCs[3.] (EPA 8260)	Hex Cr[4.] (EPA 7199)	Wet Chemistry[5.]	Total Cyanide[J.] (EPA 9012A)	OCPs[6.] (EPA 8081A)	SVOCs[7.] (EPA 8270C)	PCBs[8,E] (EPA 8082)	Radionuclides[9.]	PCBs[8,E] (EPA 1668A)	OPPs[10,F] (8141A)	Organic Acids[F]	Location Description and Rationale for Investigation
Wells are organized by grid location as shown on Plate A - Starting point is on the northwestern-most grid in Area I (A-3) and ending with the southeastern-most grid covering Area I (O-4).																						
J-2	BRC	AA-BW-02	AA-BW-02B	33 - 53	MCfg1 *		No		X	X	X	X	X	X	X	X		X				Located to evaluate constituents from off-Site sources to the west, and for general Site coverage.
J-8	I	M-102	M-102B	19.4 - 39.4	Qal		No		X	X	X	X	X	X	X	X		X				Located to evaluate LOU 1; as a downgradient stepout for LOUs 22, 23, and 32; as an upgradient stepout for LOU 69; and for general Site coverage.
K-2	I	M-5A	M-5AB	40 - 50	MCfg1	6/26/2008	Yes		X	X	X	X	X	X	X	X	X	X	X	X	X	Located to evaluate LOU 2 (Open Area South of the Trade Effluent Ponds); as an upgradient stepout for LOU 1 and LOU 10; to evaluate possible offsite sources to the west; and for general Site coverage.
K-2	I	TR-2	TR-2B	144.5 - 174.5	MCfg1	7/8/2008	No		X	X	X	X	X	X	X	X	X	X	X	X	X	To evaluate for SRCs in upper Muddy Creek Fm.
K-3	I	MW-16	MW-16B	24.7 - 39.7	MCfg1	6/26/2008	No		X	X	X	X	X	X	X	X		X				New monitoring well to evaluate SRCs in upper Muddy Creek from offsite sources from west.
			MW-16B	24.7 - 39.7				X	X	X	X	X	X	X	X	X		X				This is a matrix spike / matrix spike duplicate sample. Fill one set of bottles for MS sample & second set of bottles for MSD sample. Label both sets of bottles as MW-16B.
K-5	I	M-69	M-69B	19.9 - 39.3	Qal/MCfg1	7/8/2008	No		X	X	X	X	X	X	X	X		X				Located to evaluate LOU 32 and to evaluate the western end of the Groundwater Barrier Wall.
K-5	I	M-79	M-79B	10.8 - 35.4	Qal/MCfg1	6/29/2008	No		X	X	X	X	X	X	X	X		X				Located to evaluate LOU 1; LOU 32 and the western end of the Groundwater Injection Trenches; and for general Site coverage.
K-6	I	M-83	M-83B	10.8-40.3	Qal/MCfg1		No		X	X	X	X	X	X	X	X		X		X	X	Located to evaluate LOU 32 and the Groundwater Injection Area; as an upgradient stepout for LOU 1, and LOUs 22 and 23; and for general Site coverage.
K-6	I	M-84	M-84B	11.8 - 34.1	Qal/MCfg1	6/29/2008	No		X	X	X	X	X	X	X	X		X				Located to evaluate LOU 32 and the Groundwater Injection Trench area; as an upgradient stepout for LOU 1 and LOUs 22 and 23; and for general Site coverage.
K-7	I	M-86	M-86B	11.3 -40.9	Qal/MCfg1		No		X	X	X	X	X	X	X	X		X				Located to evaluate LOU 32 and the Groundwater Injection Trench area; as an upgradient stepout for LOU 1, LOUs 22 and 23; and for general Site coverage.
K-8	I	M-88	M-88B	7.3 - 36.8	Qal/MCfg1	6/25/2008	No		X	X	X	X	X	X	X	X		X				Located to serve as an upgradient stepout for LOU 1; as a downgradient stepout for LOU 32; to evaluate possible offsite sources to the east; and for general Site coverage.
K-9	I	M-129	M-129B	20 - 40	MCfg1		No		X	X	X	X	X	X	X	X		X				Located to evaluate the eastern end of the barrier wall. Well was drilled and installed in March 2008.
K-9	TIMET	CLD1-R	CLD1-RB	25 -35	Qal/MCfg1	7/10/2008	No		X	X	X	X	X	X	X	X		X				Serves as a close stepout downgradient of LOU 5 (Beta Ditch) and general Site coverage. Located on Timet.
L-2	I	M-127	M-127B	35-50	MCfg1		No		X	X	X	X	X	X	X	X	X	X	X	X	X	New monitoring well located to evaluate LOU 2; to evaluate potential offsite sources to the west; and for general Site coverage. Well was drilled and installed in June 2008, but not yet sampled for Phase B.
L-3	I	M-126	M-126B	19.7 - 39.7	MCfg1	6/29/2008	No		X	X	X	X	X	X	X	X		X				New monitoring well located to serve as an up- to crossgradient stepout for LOU 2; to evaluate potential offsite sources from the west; and for general Site coverage.
			M-126BD	19.7-39.7 (dup)					X	X	X	X	X	X	X	X		X				This is a duplicate sample of M-126B.
L-4	I	M-14A	M-14AB	20 - 40	MCfg1	6/30/2008	No		X	X	X	X	X	X	X	X		X				Located as an upgradient stepout for LOUs 30, 56, and 58; as a downgradient well for LOU 39; and for general Site coverage.
L-4	I	M-57A	M-57AB	20 - 40	MCfg1	6/27/2008	No		X	X	X	X	X	X	X	X		X				Located to serve as an upgradient stepout for LOU 32; to evaluate the west end of the Groundwater Barrier Wall; and for general Site coverage.
			M-57ABD	20 - 40 (dup)					X	X	X	X	X	X	X	X		X				This is a duplicate sample of M-57AB.
L-5	I	I-B	I-BB	17.8 - 42.5	Qal/MCfg1	7/8/2008	No		X	X	X	X	X	X	X	X		X				Located as a downgradient stepout for LOU 56 and LOU 58; as an upgradient stepout for LOU 57, and for general Site coverage.
L-6	I	M-55	M-55B	14.6 - 44.6	Qal/MCfg1	7/1/2008	Yes		X	X	X	X	X	X	X	X		X				Located just upgradient of the groundwater barrier wall; to evaluate LOU 32; to serve as a downgradient stepout for LOUs 19, 31, and 55 and for general Site coverage.
L-6	I	M-65	M-65B	14.4 - 39	Qal/MCfg1	7/2/2008	No		X	X	X	X	X	X	X	X		X				Located to serve as an upgradient stepout for LOU 32; as a downgradient stepout for LOU 57; and for general Site coverage.
			M-65BD	14.4 - 39 (dup)					X	X	X	X	X	X	X	X		X				This is a duplicate sample of M-65B.
L-6	I	M-78	M-78B	21.5 - 41.5	Qal/MCfg1		No		X	X	X	X	X	X	X	X		X				Located to evaluate LOU 32; as a downgradient stepout for LOU 55; and for general Site coverage.
L-8	I	M-61	M-61B	9.3 - 38.8	Qal/MCfg1	6/26/2008	No		X	X	X	X	X	X	X	X		X				Located to evaluate LOU 32 and the eastern end of the Groundwater Barrier Wall.
L-8	I	M-67	M-67B	7.8 - 37.8	Qal/MCfg1	6/27/2008	No		X	X	X	X	X	X	X	X		X				Located to serve as an upgradient stepout for LOU 32 and for general Site coverage.
			M-67BD	7.8 - 37.8 (dup)					X	X	X	X	X	X	X	X		X				This is a duplicate of M-67B.
			M-67B	7.8 - 37.8				X	X	X	X	X	X	X	X	X		X				This is a matrix spike / matrix spike duplicate sample. Fill one set of bottles for MS sample & second set of bottles for MSD sample. Label both sets of bottles as M-67B.
L-8	I	M-68	M-68B	11.2 - 39.8	Qal/MCfg1	6/27/2008	No		X	X	X	X	X	X	X	X		X				Located to serve as a downgradient stepout for LOU 5 and 20; as an upgradient stepout for LOU 32; as an evaluation of the east end of the Groundwater Barrier Wall; and for general Site coverage.
L-9	TIMET	CLD2-R	CLD2-RB	20 - 40.27	Qal	7/10/2008	No		X	X	X	X	X	X	X	X		X				Serves as a close stepout downgradient of LOU 5; and a further downgradient stepout for LOU 20 (Pond C-1 and Associated Piping), and for general Site coverage. Located on Timet.
L-9	I	M-130	M-130B	20 - 40	MCfg1		No		X	X	X	X	X	X	X	X		X				Located to evaluate LOU 5 and the eastern end of the barrier wall. Well was installed in March 2008 but not yet sampled for Phase B.
L-10	TIMET	CLD3-R	CLD3-RB	nr	MCfg1*	7/10/2008	No		X	X	X	X	X	X	X	X		X				Located to evaluate LOU 67; as general Site coverage; and to evaluate downgradient from Area I. Located on Timet.

