

February 5, 2010

Dave Smith  
BNSF Railway Company  
825 Great Northern Blvd, Suite 105  
Helena, Montana 59601-3340

RE: Request for Additional Indoor Air Investigation under Task I

Dear Dave:

The Montana Department of Environmental Quality (DEQ) and its contractor, Camp Dresser and McKee, Inc. (CDM), have reviewed the data provided by BNSF Railway Company (BNSF's) contractor, Kennedy/Jenks, regarding the 2005 through 2009 Task I sampling events. DEQ believes that the data provided further confirms that subsurface sources of vapors exist at the Facility attributable to the volatile organic compounds (VOCs) in the subsurface at the Facility. DEQ has also determined that certain of the exceedances of the screening levels contained within the August 2005 Statement of Work for Spring 2005 Activities (SOW) are reasonably attributable to vapor intrusion by VOCs migrating from the subsurface. DEQ developed site-specific cleanup levels in the January 2010 Final Task I Risk Assessment Amendment and Montana Department of Environmental Quality Approved Remedy For Newly Identified Contaminants of Concern in Indoor Air (Risk Assessment Amendment). In accordance with the SOW, DEQ also requires further investigation of the subsurface vapor intrusion of VOCs at the Facility. DEQ also requires mitigation of railyard structures and one additional (1104 E. Gallatin already has an approved mitigation plan and 110 S. O Street already has a system) off-railyard structure because the structure has indoor air VOC concentrations above the site-specific cleanup levels from subsurface vapor intrusion related to the Facility.

Pursuant to § 75-10-711, Montana Code Annotated (MCA) and the April 17, 2006 letter from DEQ Director, Richard Oppen, to Mark Stehly, DEQ is offering BNSF the opportunity to properly and expeditiously undertake the following actions related to Task I. As you know, DEQ has determined that BNSF is a liable person under § 75-10-715(1), MCA, for the contamination at the Facility and DEQ has identified BNSF as liable in the 1990 Modified Partial Consent Decree. Accordingly, if BNSF declines to, or fails to, properly and expeditiously perform the following activities, DEQ will undertake the activities itself and require BNSF to reimburse all of DEQ's remedial action costs in doing so. Please note that failure or refusal to complete the following remedial actions is evidence that BNSF is not properly or expeditiously performing said actions and may subject BNSF to penalties as provided for under CECRA or the 1990 Modified Partial Consent Decree or both.

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## **DEQ Decisions**

With regard to the structures located on the rail yard, DEQ's previous decisions stand. DEQ will require mitigation/remediation for the electric (heavy) shop, the former Talgo Office, the former Talgo warehouse, and the locomotive shop. DEQ will require investigation into trichloroethene (TCE) sources in the subsurface in the area of the paint shop and iron shop. DEQ will not require further action at the recreation center at this time. DEQ will proceed reviewing the plans previously submitted by BNSF related to these activities.

Enclosed please find a spreadsheet including the data for all off railyard locations. Please also find enclosed a map depicting the Task I indoor air sampling locations for 2005 through 2009. Also enclosed is a spreadsheet with DEQ's required next steps regarding the Task I investigation for each of the structures. DEQ has provided information regarding the multiple lines of evidence it used in its decision-making for each structure on the spreadsheet. DEQ has also included a copy of its Draft December 2009 Vapor Intrusion General Decision-Making Process Flowchart to assist you in understanding DEQ's general decision-making process. You will note that DEQ has responded to BNSF's requests to resample several properties before making final decisions regarding vapor intrusion.

In addition, DEQ has agreed to require sampling at the following locations. I informed BNSF's contractor of all but one of these requests on January 12, 2010 and provided contact information.

1601 E. Lewis  
110 South H Street  
110 North H Street  
111 South K Street  
601 East Gallatin Street  
106 North G Street  
128 South F Street  
515 North N Street

In order to be completed during worst case conditions, all sampling must be conducted no later than March 31, 2010. If BNSF would like to discuss any of DEQ's decisions regarding certain properties, it must notify DEQ no later than February 12, 2010 to schedule a meeting or conference call. These discussions must be conducted no later than February 19, 2010 so that all sampling can be completed by the specified deadline.

## **Sampling Plans**

DEQ has enclosed an Insert to *Addendum No. 2 of the Final Task I Supplemental Work Plan for the Investigation of Indoor Air*. Please place this insert at the front of Addendum No. 2.