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Tronox Facility - Henderson, Nevada

									Laboratory :	CAS Kelso, WA		Columbia Analytical Services Rochester, NY							GEL Charleston, SC	CAS Houston, TX	STL Denver, CO	Alpha Analytical Sparks, NV	
Grid Location	Location Area	Monitoring Well No.	Sample ID No.[A]	Screen Interval (ft bgs)	Soil Type Expected Across Screen Interval[1,B]	Date Sampled (for Phase B)	Well Sampled for Phase A? (y/n)	Matrix Spike/MS Duplicate	Perchlorate (EPA 314.0)	Metals[2.]	VOCs[3.] (EPA 8260)	Hex Cr[4.] (EPA 7199)	Wet Chemistry[5.]	Total Cyanide[J.] (EPA 9012A)	OCPs[6.] (EPA 8081A)	SVOCs[7.] (EPA 8270C)	PCBs[8, E] (EPA 8082)	Radionuclides[9.]	PCBs[8, E] (EPA 1668A)	OPPs[10, F] (8141A)	Organic Acids[F]	Location Description and Rationale for Investigation
Wells are organized by grid location as shown on Plate A - Starting point is on the northwestern-most grid in Area I (A-3) and ending with the southeastern-most grid covering Area I (O-4).																						
M-1	Olin	H-38	H-38B	25 - 50	Qal*		No		X	X	X	X	X	X	X	X		X				To evaluate possible offsite sources from the west, as an upgradient stepout to LOU 5 (Beta Ditch) and for general Site coverage. Depth of screen will be confirmed in the field.
M-2	I	TR-4	TR-4B	124.5 - 144.5	MCfg1	7/9/2008	No		X	X	X	X	X	X	X	X	X	X	X	X	X	Located to serve as a downgradient stepout for LOU 5; to evaluate possible offsite sources to the west (particularly for VOCs); and for general Site coverage.
M-3	I	M-125	M-125B	35-50	MCfg1		No		X	X	X	X	X	X	X	X	X	X	X	X	X	New monitoring well located to serve as a downgradient stepout for LOUs 5 and 54; to evaluate potential offsite sources from the west; and for general Site coverage. Well was installed in June 2008 but not yet sampled for Phase B.
			M-125B	35-50				X	X	X	X	X	X	X	X	X	X	X	X	X	X	This is a matrix spike / matrix spike duplicate sample. Fill one set of bottles for MS sample & second set of bottles for MSD sample. Label both sets of bottles as M-125B.
M-8	I	M-39	M-39B	24.9 - 39.9	Qal/MCfg1	7/8/2008	Yes		X	X	X	X	X	X	X	X		X		X	X	Located to serve as a downgradient stepout for LOUs 5, 18, 20, and 21; and for general Site coverage.
N-4	I	M-142	M-142B	30-45	MCfg1		No		X	X	X	X	X	X	X	X		X		X	X	New monitoring well constructed in borehole for SA87 to evaluate LOU 39 (Satellite Accumulation Point, AP Maintenance Shop). Well was installed in June 2008 but not yet sampled for Phase B.
O-2	I	M-123	M-123B	34-51	MCfg1	7/11/2008	No		X	X	X	X	X	X	X	X	X	X	X	X	X	New monitoring well located to evaluate LOU 35; as an upgradient stepout for LOUs 38 and 54; to evaluate potential offsite sources to the west; and for general Site coverage. PCB analysis for groundwater requested by NDEP at this location. Well was installed in June 2008 but not yet sampled for Phase B.
			M-123BD	34-51 (dup)					X	X	X	X	X	X	X	X	X	X	X	X	X	This is a duplicate sample of M-123B.
O-4	I	M-124	M-124B	34-49	MCfg1	7/11/2008	No		X	X	X	X	X	X	X	X		X				New monitoring well located to evaluate LOU 64; serve as a downgradient stepout for LOU 63; as an upgradient stepout for LOU 39; and for general Site coverage. Well was installed in June 2008 but not yet sampled for Phase B
O-4	I	M-128	M-128B	40-55	MCfg1		No		X	X	X	X	X	X	X	X		X				New monitoring well to serve as a downgradient stepout for LOUs 35 and 64; as an upgradient stepout for LOUs 39-52, and 57; and for general Site coverage. Well was installed in June 2008 but not yet sampled for Phase B.

Number of Wells: 64

Notes:

*	Well completion information or boring log not available. Soil type inferred from nearby wells and geologic cross-section provided in the Phase A Source Area Investigation Report (ENSR, 2007). ENSR is in the process of obtaining screen interval information from BMI.
X	Sample will be collected and analyzed.
blank	No sample collected under Phase B sampling plan.
1.	It is anticipated that the large majority of the flow to the well will be from the coarse-grained sediments. As such, in the cases where there are two lithologies present across the screen interval, the water sampled will represent conditions in the coarse-grained interval.
2.	Metals analyses includes Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Platinum, Potassium, Selenium, Silver, Sodium, Strontium, Tin, Titanium, Thallium, Tungsten, Uranium, Vanadium, Zinc
3.	VOCs = Volatile organic compounds (to include analysis for naphthalene).
4.	Hexavalent Chromium.
5.	Complete list of wet chemistry parameters is shown on Table 1. All groundwater samples will have pH measured in the field.
6.	OCPs = Organochlorine pesticides (to include analysis for hexachlorobenzene).
7.	SVOCs = Semi volatile organic compounds.
8.	Polychlorinated Biphenyls.
9.	Radionuclides consists of alpha spec reporting for isotopic Thorium and isotopic Uranium, and Radium-226, plus Radium-228 by beta counting (per NDEP).
10.	OPPs = Organophosphorous Pesticides
TBD	To Be Determined when well is constructed.
nr	Not recorded in Tronox database (screen intervals to be acquired from BMI).
Qal	Quaternary Alluvium.
6/25/2008	Yellow indicates sample was collected on the date shown.
MS/MSD	Matrix Spike sample and Matrix Spike Duplicate sample (fill 2nd set of bottles for MS sample and 3rd set of bottles for MSD sample).
MCfg1	Muddy Creek Formation - first fine-grained facies.

Area II

Table 3
Groundwater Sampling And Analysis Plan for Area II
Phase B Source Area Investigation Work Plan
Tronox Facility - Henderson Nevada

							Laboratory [E.] :	CAS - Kelso, WA	CAS - Rochester, NY						GEL - Charleston, SC	STL-Denver	Alpha Analytical	Rationale for Revision	Location Description and Rationale for Investigation
Grid Location	Location Area	Monitoring Well No.	Sample ID No. [A]	Screen Interval (ft bgs)	Soil Type Expected Across Screen Interval[1.]	Well Sampled for Phase A? (y/n)	Perchlorate (EPA 314.0)	Metals[2.]	VOCs[3.] (EPA 8260)	Hex Cr[4.] (EPA 7199)	Wet Chemistry[5.]	Total Cyanide [F.] (EPA 9012A)	OCPs[6.] (EPA 8081A)	SVOCs[7.] (EPA 8270C)	Radionuclides[9.]	OPPs[10.] (8141A)	Organic Acids		
Wells are organized by grid location as shown on Plate A - Starting point is on the northwestern-most grid in Area II (L-4) and ending with the southeastern-most grid covering Area II (S-7).																			
L-4	IIE	M-14A	M-14AB	20 - 40	Qal/MCfg1	no	R	R	R	R	R	R	R	R	R			D (see Area I)	Located to serve as a downgradient stepout to LOU 5; and for general Site coverage.
L-5	IIN	I-B	I-BB	17.8 - 42.5	Qal/MCfg1	no	R	R	R	R	R	R	R	R	R			D (see Area I)	Located to serve as a downgradient stepout to LOUs 30 and 56 and for general Site coverage.
L-5	II	I-AR	I-ARB	25 - 45	MCfg1	yes	X	X	X	X	X	X	X	X	X			F	Located as an upgradient stepout for LOUs 30, 31, and 56; and LOU 58 and for general Site coverage.
L-6	IIN	M-55	M-55B	14.6 - 44.6	Qal/MCfg1	yes	R	R	R	R	R	R	R	R	R			D (see Area I)	Located as a downgradient stepout to LOU 55; and for general Site coverage.
L-6	IIN	M-78	M-78B	21.5 - 41.5	Qal/MCfg1	no	R	R	R	R	R	R	R	R	R			D (see Area I)	Located as a downgradient stepout to LOU 55; and for general Site coverage.
L-6	II	M-64	M-64B	12.7 - 37.3	Qal/MCfg1	no	X	X	X	X	X	X	X	X	X			F	Located to evaluate LOU 55; as a downgradient stepout for LOUs 30 and 56 and for general Site coverage.
L-6	II	M-25	M-25B	24 - 39	Qal/MCfg1	no	X	X	X	X	X	X	X	X	X			F	Located to serve as a downgradient stepout for LOUs 16, 19 and 53; as an upgradient stepout for LOU 55; and for general Site coverage.
L-6	II	M-38	M-38B	20 - 35	MCfg1	no	X	X	X	X	X	X	X	X	X			F	Located to serve as a downgradient stepout for LOUs 16, 17, 19, and LOU 57; and for general Site coverage.
L-8	IIN	M-68	M-68B	11.2 - 39.8	Qal/MCfg1	no	R	R	R	R	R	R	R	R	R			D (see Area I)	Located to serve as a downgradient stepout for LOU 5; and for general Site coverage.
L-9	IIN	CLD2-R	CLD2-RB	20 - 40.27	Qal	no	R	R	R	R	R	R	R	R	R			D (see Area I)	Located to serve as a downgradient stepout for LOU 5; and for general Site coverage.
M-2	IIN	TR-4	TR-4B	124.5 - 144.5	MCfg1	no	R	R	R	R	R	R	R	R	R			D (see Area I)	Located to serve as a downgradient stepout for LOU 5; and for general Site coverage.
M-3	IIN	M-125	M-125B	35 - 50	MCfg1	new well	R	R	R	R	R	R	R	R	R			D (see Area I)	Located to serve as a downgradient stepout for LOU 5; and for general Site coverage.
M-5	II	M-110	M-110B	30 - 40	Qal/MCfg1	no	X	X	X	X	X	X	X	X	X			F	Located to evaluate LOU 57 as a downgradient stepout for LOU 5; and for general Site coverage.
M-5	II	M-111A	M-111AB	29.7 - 39.7	MCfg1	no	X	X	X	X	X	X	X	X	X	X	X	B, C, F	Replacement well for M-111 which was destroyed by site grading and located to evaluate LOU 57; a downgradient stepout for LOU 52; as an upgradient stepout for LOUs 5 and 19; and for general Site coverage.
M-6	II	M-89	M-89B	18 - 38.2	Qal/MCfg1	yes	X	X	X	X	X	X	X	X	X	X	X	B, F	Located to evaluate LOU 57; as a downgradient stepout for LOUs 5, 16, 17, and 53; and for general Site coverage.
M-7	II	M-22A	M-22AB	16 - 36	Qal/MCfg1	no	X	X	X	X	X	X	X	X	X			F	Located to evaluate LOU 57; as a downgradient stepout for LOUs 5, and 16 through 18; and for general Site coverage.
M-8	IIN	M-39	M-39B	24.9 - 39.9	Qal/MCfg1	yes	R	R	R	R	R	R	R	R	R			D (see Area I)	Located as a downgradient stepout for LOUs 5, 20, 22 (pipelines in Area II) and LOU 23 (pipelines in Area II); and for general Site coverage.
M-8	II	M-19	M-19B	14.5 - 34.5	MCfg1	no	X	X	X	X	X	X	X	X	X			F	Located to serve as an upgradient stepout for LOUs 5 and 20; to evaluate LOUs 22 and 23 and potential offsite sources to the east; and as general Site coverage.
N-4	IIN	M-142	M-142B	30 - 45	MCfg1	new well	R	R	R	R	R	R	R	R	R			D (see Area I)	Located to serve as an upgradient stepout for LOU 5; and for general Site coverage.
N-5	II	M-75	M-75B	34.6 - 49.3	Qal/MCfg1	no	X	X	X	X	X	X	X	X	X			F	Located to serve as a downgradient stepout for LOUs 7, 8, 9, and 45; as an upgradient stepout for LOUs 16, 17, 19, 53 and 57; and for general Site coverage.
N-5	II	M-76	M-76B	34.6 - 49.3	MCcg1	yes	X	X	X	X	X	X	X	X	X			F	Located to serve as a downgradient stepout for LOUs 8 and 45; as an upgradient stepout for LOUs 53 and 57; and for general Site coverage.
N-6	II	M-2A	M-2AB	30 - 40	Qal	yes	X	X	X	X	X	X	X	X	X			C, F	Located as a downgradient stepout for LOUs 7, 8, 9, 13, 14, 20, 34, and 45; as an upgradient stepout for LOUs 16, 17, 18, 22, 23, 53, and 57; and for general Site coverage.
N-6	II	M-17A	M-17AB	35 - 45	Qal/MCfg1	no	X	X	X	X	X	X	X	X	X			F	Located to evaluate LOU 57; as an upgradient stepout for LOUs 5, 16, 17, 18, 22, and 23; and for general Site coverage.
N-7	II	M-34	M-34B	25 - 40	Qal/MCfg1	no	X	X	X	X	X	X	X	X	X	X	X	B, F	Located to evaluate the outfall of the culvert that empties into the Eastern Diversion segment of LOU 5; as a downgradient stepout for LOUs 13 and 14; as an upgradient step out for LOUs 20, 22, and 23; and for general Site coverage.
N-7	IIE	M-35	M-35B	25 - 40	Qal/MCfg1	no	R	R	R	R	R	R	R	R	R			D (see Area III)	Located to evaluate LOUs 5, 20, 22, and 23; and for general Site coverage.
O-2	IIS	M-123	M-123B	34 - 51	MCfg1	new well	R	R	R	R	R	R	R	R	R			D (see Area I)	Located to serve as an upgradient stepout for LOU 5; and for general Site coverage.
O-5	II	M-21	M-21B	18 - 38	MCfg1	no	X	X	X	X	X	x	X	X	X			F	Located to evaluate LOU 45; as an upgradient stepout for LOUs 7, 9, 13 and 14; as a downgradient stepout for LOU 59; and for general Site coverage.
O-6	IIS	M-50	M-50B	39.6 - 59.6	MCfg1	no	R	R	R	R	R	R	R	R	R			D (see Area III)	Located to serve as a downgradient well for a segment of LOU 59 located in Area II; as upgradient well for LOUs 13 and 14; and for general Site coverage.
P-5	IIS	M-97	M-97B	35 - 45	MCfg1/MCcg1	yes	R	R	R	R	R	R	R	R	R			D (see Area IV)	Located to serve as an upgradient stepout for LOU 45 and segments of LOU 59 located in Area II; and for general Site coverage.
P-7	II	M-52	M-52B	34.5 - 44.5	MCfg1	no	R	R	R	R	R	R	R	R	R			D (see Area III)	Located to evaluate LOUs 43, 11, 12, and 15; and for general Site coverage.

Table 3
Groundwater Sampling And Analysis Plan for Area II
Phase B Source Area Investigation Work Plan
Tronox Facility - Henderson Nevada

							Laboratory [E.] :	CAS - Kelso, WA	CAS - Rochester, NY						GEL - Charleston, SC	STL-Denver	Alpha Analytical	Rationale for Revision	Location Description and Rationale for Investigation
Grid Location	Location Area	Monitoring Well No.	Sample ID No. [A]	Screen Interval (ft bgs)	Soil Type Expected Across Screen Interval[1.]	Well Sampled for Phase A? (y/n)	Perchlorate (EPA 314.0)	Metals[2.]	VOCs[3.] (EPA 8260)	Hex Cr[4.] (EPA 7199)	Wet Chemistry[5.]	Total Cyanide [F.] (EPA 9012A)	OCPs[6.] (EPA 8081A)	SVOCs[7.] (EPA 8270C)	Radionuclides[9.]	OPPs[10.] (8141A)	Organic Acids		
Wells are organized by grid location as shown on Plate A - Starting point is on the northwestern-most grid in Area II (L-4) and ending with the southeastern-most grid covering Area II (S-7).																			
Q-5	II	M-13	M-13B	28 - 48	MCfg1	yes	X	X	X	X	X	X	X	X	X			F	Located to serve as a downgradient stepout for LOU 60; as an upgradient stepout for LOUs 36 and 45; and for general Site coverage.
Q-6	II	M-12A	M-12AB	40 - 50	MCfg1	yes	X	X	X	X	X	X	X	X	X			F, H	Located as a downgradient stepout for LOUs 12, 15, 29, 36, 43, 59 and 60; and for general Site coverage.
Q-7	IIN	M-11	M-11B	33.3 - 53	Qal/MCfg1	yes	R	R	R	R	R	R	R	R	R			D (see Area III)	Located to serve as a downgradient stepout for LOUs 29 and 43; and for general Site coverage.
R-5	IIS	M-144	M-144B	TBD	Qal/MCfg1	new well	R	R	R	R	R	R	R	R	R			D (see Area IV)	Co-located with Boring SA133 as an upgradient stepout for LOU 60; and for general Site coverage.
R-5	II	M-146	M-146B	TBD	Qal/MCfg1*	no	X	X	X	X	X	X	X	X	X			F, G	Located to evaluate LOU 36; and for general Site coverage.
T-7	IIS	M-10	M10B	43 - 63	MCcg1	no	R	R	R	R	R	R	R	R	R			D (see Area IV)	Located to serve as an upgradient stepout for LOUs 29, 43 and segments of LOU 60 in Area II; and for general Site coverage.
						Number of Field Samples:	**18**	**18**	**18**	**18**	**18**	**18**	**18**	**18**	**18**	**3**	**3**		
QA/QC Samples:																			
						Field Duplicates (10%)	2	2	2	2	2	2	2	2	2	1	1		
						Field Blanks	1	1	1	1	1	1	1	1	1	1	1		
						Equipment Rinseate Blanks	2	2	2	2	2	2	2	2	2	1	1		
						Trip Blank Samples	0	0	5	0	0	0	0	0	0	0	0		
						Matrix Spike (5%)	1	1	1	1	1	1	1	1	1	1	1		
						Matrix Spike Duplicate (5%)	1	1	1	1	1	1	1	1	1	1	1		
						Total Samples:	**25**	**25**	**30**	**25**	**25**	**25**	**25**	**25**	**25**	**8**	**8**		

Notes:

*	Well completion information or boring log not available. Soil type inferred from nearby wells and geologic cross-section provided in the Phase A Source Area Investigation Report (ENSR, 2007). Tronox is in the process of obtaining information from BMI.
X	Sample will be collected and analyzed.
blank	No sample collected under Phase B sampling plan.
1.	It is anticipated that the large majority of the flow to the well will be from the coarse-grained sediments. As such, in the cases where there are two lithologies present across the screen interval, the water sampled will represent conditions in the coarse-grained interval.
2.	Metals analyses includes Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Platinum, Potassium, Selenium, Silver, Sodium, Strontium, Tin, Titanium, Thallium, Tungsten, Uranium, Vanadium, Zinc
3.	VOCs = Volatile organic compounds (to include analysis for naphthalene).
4.	Hexavalent Chromium.
5.	Complete list of wet chemistry parameters are shown on Table 1. All groundwater samples will have pH measured in the field.
6.	OCPs = Organochlorine pesticides (to include analysis for hexachlorobenzene).
7.	SVOCs = Semi volatile organic compounds.
8.	Polychlorinated Biphenyls.
9.	Radionuclides consists of alpha spec reporting for isotopic Thorium and isotopic Uranium, and Radium-226, plus Radium-228 by beta counting (per NDEP).
10.	OPPs = Organophosphorous Pesticides
IIIN/E/W/S	Well located outside (north, east, west, or south) of Area II.
TBD	To Be Determined when well is constructed.
(a)	Complete list of wet chemistry parameters are shown on Table 1. All groundwater samples will have pH measured in the field.
TD	Total Depth of the well determined by Site-wide routine groundwater monitoring.
nr	Not recorded in Tronox database (screen intervals to be acquired from BMI where possible or determined by downhole camera).
Qal	Quaternary Alluvium.
MCfg1	Muddy Creek Formation - first fine-grained facies
MCcg1	Muddy Creek Formation - first coarse-grained facies
X	Green-shading indicates items that have been added or changed from Table 3 in the June 2008 Area II Work Plan originally reviewed by NDEP.
R	Brown-shading indicates items that have been removed from Table 3 in the June 2008 Area II Work Plan originally reviewed by NDEP.
A	Sample ID was added to convey sample ID nomenclature to field sampling team ("B" suffix denotes sample is associated with Phase B sampling event).
B	OPPs and Organic Acids were added per NDEP (July 21, 2008).
C	Asterisks were removed from April 2008 submission
D	Well was removed from Table 3 because this well is not located in Area II.
E	Laboratory information was added to Table 3 to assist field sampling personnel in shipping the sample containers to the appropriate laboratory.
F	Total Cyanide was added per NDEP (July 21, 2008)
G	Expected soil types across expected screen interval based on nearby wells
H	Hyphen inserted to correct typographical error