DEQ has determined that it is necessary to provide clarification to the Task I Supplemental Investigation Indoor Air Work Plan. DEQ has previously provided information to BNSF regarding some of these issues, such as the use of attenuation factors, the use of radon analyses,

and the use of Montana background concentrations rather than nationwide or non-Montana-specific background concentrations. BNSF has not properly considered these DEQ requirements in conducting Task I Investigation activities (please refer to BNSF's Draft Task I Supplemental Investigation Report Table 5). DEQ has previously provided the site-specific cleanup levels in the Risk Assessment Amendment. As outlined in the Risk Assessment Amendment, these cleanup levels consider and incorporate Livingston-specific background levels of these contaminants, as appropriate. Other of these issues are the current practice for vapor intrusion sampling at the Facility (Subslab or Soil Gas Sampling and Basement or Crawlspace Sampling).

Therefore, DEQ determined that it is necessary to clearly document these issues in one document in the attached Insert to Addendum 2. The specifications in this Insert to the Addendum clarify or supersede any conflicting specifications provided in the previously approved Final Task I Supplemental Investigation Work Plan for Indoor Air and Addendums No. 1 and 2 to it.

DEQ has made the determinations in the Insert based on its scientific and technical expertise and the information currently available for the Facility and vapor intrusion. However, DEQ reserves the right to require additional changes in the future if necessary to be protective, and in compliance with the Comprehensive Environmental Cleanup and Responsibility Act (CECRA), the 2001 Record and Decision and the SOW.

Sampling must follow procedures outlined in *Addendum No. 2 of the Final Task I Supplemental Work Plan for the Investigation of Indoor Air* and the attached *Insert to Addendum No. 2 of the Final Task I Supplemental Work Plan for the Investigation of Indoor Air*. Any new proposed changes in procedure must be discussed with DEQ no later than February 26, 2010 in order to determine if changes or additions to the Insert are appropriate and ensure that sampling is conducted by the specified deadline.

### **Reporting**

DEQ is in the process of reviewing BNSF's DRAFT Task I Supplemental Investigation Report. DEQ will provide comments on the report and will require that BNSF add the additional data to the revised Report before it is resubmitted. DEQ will adjust the deliverable deadline in accordance with the date of BNSF's receipt of the additional data collected in 2010.

### **Mitigation Plans**

BNSF has submitted its generic mitigation plan, Task I Indoor Air Mitigation Plan for Residential and Commercial Properties, that was meant to describe different mitigation options or alternatives that will be applicable at all residential and commercial properties (both future and current) and responded to DEQ's comments with a November 2009 DEQ version of the document. However, the plan must also include generic design specifications for each type of structure that might require mitigation. DEQ has discussed this requirement with BNSF's contractor but has not received anything to supplement the plan. DEQ requires that this additional information, the generic design specifications for each type of structure, be submitted

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along with a specific mitigation plan (specific “Engineering Design” plan) for the property identified by DEQ for mitigation in the spreadsheet.

The required mitigation activities must be conducted according to the schedule on page 4-16 of the Task I Indoor Air Mitigation Plan for Residential and Commercial Properties. DEQ will review both the generic and the specific plans once BNSF submits the additional information for the generic plan and the specific plan.

**Health and Safety**

The current Facility-Wide and Event Specific Health and Safety Plans should be modified as appropriate to address the sampling activities specified in the Task I Supplemental Investigation Work Plan and Addenda and approved prior to commencing work at the Facility.

If you have any questions, please feel free to contact me at 406-841-5065 or via email at [areynolds@mt.gov](mailto:areynolds@mt.gov).

Sincerely,

Aimee T. Reynolds  
Project Manager

cc: John Norris, Kennedy/Jenks  
Katherine Haque-Hausrath, DEQ Legal – electronic copy only  
Mark Hills, CDM – electronic copy only  
Robin Billau, RTI