Table 3 (Field Version)
Groundwater Sampling And Analysis Plan for Area II

Phase B Source Area Investigation Work Plan
Tronox Facility - Henderson Nevada

								Laboratory [E.] :											
								CAS - Kelso, WA		CAS - Rochester, NY						GEL - Charleston, SC	STL-Denver	Alpha Analytical	
Grid Location	Location Area	Monitoring Well No.	Sample ID No. [A]	Screen Interval (ft bgs)	Soil Type Expected Across Screen Interval[1.]	Well Sampled for Phase A? (y/n)	Matrix Spike/MS Duplicate	Perchlorate (EPA 314.0)	Metals[2.]	VOCs[3.] (EPA 8260)	Hex Cr[4.] (EPA 7199)	Wet Chemistry[5.]	Total Cyanide [F.] (EPA 9012A)	OCPs[6.] (EPA 8081A)	SVOCs[7.] (EPA 8270C)	Radionuclides[8.]	OPPs[10.] (8141A)	Organic Acids	Location Description and Rationale for Investigation
Wells are organized by grid location as shown on Plate A - Starting point is on the northwestern-most grid in Area II (L-5) and ending with the southeastern-most grid covering Area II (R-5).																			
L-5	II	I-AR	I-ARB	25 - 45	MCfg1	yes		X	X	X	X	X	X	X	X	X			Located as an upgradient stepout for LOUs 30, 31, and 56; and LOU 58 and for general Site coverage.
L-6	II	M-64	M-64B	12.7 - 37.3	Qal/MCfg1	no		X	X	X	X	X	X	X	X	X			Located to evaluate LOU 55; as a downgradient stepout for LOUs 30 and 56 and for general Site coverage.
L-6	II	M-25	M-25B	24 - 39	Qal/MCfg1	no		X	X	X	X	X	X	X	X	X			Located to serve as a downgradient stepout for LOUs 16, 19 and 53; as an upgradient stepout for LOU 55; and for general Site coverage.
L-6	II	M-38	M-38B	20 - 35	MCfg1	no		X	X	X	X	X	X	X	X	X			Located to serve as a downgradient stepout for LOUs 16, 17, 19, and LOU 57; and for general Site coverage.
M-5	II	M-110	M-110B	30 - 40	Qal/MCfg1	no		X	X	X	X	X	X	X	X	X			Located to evaluate LOU 57 as a downgradient stepout for LOU 5; and for general Site coverage.
M-5	II	M-111A	M-111AB	29.7 - 39.7	MCfg1	no		X	X	X	X	X	X	X	X	X	X	X	Replacement well for M-111 which was destroyed by site grading and located to evaluate LOU 57; a downgradient stepout for LOU 52; as an upgradient stepout for LOUs 5 and 19; and for general Site coverage
M-6	II	M-89	M-89B	18 - 38.2	Qal/MCfg1	yes		X	X	X	X	X	X	X	X	X	X	X	Located to evaluate LOU 57; as a downgradient stepout for LOUs 5, 16, 17, and 53; and for general Site coverage.
			M-89B	18 - 38.2			X	X	X	X	X	X	X	X	X	X	X	X	This is a matirx spike / matirx spike duplicate sample. Fill one set of bottles for MS sample & a second set of bottles for MSD sample. Label both sets of bottles as M-89B.
M-7	II	M-22A	M-22AB	16 - 36	Qal/MCfg1	no		X	X	X	X	X	X	X	X	X			Located to evaluate LOU 57; as a downgradient stepout for LOUs 5, and 16 through 18; and for general Site coverage.
M-8	II	M-19	M-19B	14.5 - 34.5	MCfg1	no		X	X	X	X	X	X	X	X	X			Located to serve as an upgradient stepout for LOUs 5 and 20; to evaluate LOUs 22 and 23 and potential offsite sources to the east; and as general Site coverage.
N-5	II	M-75	M-75B	34.6 - 49.3	Qal/MCfg1	no		X	X	X	X	X	X	X	X	X			Located to serve as a downgradient stepout for LOUs 7, 8, 9, and 45; as an upgradient stepout for LOUs 16, 17, 19, 53 and 57; and for general Site coverage.
N-5	II	M-76	M-76B	34.6 - 49.3	MCcg1	yes		X	X	X	X	X	X	X	X	X			Located to serve as a downgradient stepout for LOUs 8 and 45; as an upgradient stepout for LOUs 53 and 57 and for general Site coverage.
N-6	II	M-2A	M-2AB	30-40	Qal	yes		X	X	X	X	X	X	X	X	X			Located as a downgradient stepout for LOUs 7, 8, 9, 13, 14, 20, 34, and 45; as an upgradient stepout for LOUs 16, 17, 18, 22, 23, 53, and 57; and for general Site coverage.
			M-2ABD	30 - 40 (dup)				X	X	X	X	X	X	X	X	X			This is a duplicate sample of M-2AB.
N-6	II	M-17A	M-17AB	35 - 45	Qal/MCfg1	no		X	X	X	X	X	X	X	X	X			Located to evaluate LOU 57; as an upgradient stepout for LOUs 5, 16, 17, 18, 22, and 23; and for general Site coverage.
N-7	II	M-34	M-34B	25 - 40	Qal/MCfg1	no		X	X	X	X	X	X	X	X	X	X	X	Located to evaluate the outfall of the culvert that empties into the Eastern Diversion segment of LOU 5; as a downgradient stepout for LOUs 13 and 14; as an upgradient step out for LOUs 20, 22, and 23; and for genera Site coverage.
O-5	II	M-21	M-21B	18 - 38	MCfg1	no		X	X	X	X	X	x	X	X	X			Located to evaluate LOU 45; as an upgradient stepout for LOUs 7, 9, 13 and 14; as a downgradient stepout for LOU 59; and for general Site coverage.
Q-5	II	M-13	M-13B	28-48	MCfg1	yes		X	X	X	X	X	X	X	X	X			Located to serve as a downgradient stepout for LOU 60; as an upgradient stepout for LOUs 36 and 45; and fo general Site coverage.
			M-13BD	28 - 48 (dup)				X	X	X	X	X	X	X	X	X			This is a duplicate sample of M-13B.
Q-6	II	M-12A	M-12AB	40 - 50	MCfg1	yes		X	X	X	X	X	X	X	X	X			Located as a downgradient stepout for LOUs 12, 15, 29, 36, 43, 59 and 60; and for general Site coverage.
R-5	II	M-146	M-146B	TBD	Qal/MCfg1*	no		X	X	X	X	X	X	X	X	X			Located to evaluate LOU 36; and for general Site coverage.

Notes:

*	Well completion information or boring log not available. Soil type inferred from nearby wells and geologic cross-section provided in the Phase A Source Area Investigation Report (ENSR, 2007). Tronox is in the process of obtaining information from BMI.
X	Sample will be collected and analyzed.
blank	No sample collected under Phase B sampling plan.
1.	It is anticipated that the large majority of the flow to the well will be from the coarse-grained sediments. As such, in the cases where there are two lithologies present across the screen interval, the water sampled will represent conditions in the coarse-grained interval.
2.	Metals analyses includes Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Platinum, Potassium, Selenium, Silver, Sodium, Strontium, Tin, Titanium, Thallium, Tungsten, Uranium, Vanadium, Zinc
3.	VOCs = Volatile organic compounds (to include analysis for naphthalene).
4.	Hexavalent Chromium.
5.	Complete list of wet chemistry parameters are shown on Table 1. All groundwater samples will have pH measured in the field.
6.	OCPs = Organochlorine pesticides (to include analysis for hexachlorobenzene).

Table 3 (Field Version)
Groundwater Sampling And Analysis Plan for Area II

Phase B Source Area Investigation Work Plan
Tronox Facility - Henderson Nevada

								Laboratory [E.] :		CAS - Kelso, WA		CAS - Rochester, NY						GEL - Charleston, SC	STL-Denver	Alpha Analytical	
Grid Location	Location Area	Monitoring Well No.	Sample ID No. [A]	Screen Interval (ft bgs)	Soil Type Expected Across Screen Interval[1.]	Well Sampled for Phase A? (y/n)	Matrix Spike/MS Duplicate	Perchlorate (EPA 314.0)	Metals[2.]	VOCs[3.] (EPA 8260)	Hex Cr[4.] (EPA 7199)	Wet Chemistry[5.]	Total Cyanide [F.] (EPA 9012A)	OCPs[6.] (EPA 8081A)	SVOCs[7.] (EPA 8270C)	Radionuclides[9.]	OPPs[10.] (8141A)	Organic Acids	Location Description and Rationale for Investigation
Wells are organized by grid location as shown on Plate A - Starting point is on the northwestern-most grid in Area II (L-5) and ending with the southeastern-most grid covering Area II (R-5).																			