# BN Livingston 2005-2009 Residential Target Analyte Report

					vinyl chloride	benzene	trichloroethene	tetrachloroethene	ethylbenzene
					0.77	2.2	4.3	1.46	2.3
Location ID	Property Address	Sample ID	Location Type	Date	Cleanup Level (µg/m <sup>3</sup> )				
102	1317 East Callender Street	09-AS-102	Auto Shop Office	3/5/2009	<14	110	<30	<38	66
	1317 East Callender Street	09-AS-102DEQ	Indoor Air DEQ Split	3/5/2009	<0.14	120	0.65	3.6	91
	1317 East Callender Street	09-SG-102	Subslab	3/5/2009	<5	24	<5	12	17
	1317 East Callender Street	09-SG-102DEQ	Subslab DEQ Split	3/5/2009	<2.6	7.3	<2.6	9.4	12
103	110 North N Street	09-AS-AMB-103-03-06-09	Outdoor air	3/6/2009	<0.032	3.7	<0.02	0.15 J	6.1
	110 North N Street	09-AS-103	Living Room	3/6/2009	<0.074	4.9	0.046 (J)	0.3 J	2.4
	110 North N Street	D1-AS-03-06-09 (Dup of 09-AS-103)	Indoor Air Duplicate	3/6/2009	<0.062	4.8	0.033 J	0.28 J	2.4
	110 North N Street	09-SG-103	Subslab	3/6/2009	<5	<5	<5	<5 U (UJ)	<5
	110 North N Street	D1-SG-03-06-09 (Dup of 09-SG-103)	Subslab Duplicate	3/6/2009	<5	<5	<5	70 (J)	<5
108	1222 East Park Street	05-AS-108L	Tirerama office	12/14/2005	0.047	NA	120	0.41	NA
	1222 East Park Street	06-SG-108-3	Subslab	4/1/2006	<5	NA	7.2	15	NA
	1222 East Park Street	06-SG-108-1	Subslab	4/1/2006	<5	NA	5.6	51	NA
	1222 East Park Street	06-SG-108-2	Subslab	4/1/2006	<5	NA	7.3	120	NA
	1222 East Park Street	08-AS-108M	Tirerama office	2/25/2008	<0.037	7.3	17	0.51	4.4
109	104 North M Street	08-AS-109L	Main floor	2/26/2008	<0.037	0.41	0.084	0.04 J	0.33
	104 North M Street	D1-AS-02-26-08	Indoor Air Duplicate	2/26/2008	<0.038	0.54	0.024 (U)	1.4	2.3
	104 North M Street	08-AS-109B	Basement	2/26/2008	<0.044	0.64	0.037 (U)	1.9	2.9
	104 North M Street	08-SG-109	Subslab	2/26/2008	NA	<25	18	52	<25
113	103 North M Street	08-AS-113	Main floor	2/29/2008	<0.042	0.61	0.034 (U)	1.5	1.1
	103 North M Street	08-SG-113	Soil gas	2/29/2008	NA	<25	<5	50	<25
114	107 North M Street	09-AS-114L	Dining Room	3/4/2009	<0.043	3.2	0.053	1.3	1.5
	107 North M Street	09-AS-114B	Basement	3/4/2009	<0.042	2.5	0.038	1	0.98
	107 North M Street	09-SG-114	Subslab	3/4/2009	<500	3100	<500	<500	880
115	115 North M Street	09-AS-115	Snowmobile Shop Office	3/4/2009	<0.26	100	0.44	81	55
	115 North M Street	09-SG-115	Subslab	3/4/2009	<5	200	<5	110	58
122	1109 East Park Street	09-AS-AMB-122-03-16-09	Outdoor Air	3/16/2009	<0.067	7.9	0.16	0.57	14
	1109 East Park Street	09-AS-122	Office	3/16/2009	0.016 J	11	0.2	0.55	5.9
	1109 East Park Street	09-SG-122	Subslab	3/16/2009	<5	16	14	180	<5

# BN Livingston 2005-2009 Residential Target Analyte Report

Location ID	Property Address	Sample ID	Location Type	Date	Cleanup Level (µg/m³)				
					vinyl chloride	benzene	trichloroethene	tetrachloroethene	ethylbenzene
125	1104 East Park Street	08-AS-125M	Vet's office	2/26/2008	<0.039	0.57	0.018 J (U)	0.096 J	0.39
	1104 East Park Street	08-SG-125	Subslab	2/26/2008	NA	<25	<5	14	<25
	1104 East Park Street	08-SG-125DEQ	Soil Gas DEQ Split	2/26/2008	NA	2.9	<3.4	<2.7	<2.2
127	109 North L Street	08-AS-127	Main floor	3/3/2008	0.018 J	1.9	0.035	2.8	0.46
	109 North L Street	08-SG-127	Soil gas	3/3/2008	NA	<25	<5	46	<25
129	117 North L Street	08-AS-129	Main floor	2/27/2008	<0.041	0.53	0.03 (U)	0.14 J	0.35
	117 North L Street	08-SG-129	Soil gas	2/27/2008	NA	<25	10 (J)	<5 (UJ)	<25
	117 North L Street	D1-SG-02-27-08	Soil Gas Duplicate	2/27/2008	NA	<25	<5 (UJ)	20 (J)	<25
1306	709 East Gallatin Street	08-AS-1306L	Main floor	2/26/2008	<0.04	1.6	0.039	0.14 J	0.62
	709 East Gallatin Street	08-SG-1306	Soil gas	2/26/2008	NA	<25	17	40	29
1308	725 East Gallatin Street	08-AS-1308L	Main floor	3/3/2008	0.012 J	1.2	0.076	0.065 J	1.3
	725 East Gallatin Street	08-AS-1308B	Basement	3/3/2008	0.059	1.7	0.37	0.13 J	6.6
	725 East Gallatin Street	08-SG-1308	Soil gas	3/3/2008	NA	<25	<5	7.2	<25
	725 East Gallatin Street	08-SG-1308S	Soil Gas DEQ Split	3/3/2008	<2.6	4.6	<5.6	<7	<4.5
131-1	104 North K Street	09-AS-131-1	Living Room	2/12/2009	<0.048	1.3	<0.03	0.052 J	0.22
	104 North K Street	09-SG-131-1	Soil Gas	2/12/2009	<5	<5	<5	5.6	<5
131-2	104 ½ North K Street	09-AS-131-2	Kitchen	2/12/2009	<0.047	1.3	0.042 (U)	0.16 J	0.97
	104 ½ North K Street	09-SG-131-2	Soil Gas	2/12/2009	<5	<5	<5	<5	<5
132	108 North K Street	05-AS-132L	Main floor	12/12/2005	0.049	NA	0.032	0.64	NA
133	112 North K Street	08-AS-133L	Main floor	2/26/2008	<0.04	1.1	0.026	0.15 J	0.26
	112 North K Street	08-AS-133B	Basement	2/26/2008	<0.035	0.64	0.02 J	0.2	0.14
	112 North K Street	08-SG-133	Subslab	2/26/2008	NA	<25	<5	50 (J)	<25
	112 North K Street	D1-SG-02-26-08	Soil Gas Duplicate	2/26/2008	NA	<25	<5	30 (J)	<25
	112 North K Street	09-AS-133L	Living Room	2/9/2009	<0.041	0.55	0.026 (J)	2.1	4.9
	112 North K Street	D1-AS-2-9-09 (Dup of 09-AS-133L)	Indoor Air Duplicate	2/9/2009	<0.042	0.67	0.041 (J)	2.5	5.1
	112 North K Street	09-AS-133B	Basement	2/9/2009	<0.051	0.32	0.031 J	0.2 J	0.18
	112 North K Street	09-SG-133	Subslab	2/9/2009	<5	<5	<5	95	5.8
	112 North K Street	09-SG-133 Dup	subslab Duplicate	2/9/2009	<5	<5	<5	12	<5