7. SVOCs = Semi volatile organic compounds.
8. Polychlorinated Biphenyls.
9. Radionuclides consists of alpha spec reporting for isotopic Thorium and isotopic Uranium, and Radium-226, plus Radium-228 by beta counting (per NDEP).
10. OPPs = Organophosphorous Pesticides

IIN/E/W/S Well located outside (north, east, west, or south) of Area II.
TBD To Be Determined when well is constructed.
TD Total Depth of the well determined by Site-wide routine groundwater monitoring.
nr Not recorded in Tronox database (screen intervals to be acquired from BMI where possible or determined by downhole camera).
Qal Quaternary Alluvium.
MCfg1 Muddy Creek Formation - first fine-grained facies
MCcg1 Muddy Creek Formation - first coarse-grained facies

Area III

Table 3
Groundwater Sampling and Analysis Plan - Area III
Phase B Source Area Investigation Work Plan
Tronox Facility - Henderson, Nevada

							Laboratory [E.] :	CAS - Kelso, WA	CAS - Rochester, NY						GEL -Charleston, SC	STL - Denver	Alpha Analytical Sparks, NV	Rationale for Revision	Location Description and Rationale for Investigation
Grid Location	Location Area	Monitoring Well No.	Sample ID No.[A]	Screen Interval (ft bgs)	Soil Type Expected Across Screen Interval[1.]	Well Sampled for Phase A? (y/n)	Perchlorate (EPA 314.0)	Metals[2.]	VOCs[3.] (EPA 8260)	Hex Cr[4.] (EPA 7199)	Wet Chemistry[5.]	Total Cyanide[F.] (EPA 9012A)	OCPs[6.] (EPA 8081A)	SVOCs[7.] (EPA 8270C)	Radionuclides[9.]	OPPs[10.B] (8141A)	Organic Acids [C]		
Wells are organized by grid location as shown on Plate A - Starting point is on the northwestern-most grid in Area III (N-7) and ending with the southeastern-most grid covering Area III (Q-9).																			
M-8	IIIN	M-19	M-19B	14.5 - 34.5	Qal/MCfg1	no	R	R	R	R	R	R	R	R	R			D (see Area II)	Located to serve as a downgradient step out for LOU 21 and for general Site coverage.
N-7	IIIW	M-34	M-34B	25 - 40	Qal/MCfg1	no	R	R	R	R	R	R	R	R	R			D (see Area II)	Located to serve as a downgradient step out for LOU 46; as a crossgradient step out for LOUs 20, 22, 23, and 60; and for general Site coverage.
N-7	III	M-35	M-35B	25 - 40	MCfg1	no	X	X	X	X	X	X	X	X	X			F	Located to serve as a downgradient step out for LOUs 24 and 46; as an crossgradient step out for LOU 21; and fo general Site coverage.
N-8	III	M-147	M-147B	TBD	Qal/MCfg1*	new well	X	X	X	X	X	X	X	X	X			F	
N-9	TIMET	CLD-4R	CLD-4RB	nr	Qal/MCfg1*	no	X	X	X	X	X	X	X	X	X			F	Serves as a step out downgradient well for LOUs 24 and 46; as a step out upgradient well for LOU 21; as a cross-gradient step out to LOUs 59 and 60; and general Site coverage located on Timet.
O-6	III	M-50	M-50B	39.6 - 59.6	MCfg1	no	X	X	X	X	X	X	X	X	X			F	Located to evaluate LOU 34W; as an upgradient step out for LOU 60; and for general Site coverage.
O-8	III	M-33	M-33B	30 - 45	MCfg1	no	X	X	X	X	X	X	X	X	X			F	Located to serve as a downgradient step out for LOU 59; as upgradient step out for LOUs 24 and 46; and for general Site coverage.
O-8	III	M-148	M-148B	TBD	MCfg1*	new well	X	X	X	X	X	X	X	X	X			F	Located south of LOU 46 (Former Old Main Cooling Tower) per NDEP.
O-10	TIMET	CLU1	CLU1B	nr	MCfg1*	no	X	X	X	X	X	X	X	X	X			F	Serves as a step out downgradient for LOUs 34E, 47, 48, 51, and Area 70 (former U.S. Vanadium), and general Site coverage located on Timet.
P-7	III	M-31A	M-31AB	35 - 55	MCfg1	yes	X	X	X	X	X	X	X	X	X			F	Located to serve as a downgradient step out for LOU 59; as an upgradient step out for LOUs 24 and 46; as a crossgradient step out for LOUs 20, 21, 22, and 23; and for general Site coverage.
P-7	III	M-52	M-52B	34.5 - 44.5	MCfg1	no	X	X	X	X	X	X	X	X	X			F	Located to evaluate LOUs 34E, 47 through 51, and Area 70 (former U.S. Vanadium); as a crossgradient step out for LOUs 20, 21, 22, 23, and 60; and for general Site coverage.
P-7	III	M-141	M-141B	TBD	MCfg1*	new well	X	X	X	X	X	X	X	X	X			F	New monitoring well co-located with boring SA140 to evaluate LOUs 49 and 50.
P-8	III	M-77	M-77B	29 - 43.8	Qal/MCfg1	no	X	X	X	X	X	X	X	X	X			F	Located to evaluate LOUs 34E, 47 through 51 and Area 70 (former U.S. Vanadium); as a downgradient step out fo LOUs 33, 40, and 61; as a crossgradient step out for LOU 59; and for general Site coverage.
Q-6	IIIN	M-12A	M-12AB	28-48	MCfg1	yes	R	R	R	R	R	R	R	R	R			D (see Area II)	Located to serve as a upgradient step out for LOUs 20, 22, and 23 and for general Site coverage.
Q-7	III	M-11	M-11B	33.3 - 53	Qal/MCfg1	yes	X	X	X	X	X	X	X	X	X			F	Located as a downgradient step out for LOU 61; as an upgradient step out for LOUs 34E, 47 through 51 and Area 70 (former U.S. Vanadium); as a crossgradient step out for LOUs 20, 22, 23, and 60, and for general Site coverage.
Q-8	III	M-122	M-122B	TBD	Qal/MCfg1*	new well	X	X	X	X	X	X	X	X	X			F	New monitoring well located to serve as a downgradient step out for LOUs 37, 44, and 60; as an upgradient step out for LOUs 34E, 47, 48, 51, 59 and Area 70 (former U.S. Vanadium); to evaluate possible offsite sources to the east; and for general Site coverage.
Q-9	TIMET	MW-6R	MW-6RB	39.7 - 59.7	Qal/MCfg1*	no	X	X	X	X	X	X	X	X	X			F	Located to serve as a downgradient step out for LOUs 37and 44; as a crossgradient step out for LOUs 59 and 60; to evaluate possible offsite sources to the east; and for general Site coverage.
R-8	III	M-139	M-139B	TBD	MCfg1*	new well	X	X	X	X	X	X	X	X	X			F	Located as an upgradient step out for LOUs 37 and 44, and general Site coverage.
R-8	III	M-145	M-145B	TBD	MCfg1*	new well	X	X	X	X	X	X	X	X	X			F	New monitoring well located to serve as a crossgradient step out for LOU 44, to evaluate possible offsite sources to the east; and for general Site coverage.
R-8	III	M-29	M-29B	22-42	MCfg1	no	X	X	X	X	X	X	X	X	X			F	Located to evaluate groundwater conditions beneath the Unit 6 building for LOUs 44 and 37.
T-7	IIIS	M-10	M-10B	43 - 63	MCcg1	no	R	R	R	R	R	R	R	R	R			D (see Area IV)	Located as a downgradient step out for LOUs 33, 40, and 61; and for general Site coverage.
						Number of Field Samples:	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**0**	**0**		
QA/QC Samples:																			
						Field Duplicates (10%)	2	2	2	2	2	2	2	2	2	0	0		
						Field Blanks	1	1	1	1	1	1	1	1	1	0	0		
						Equipment Rinseate Blanks	1	1	1	1	1	1	1	1	1	0	0		
						Trip Blank Samples	0	0	5	0	0	0	0	0	0	0	0		
						Matrix Spike (5%)	1	1	1	1	1	1	1	1	1	0	0		
						Matrix Spike Duplicate (5%)	1	1	1	1	1	1	1	1	1	0	0		
						Total Samples:	**23**	**23**	**28**	**23**	**23**	**23**	**23**	**23**	**23**	**0**	**0**		

Notes:

*	Well completion information or boring log not available. Soil type inferred from nearby wells and geologic cross-section provided in the Phase A Source Area Investigation Report (ENSR, 2007). ENSR is in the process of obtaining information from BMI.
X	Sample will be collected and analyzed.
blank	No sample collected under Phase B sampling plan.
1.	It is anticipated that the large majority of the flow to the well will be from the coarse-grained sediments. As such, in the cases where there are two lithologies present across the screen interval, the water sampled will represent conditions in the coarse-grained interval.
2.	Metals analyses includes Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Platinum, Potassium, Selenium, Silver, Sodium, Strontium, Tin, Titanium, Thallium, Tungsten, Uranium, Vanadium, and Zinc.
3.	VOCs = Volatile organic compounds (to include analysis for naphthalene).
4.	Hexavalent Chromium.
5.	Complete list of wet chemistry parameters are shown on Table 1. All groundwater samples will have pH measured in the field.
6.	OCPs = Organochlorine pesticides (to include analysis for hexachlorobenzene).
7.	SVOCs = Semi-volatile organic compounds.
8.	Polychlorinated Biphenyls.
9.	Radionuclides consists of alpha spec reporting for isotopic Thorium and isotopic Uranium, and Radium-226, plus Radium-228 by beta counting (per NDEP).
10.	OPPs = Organophosphorous Pesticides

Table 3
Groundwater Sampling and Analysis Plan - Area III
Phase B Source Area Investigation Work Plan
Tronox Facility - Henderson, Nevada

						Laboratory [E.] :	CAS - Kelso, WA		CAS - Rochester, NY						GEL -Charleston, SC	STL - Denver	Alpha Analytical Sparks, NV	Rationale for Revision	Location Description and Rationale for Investigation
Grid Location	Location Area	Monitoring Well No.	Sample ID No.[A]	Screen Interval (ft bgs)	Soil Type Expected Across Screen Interval[1.]	Well Sampled for Phase A? (y/n)	Perchlorate (EPA 314.0)	Metals[2.]	VOCs[3.] (EPA 8260)	Hex Cr[4.] (EPA 7199)	Wet Chemistry[5.]	Total Cyanide [F.] (EPA 9012A)	OCPs[6.] (EPA 8081A)	SVOCs[7.] (EPA 8270C)	Radionuclides [9.]	OPPs[10.B] (8141A)	Organic Acids [C]		
Wells are organized by grid location as shown on Plate A - Starting point is on the northwestern-most grid in Area III (N-7) and ending with the southeastern-most grid covering Area III (Q-9).																			

IIIN/E/W/S	Well located outside (north, east, west, or south) of Area III.
TBD	To be determined when well is constructed.
(a)	Complete list of wet chemistry parameters are shown on Table 1. All groundwater samples will have pH measured in the field.
TD	Total Depth of the well determined by Site wide routine groundwater monitoring.
nr	Not recorded in the Tronox Database (June 2008) - information will be acquired from BMI or determined by downhole camera.
Qal	Quaternary Alluvium.
MCfg1	Muddy Creek Formation - first fine-grained facies.
MCcg1	Muddy Creek Formation - first coarse-grained facies.
X	Green-shading indicates items that have been added or changed from Table 3 in the June 2008 Area III Work Plan originally reviewed by NDEP.
R	Brown-shading indicates items that have been removed from Table 3 in the June 2008 Area III Work Plan originally reviewed by NDEP.
A	Sample ID was added to convey sample ID nomenclature to field sampling team.
B	OPPs were added per NDEP (July 21, 2008).
C	Organic Acids were added per NDEP (July 21, 2008).
D	Well was removed from Table 3 because this well is not located in Area III.
E	Laboratory information was added to Table 3 to assist field sampling personnel in shipping the sample containers to the appropriate laboratory.
F	Total cyanide column was added per NDEP (July 21, 2008).

Table 3 (Field Version)
Groundwater Sampling and Analysis Plan - Area III
Phase B Source Area Investigation Work Plan
Tronox Facility - Henderson, Nevada

								Laboratory [E.] :	CAS - Kelso, WA	CAS - Rochester, NY						GEL -Charleston, SC	STL - Denver	Alpha Analytical Sparks, NV	Location Description and Rationale for Investigation
Grid Location	Location Area	Monitoring Well No.	Sample ID No.[A]	Screen Interval (ft bgs)	Soil Type Expected Across Screen Interval[1.]	Well Sampled for Phase A? (y/n)	Matrix Spike/MS Duplicate		Perchlorate (EPA 314.0)	Metals[2.]	VOCs[3.] (EPA 8260)	Hex Cr[4.] (EPA 7199)	Wet Chemistry[5.]	Total Cyanide[F.] (EPA 9012A)	OCPs[6.] (EPA 8081A)	SVOCs[7.] (EPA 8270C)	Radionuclides[9.]	OPPs[10.B] (8141A)	Organic Acids[C]	
Wells are organized by grid location as shown on Plate A - Starting point is on the northwestern-most grid in Area III (N-7) and ending with the southeastern-most grid covering Area III (R-8).																			
N-7	III	M-35	M-35B	25 - 40	MCfg1	no			X	X	X	X	X	X	X	X	X			Located to serve as a downgradient step out for LOUs 24 and 46; as an crossgradient step out for LOU 21; and for general Site coverage.
N-8	III	M-147	M-147B	TBD	Qal/MCfg1*	new well			X	X	X	X	X	X	X	X	X			
N-9	TIMET	CLD-4R	CLD-4RB	nr	Qal/MCfg1*	no			X	X	X	X	X	X	X	X	X			Serves as a step out downgradient well for LOUs 24 and 46; as a step out upgradient well for LOU 21; as a cross-gradient step out to LOUs 59 and 60; and general Site coverage located on Timet.
O-6	III	M-50	M-50B	39.6 - 59.6	MCfg1	no			X	X	X	X	X	X	X	X	X			Located to evaluate LOU 34W; as an upgradient step out for LOU 60; and for general Site coverage.
O-8	III	M-33	M-33B	30 - 45	MCfg1	no			X	X	X	X	X	X	X	X	X			Located to serve as a downgradient step out for LOU 59; as upgradient step out for LOUs 24 and 46; and for general Site coverage.
O-8	III	M-148	M-148B	TBD	MCfg1*	new well			X	X	X	X	X	X	X	X	X			Located south of LOU 46 (Former Old Main Cooling Tower) per NDEP.
O-10	TIMET	CLU1	CLU1B	nr	MCfg1*	no			X	X	X	X	X	X	X	X	X			Serves as a step out downgradient for LOUs 34E, 47, 48, 51, and Area 70 (former U.S. Vanadium), and general Site coverage located on Timet.
P-7	III	M-31A	M-31AB	35 - 55	MCfg1	yes			X	X	X	X	X	X	X	X	X			Located to serve as a downgradient step out for LOU 59; as an upgradient step out for LOUs 24 and 46; as a crossgradient step out for LOUs 20, 21, 22, and 23; and for general Site coverage.
P-7	III	M-52	M-52B	34.5 - 44.5	MCfg1	no			X	X	X	X	X	X	X	X	X			Located to evaluate LOUs 34E, 47 through 51, and Area 70 (former U.S. Vanadium); as a crossgradient step out for LOUs 20, 21, 22, 23, and 60; and for general Site coverage.
P-7	III	M-141	M-141B	TBD	MCfg1*	new well			X	X	X	X	X	X	X	X	X			New monitoring well co-located with boring SA140 to evaluate LOUs 49 and 50.
			M-141BD	TBD (dup)					X	X	X	X	X	X	X	X	X			This is a duplicate sample of M-141B.
P-8	III	M-77	M-77B	29 - 43.8	Qal/MCfg1	no			X	X	X	X	X	X	X	X	X			Located to evaluate LOUs 34E, 47 through 51 and Area 70 (former U.S. Vanadium); as a downgradient step out for LOUs 33, 40, and 61; as a crossgradient step out for LOU 59; and for general Site coverage.
			M-77B	29 - 43.8				X	X	X	X	X	X	X	X	X	X			This is a matrix spike / matrix spike duplicate sample. Fill one set of bottles for MS sample & second set of bottles for MSD sample. Label both sets of bottles as M-77B.
Q-7	III	M-11	M-11B	33.3 - 53	Qal/MCfg1	yes			X	X	X	X	X	X	X	X	X			Located as a downgradient step out for LOU 61; as an upgradient step out for LOUs 34E, 47 through 51 and Area 70 (former U.S. Vanadium); as a crossgradient step out for LOUs 20, 22, 23, and 60, and for general Site coverage.
			M-11BD	33.3 - 53 (dup)					X	X	X	X	X	X	X	X	X			This is a duplicate sample of M-11B.
Q-8	III	M-122	M-122B	TBD	Qal/MCfg1*	new well			X	X	X	X	X	X	X	X	X			New monitoring well located to serve as a downgradient step out for LOUs 37, 44, and 60; as an upgradient step out for LOUs 34E, 47, 48, 51, 59 and Area 70 (former U.S. Vanadium); to evaluate possible offsite sources to the east; and for general Site coverage.
Q-9	TIMET	MW-6R	MW-6RB	39.7 - 59.7	Qal/MCfg1*	no			X	X	X	X	X	X	X	X	X			Located to serve as a downgradient step out for LOUs 37and 44; as a crossgradient step out for LOUs 59 and 60; to evaluate possible offsite sources to the east; and for general Site coverage.
R-8	III	M-139	M-139B	TBD	MCfg1*	new well			X	X	X	X	X	X	X	X	X			Located as an upgradient step out for LOUs 37 and 44, and general Site coverage.
R-8	III	M-145	M-145B	TBD	MCfg1*	new well			X	X	X	X	X	X	X	X	X			New monitoring well located to serve as a crossgradient step out for LOU 44, to evaluate possible offsite sources to the east; and for general Site coverage.
R-8	III	M-29	M-29B	22-42	MCfg1	no			X	X	X	X	X	X	X	X	X			Located to evaluate groundwater conditions beneath the Unit 6 building for LOUs 44 and 37.

Notes:

*	Well completion information or boring log not available. Soil type inferred from nearby wells and geologic cross-section provided in the Phase A Source Area Investigation Report (ENSR, 2007). ENSR is in the process of obtaining information from BMI.
X	Sample will be collected and analyzed.
blank	No sample collected under Phase B sampling plan.
1.	It is anticipated that the large majority of the flow to the well will be from the coarse-grained sediments. As such, in the cases where there are two lithologies present across the screen interval, the water sampled will represent conditions in the coarse-grained interval.
2.	Metals analyses includes Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Platinum, Potassium, Selenium, Silver, Sodium, Strontium, Tin, Titanium, Thallium, Tungsten, Uranium, Vanadium, and Zinc.
3.	VOCs = Volatile organic compounds (to include analysis for naphthalene).
4.	Hexavalent Chromium.
5.	Complete list of wet chemistry parameters are shown on Table 1. All groundwater samples will have pH measured in the field.
6.	OCPs = Organochlorine pesticides (to include analysis for hexachlorobenzene)
7.	SVOCs = Semi-volatile organic compounds.
8.	Polychlorinated Biphenyls.
9.	Radionuclides consists of alpha spec reporting for isotopic Thorium and isotopic Uranium, and Radium-226, plus Radium-228 by beta counting (per NDEP).
10.	OPPs = Organophosphorous Pesticides
IIIN/E/W/S	Well located outside (north, east, west, or south) of Area III.
TBD	To be determined when well is constructed.
TD	Total Depth of the well determined by Site wide routine groundwater monitoring.
nr	Not recorded in the Tronox Database (June 2008) - information will be acquired from BMI or determined by downhole camera.
Qal	Quaternary Alluvium.
MCfg1	Muddy Creek Formation - first fine-grained facies.
MCcg1	Muddy Creek Formation - first coarse-grained facies

Area IV

Table 3
Groundwater Sampling and Analysis Plan for Area IV
Phase B Source Area Investigation Work Plan
Tronox Facility - Henderson, Nevada

							Laboratory [E.] :	CAS - Kelso, WA		CAS - Rochester, NY							GEL Charleston, SC	CAS - Houston	STL-Denver	Alpha Analytical Sparks, NV	Rationale for Revision	Location Description and Rationale for Investigation
Grid Location	Location Area	Monitoring Well No.	Sample ID Number [K.]	Screen Interval (ft bgs)	Soil Type Expected Across Screen Interval[1.]	Well Sampled for Phase A? (y/n)	Perchlorate (EPA 314.0)	Metals[2.]	VOCs[3.] (EPA 8260)	Hex Cr[4.] (EPA 7199)	Wet Chemistry[5.]	OCPs[6.] (EPA 8081A)	Total Cyanide (EPA 9012A)	SVOCs[7.] (EPA 8270C)	PCBs[8,L] (EPA 8082)	Radionuclides[9.]	PCBs[8,L] (EPA 1668A)	OPPs[10, A] (EPA 8141A)	Organic Acids[B]		
Wells are organized by grid location as shown on Plate A - Starting point is on the northwestern-most grid in Area 4 (P-2) and ending with the southeastern-most grid covering Area 4 (W-7).																					
P-2	Parcel F	TR-6	TR-6B	60-80	MCcg1	No	X	X	X	X	X	X	X	X	X	X	X	X	X	A, B, C, F, L	Located to evaluate groundwater migrating onto Tronox from the west.
P-4	Parcel F	M-93	M-93B	35.4 - 45.4	MCfg1	No	X	X	X	X	X	X	X	X		X				F	Located to serve as a downgradient stepout for LOUs 41 and 65; as an upgradient stepout for LOU 63; and for general Site coverage.
P-5	IV	M-97	M-97B	35 - 45	MCfg1	Yes	X	X	X	X	X	X	X	X		X		X	X	A, B, F,J	Located to serve as a downgradient stepout for LOUs 4, 26, 27, 28, 42, and 59; and for general Site coverage.
Q-4	Parcel F	M-92	M-92B	34.9 - 44.9	MCfg1	Yes	X	X	X	X	X	X	X	X		X				F	Located to serve as a downgradient stepout for LOUs 25, 41, 59, 60, and 65; as an upgradient stepout for LOU 63; and for general Site coverage.
Q-5	II	M-13	M-13B	40-50	Qal/MCfg1	Yes	R	R	R	R	R	R	R	R		R				D (see Area II)	Located to serve as a downgradient stepout for LOUs 42, 59, and 60; and for general Site coverage.
Q-6	II	M-12A	M-12AB	28-48	MCfg1	Yes	R	R	R	R	R	R	R	R		R				D (see Area II)	Located to serve as a downgradient stepout for LOU 59 and for general Site coverage.
Q-4	IV	M-143	M-143B	TBD	Qal/MCfg1*	new well	X	X	X	X	X	X	X	X		X		X	X	A, B, F, H	New well to be installed; located to evaluate LOUs 4, 25, 26, 27, 28, 42, and 60; and for general Site coverage
R-5	IV	M-144	M-144B	TBD	Qal/MCfg1*	new well	X	X	X	X	X	X	X	X		X				F	New well to be installed; located to evaluate LOU 42, and for general Site coverage.
S-2	Parcel G	TR-8	TR-8B	63 - 93	MCcg1/MCfg2	No	X	X	X	X	X	X	X	X		X		X	X	A, B, I, J	Located to serve as an upgradient stepout for LOUs 41 and 65; to evaluate possible offsite sources to the west (particularly for VOCs); and for general Site coverage.
T-7	IV	M-10	M-10B	43 - 63	Qal/MCfg1	No	X	X	X	X	X	X	X	X		X				F	Located as stepout for LOU 59; and for general Site coverage.
U-4	IV	TR-10	TR-10B	80-100	MCfg1	No	X	X	X	X	X	X	X	X		X				F	Located to evaluate LOU 62 and for general Site coverage.
U-4	IV	M-137	M-137B	TBD	MCcg1*	new well	X	X	X	X	X	X	X	X		X					New well to be installed; located to serve as a downgradient stepout for LOU 62 (former State Industries western pond), and for general Site coverage.
U-5	IV	M-138	M-138B	TBD	MCcg1*	new well	X	X	X	X	X	X	X	X		X					New well to be installed; located to serve as a downgradient stepout for LOU 62 (former State Industries eastern pond) and LOU 59 (Storm Sewer System); and for general Site coverage.
V-7	Parcel H	M-103	M-103B	69.5 - 89.5	MCcg1	No	X	X	X	X	X	X	X	X		X				F, J	Located to evaluate potential onsite sources in the southeastern portion of the Site and possible upgradient sources.
W-1	Olin Chemical	H-11	H-11B	95 - 105	MCcg1	No	X	X	X	X	X	X	X	X		X				F	To provide general area-wide upgradient information.
W-4	Parcel H	M-121	M-121B	77 - 97	MCcg1	No	X	X	X	X	X	X	X	X		X				F, J	Located to evaluate upgradient (southwest) groundwater conditions on the Site.
W-5	Parcel H	M-118	M-118B	138 - 158	MCfg2	No	X	X	X	X	X	X	X	X		X				F	Located to evaluate upgradient (south) groundwater conditions on the Site.
W-6	Parcel H	M-120	M-120B	80 - 100	MCcg1	Yes	X	X	X	X	X	X	X	X		X				F, G	Located to evaluate upgradient (south) groundwater conditions on the Site.
W-7	Parcel H	M-117	M-117B	130 - 150	MCfg2	No	X	X	X	X	X	X	X	X		X				F, G	Located to evaluate upgradient groundwater conditions on the southeast corner of the Site.
						Number of Field Samples:	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**17**	**1**	**17**	**1**	**4**	**4**		
QA/QC Samples:																					
						Field Duplicates (10%)	2	2	2	2	2	2	2	2	0	2	0	1	1		
						Field Blanks	1	1	1	1	1	1	1	1	1	1	1	1	1		
						Equipment Rinseate Blanks	1	1	1	1	1	1	1	1	0	1	0	1	1		
						Trip Blank Samples	0	0	5	0	0	0	0	0	0	0	0	0	0		
						Matrix Spike (5%)	1	1	1	1	1	1	1	1	1	1	1	1	1		
						Matrix Spike Duplicate (5%)	1	1	1	1	1	1	1	1	1	1	1	1	1		
						Total Samples:	**23**	**23**	**28**	**23**	**23**	**23**	**23**	**23**	**4**	**23**	**4**	**9**	**9**		

Table 3
Groundwater Sampling and Analysis Plan for Area IV
Phase B Source Area Investigation Work Plan
Tronox Facility - Henderson, Nevada

							Laboratory [E.] :	CAS - Kelso, WA	CAS - Rochester, NY							GEL Charleston, SC	CAS - Houston	STL-Denver	Alpha Analytical Sparks, NV	Rationale for Revision	Location Description and Rationale for Investigation
Grid Location	Location Area	Monitoring Well No.	Sample ID Number [K.]	Screen Interval (ft bgs)	Soil Type Expected Across Screen Interval [1.]	Well Sampled for Phase A? (y/n)	Perchlorate (EPA 314.0)	Metals [2.]	VOCs [3.] (EPA 8260)	Hex Cr [4.] (EPA 7199)	Wet Chemistry [5.]	OCPs [6.] (EPA 8081A)	Total Cyanide (EPA 9012A)	SVOCs [7.] (EPA 8270C)	PCBs [8,L] (EPA 8082)	Radionuclides [9.]	PCBs [8,L] (EPA 1668A)	OPPs [10, A] (EPA 8141A)	Organic Acids [B]		
Wells are organized by grid location as shown on Plate A - Starting point is on the northwestern-most grid in Area 4 (P-2) and ending with the southeastern-most grid covering Area 4 (W-7).																					

Notes:

*	Well completion information or boring log not available. Soil type inferred from nearby wells and geologic cross-section provided in the Phase A Source Area Investigation Report (ENSR, 2007).
X	Sample will be collected and analyzed.
blank	No sample collected under Phase B sampling plan.
1.	It is anticipated that the large majority of the flow to the well will be from the coarse-grained sediments. As such, in the cases where there are two lithologies present across the screen interval, the water sampled will represent conditions in the coarse-grained interval.
2.	Metals analyses includes Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Platinum, Potassium, Selenium, Silver, Sodium, Strontium, Tin, Titanium, Thallium, Tungsten, Uranium, Vanadium, and Zinc.
3.	VOCs = Volatile organic compounds (to include analysis for naphthalene)
4.	Hexavalent Chromium.
5.	Complete list of wet chemistry parameters are shown on Table 1. All groundwater samples will have pH measured in the field.
6.	OCPs = Organochlorine pesticides (to include analysis for hexachlorobenzene).
7.	SVOCs = Semi volatile organic compounds.
8.	Polychlorinated Biphenyls.
9.	Radionuclides consists of alpha spec reporting for isotopic Thorium and isotopic Uranium, and Radium-226, plus Radium-228 by beta counting (per NDEP).
10.	OPPs = Organophosphorous Pesticides
TBD	To Be Determined when well is constructed.
Qal	Quaternary Alluvium.
MCfg1	Muddy Creek Formation - first fine-grained facies
MCcg1	Muddy Creek Formation - first coarse-grained facies
MCfg2	Muddy Creek Formation - second fine-grained facies
(a)	Complete list of wet chemistry parameters are shown on Table 1. All groundwater samples will have pH measured in the field.
X	Green-shading indicates items that have been added or changed from Table 3 in the May 2008 Area IV Work Plan originally reviewed by NDEP.
R	Brown-shading indicates items that have been removed from Table 3 in the May 2008 Area IV Work Plan originally reviewed by NDEP.
A	OPPs were added per NDEP (July 21, 2008).
B	Organic Acids were added per NDEP (July 21, 2008).
C	Well was added to evaluate groundwater coming onto Tronox from the west.
D	Well was removed from Table 3 because this well is not located in Area IV.
E	Laboratory information was added to Table 3 to assist field sampling personnel in shipping the sample containers to the appropriate laboratory.
F	Total cyanide was added per NDEP (July 21, 2008).
G	VOCs analysis will be added to these samples as they were inadvertently left off of the Table 3 that was reviewed by NDEP.
H	Grid code was listed incorrectly
I	Location area was revised to reflect the name of the parcel. The parcel is a part of area IV
J	NDEP requested that soil types be inclusive of all types encountered across screening depth, boring logs were reviewed to ensure correct soil types are listed.
K	Sample ID was added to convey sample ID nomenclature to field sampling team ("B" suffix denotes sample is associated with Phase B sampling event).
L	PCB columns were added per NDEP (May 6, 2008)

Table 3 (Field Version)
Groundwater Sampling and Analysis Plan for Area IV
Phase B Source Area Investigation Work Plan
Tronox Facility - Henderson, Nevada

								Laboratory :	CAS Kelso, WA	Columbia Analytical Services Rochester, NY							GEL Charleston, SC	CAS Houston, TX	STL Denver, CO	Alpha Analytical Sparks, NV	Location Description and Rationale for Investigation
Grid Location	Location Area	Monitoring Well No.	Sample ID Number [K.]	Screen Interval (ft bgs)	Soil Type Expected Across Screen Interval [1.]	Well Sampled for Phase A? (y/n)	Matrix Spike/MS Duplicate		Perchlorate (EPA 314.0)	Metals [2.]	VOCs [3.] (EPA 8260)	Hex Cr [4.] (EPA 7199)	Wet Chemistry [5.]	OCPs [6.] (EPA 8081A)	Total Cyanide (EPA 9012A)	SVOCs [7.] (EPA 8270C)	PCBs [8,L] (EPA 8082)	Radionuclides [9.]	PCBs [8,L] (EPA 1668A)	OPPs [10, A] (EPA 8141A)	Organic Acids [B]	
Wells are organized by grid location as shown on Plate A - Starting point is on the northwestern-most grid in Area 4 (P-2) and ending with the southeastern-most grid covering Area 4 (W-7).																					
P-2	Parcel F	TR-6	TR-6B	60-80	MCcg1	No			X	X	X	X	X	X	X	X	X	X	X	X	X	Located to evaluate groundwater migrating onto Tronox from the west.
P-4	Parcel F	M-93	M-93B	35.4 - 45.4	MCfg1	No			X	X	X	X	X	X	X	X		X				Located to serve as a downgradient stepout for LOUs 41 and 65; as an upgradient stepout for LOU 63; and for general Site coverage.
P-5	IV	M-97	M-97B	35 - 45	MCfg1	Yes			X	X	X	X	X	X	X	X		X		X	X	Located to serve as a downgradient stepout for LOUs 4, 26, 27, 28, 42, and 59; and for general Site coverage.
Q-4	Parcel F	M-92	M-92B	34.9 - 44.9	MCfg1	Yes			X	X	X	X	X	X	X	X		X				Located to serve as a downgradient stepout for LOUs 25, 41, 59, 60, and 65; as an upgradient stepout for LOU 63; and for general Site coverage.
			M-92B	34.9 - 44.9			X		X	X	X	X	X	X	X	X		X				This is a matrix spike / matrix spike duplicate sample. Fill one set of bottles for MS sample & second set of bottles for MSD sample. Label both sets of bottles as M-92.
Q-4	IV	M-143	M-143B	TBD	Qal/MCfg1*	new well			X	X	X	X	X	X	X	X		X		X	X	New well to be installed; located to evaluate LOUs 4, 25, 26, 27, 28, 42, and 60; and for general Site coverage
			M-143BD	TBD (dup)					X	X	X	X	X	X	X	X		X		X	X	This is a duplicate sample of M-143B.
R-5	IV	M-144	M-144B	TBD	Qal/MCfg1*	new well			X	X	X	X	X	X	X	X		X				New well to be installed; located to evaluate LOU 42, and for general Site coverage.
S-2	Parcel G	TR-8	TR-8B	63 - 93	MCcg1/MCfg2	No			X	X	X	X	X	X	X	X		X		X	X	Located to serve as an upgradient stepout for LOUs 41 and 65; to evaluate possible offsite sources to the west (particularly for VOCs); and for general Site coverage.
T-7	IV	M-10	M-10B	43 - 63	Qal/MCfg1	No			X	X	X	X	X	X	X	X		X				Located as stepout for LOU 59; and for general Site coverage.
U-4	IV	TR-10	TR-10B	80-100	MCfg1	No			X	X	X	X	X	X	X	X		X				Located to evaluate LOU 62 and for general Site coverage.
U-4	IV	M-137	M-137B	TBD	MCcg1*	new well			X	X	X	X	X	X	X	X		X				New well to be installed; located to serve as a downgradient stepout for LOU 62 (former State Industries western pond), and for general Site coverage.
U-5	IV	M-138	M-138B	TBD	MCcg1*	new well			X	X	X	X	X	X	X	X		X				New well to be installed; located to serve as a downgradient stepout for LOU 62 (former State Industries eastern pond) and LOU 59 (Storm Sewer System); and for general Site coverage.
			M-138BD	TBD (dup)					X	X	X	X	X	X	X	X		X				This is a duplicate sample of M-138B.
V-7	Parcel H	M-103	M-103B	69.5 - 89.5	MCcg1	No			X	X	X	X	X	X	X	X		X				Located to evaluate potential onsite sources in the southeastern portion of the Site and possible upgradient sources.
W-1	Olin Chemical	H-11	H-11B	95 - 105	MCcg1	No			X	X	X	X	X	X	X	X		X				To provide general area-wide upgradient information.
W-4	Parcel H	M-121	M-121B	77 - 97	MCcg1	No			X	X	X	X	X	X	X	X		X				Located to evaluate upgradient (southwest) groundwater conditions on the Site.
W-5	Parcel H	M-118	M-118B	138 - 158	MCfg2	No			X	X	X	X	X	X	X	X		X				Located to evaluate upgradient (south) groundwater conditions on the Site.
W-6	Parcel H	M-120	M-120B	80 - 100	MCcg1	Yes			X	X	X	X	X	X	X	X		X				Located to evaluate upgradient (south) groundwater conditions on the Site.
W-7	Parcel H	M-117	M-117B	130 - 150	MCfg2	No			X	X	X	X	X	X	X	X		X				Located to evaluate upgradient groundwater conditions on the southeast corner of the Site.
Number of Wells:		**17**																				

Notes:

*	Well completion information or boring log not available. Soil type inferred from nearby wells and geologic cross-section provided in the Phase A Source Area Investigation Report (ENSR, 2007).
X	Sample will be collected and analyzed.
blank	No sample collected under Phase B sampling plan.
1.	It is anticipated that the large majority of the flow to the well will be from the coarse-grained sediments. As such, in the cases where there are two lithologies present across the screen interval, the water sampled will represent conditions in the coarse-grained interval.
2.	Metals analyses includes Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Platinum, Potassium, Selenium, Silver, Sodium, Strontium, Tin, Titanium, Thallium, Tungsten, Uranium, Vanadium, and Zinc.
3.	VOCs = Volatile organic compounds (to include analysis for naphthalene).
4.	Hexavalent Chromium.

Table 3 (Field Version)
Groundwater Sampling and Analysis Plan for Area IV
Phase B Source Area Investigation Work Plan
Tronox Facility - Henderson, Nevada

Laboratory :								CAS Kelso, WA		Columbia Analytical Services Rochester, NY							GEL Charleston, SC	CAS Houston, TX	STL Denver, CO	Alpha Analytical Sparks, NV	Location Description and Rationale for Investigation
Grid Location	Location Area	Monitoring Well No.	Sample ID Number [K.]	Screen Interval (ft bgs)	Soil Type Expected Across Screen Interval [1.]	Well Sampled for Phase A? (y/n)	Matrix Spike/MS Duplicate	Perchlorate (EPA 314.0)	Metals [2.]	VOCs [3.] (EPA 8260)	Hex Cr [4.] (EPA 7199)	Wet Chemistry [5.]	OCPs [6.] (EPA 8081A)	Total Cyanide (EPA 9012A)	SVOCs [7.] (EPA 8270C)	PCBs [8,L] (EPA 8082)	Radionuclides [9.]	PCBs [8,L] (EPA 1668A)	OPPs [10, A] (EPA 8141A)	Organic Acids [B]	
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5. Complete list of wet chemistry parameters are shown on Table 1. All groundwater samples will have pH measured in the field.
6. OCPs = Organochlorine pesticides (to include analysis for hexachlorobenzene).
7. SVOCs = Semi volatile organic compounds.
8. Polychlorinated Biphenyls.
9. Radionuclides consists of alpha spec reporting for isotopic Thorium and isotopic Uranium, and Radium-226, plus Radium-228 by beta counting (per NDEP).
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TBD To Be Determined when well is constructed.
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MCfg1 Muddy Creek Formation - first fine-grained facies
MCcg1 Muddy Creek Formation - first coarse-grained facies
MCfg2 Muddy Creek Formation - second fine-grained facies