# BN Livingston 2005-2009 Residential Target Analyte Report

Location ID	Property Address	Sample ID	Location Type	Date	vinyl chloride	benzene	trichloroethene	tetrachloroethene	ethylbenzene
					0.77	2.2	4.3	1.46	2.3
134	114 North K Street	09-AS-134L	Living Room	2/9/2009	0.86	0.63	<0.027	0.088 J	0.17
	114 North K Street	09-AS-134B	Basement	2/9/2009	2.7	0.17 J	<0.025	0.19 J	0.04 J
	114 North K Street	09-SG-134	Soil Gas	2/9/2009	<5	28	<5	20	11
138A	1010 East Park Street	09-AS-AMB-138A-02-27-09	Outdoor air	2/27/2009	<0.038	0.88	0.046	0.53	0.94
	1010 East Park Street	09-AS-138A	Chappell's Body Shop Office	2/27/2009	<0.12	3.4	<0.074	<0.62	32
	1010 East Park Street	09-SG-138A	Subslab	2/27/2009	<5	12	<5	5.9	25
138B	1014 East Park Street	09-AS-138B	Chappell's Body Shop Office	2/27/2009	<0.038	0.78	0.042	0.058 J	0.46
	1014 East Park Street	09-SG-138B	Subslab	2/27/2009	<5	<5	<5	7.3	<5
138C	1022 East Park Street	09-AS-138C	Rudy's Auto Works Shop Office	2/27/2009	<0.3	54	<0.19	30	36
	1022 East Park Street	09-SG-138C	Subslab	2/27/2009	<5	19	<5	23	9.5
142	121 North K Street	05-AS-142B	East Park Antique	12/12/2005	0.11	NA	0.39	0.53	NA
	121 North K Street	05-AS-142L	East Park Antique	12/12/2005	0.2	NA	0.33	0.68	NA
	121 North K Street	06-SG-142-1	East Park Antique	4/7/2006	<5	NA	13	19	NA
	121 North K Street	06-SG-142-2	East Park Antique	4/7/2006	<5	NA	7.2	17	NA
	121 North K Street	06-SG-142-3	East Park Antique	4/7/2006	<5	NA	18	24	NA
143	924 East Park Street	09-AS-AMB-143-03-20-09	Outdoor air	3/20/2009	<0.04	5.5	0.088	0.82	18
	924 East Park Street	09-AS-143L	Main floor	3/20/2009	<0.043	1.2	0.025 J	0.045 J	0.23
	924 East Park Street	09-AS-143B	Basement	3/20/2009	<0.04	0.8	0.026	0.038 J	0.2
	924 East Park Street	09-SG-143-1	Soil Gas	3/20/2009	<5	<5	<5	5.8 (J)	7.4 (J)
	924 East Park Street	09-SG-143-2	Subslab	3/20/2009	<5	8.2	<5	9	<5
	924 East Park Street	D1-SG-03-20-09	Soil Gas Duplicate	3/20/2009	<5	<5	<5	<5 (UJ)	<5 (UJ)
144	920 East Park Street	09-AS-144	Office	2/26/2009	<0.85	7	<0.53	<4.5	100
	920 East Park Street	09-SG-144	Subslab	2/26/2009	<5	6.4 (J)	<5	<5	<5
	920 East Park Street	D1-SG-02-26-09 (Dup of 09-SG-144)	Subslab Duplicate	2/26/2009	<5	<5 (UJ)	<5	<5	<5
145	908 East Park Street	09-AS-AMB-145-02-26-09	Outdoor air	2/26/2009	<0.04	0.8	0.032	0.43	1
	908 East Park Street	09-AS-145	O'Connor Auto Body Office	2/26/2009	<0.34	9.6	0.3	8.8	57
	908 East Park Street	09-SG-145	Subslab	2/26/2009	<5	15	<5	16	18
148	120 North I Street	09-AS-AMB-148-03-02-09	Outdoor air	3/2/2009	<0.032	9.8	<0.02	0.16 J	17

# BN Livingston 2005-2009 Residential Target Analyte Report

Location ID	Property Address	Sample ID	Location Type	Date	Cleanup Level (µg/m³)				
					vinyl chloride	benzene	trichloroethene	tetrachloroethene	ethylbenzene
148	120 North I Street	09-AS-148	Auto Shop Office	3/2/2009	<0.044	0.8	<0.028	0.036 J	0.26
	120 North I Street	09-SG-148	Subslab	3/2/2009	<5	<5	<5	<5	<5
149	110 North I Street	09-AS-149	Office	2/24/2009	<0.85	7.6	<0.53	0.78 J	12
	110 North I Street	D1-AS-02-24-09 (Dup of 09-AS-149)	Office	2/24/2009	<0.67	7.3	<0.42	0.97 J	12
154	109 North I Street	07-AS-154-L	Main floor	6/5/2007	<0.038	0.78	0.03	0.24	0.55
	109 North I Street	07-AS-154-B	Basement	6/5/2007	<0.039	1.2	0.061	0.3	0.79
	109 North I Street	07-SG-154	Subslab	6/5/2007	<5	24	<5	18	32
	109 North I Street	08-AS-154L	Main floor	2/29/2008	<0.039	0.48	0.026 (U)	0.088 J	0.21
	109 North I Street	08-AS-154B	Basement	2/29/2008	<0.041	1.7	<0.026	0.2 J	0.91
	109 North I Street	08-SG-154	Subslab	2/28/2008	NA	<25	5.6	21	<25
	109 North I Street	08-SG-154DEQ	Soil Gas DEQ Split	2/28/2008	NA	1.6	<2.7	<3.4	<2.2
157	830 East Park Street	05-AS-157L	Main floor	12/15/2005	0.047	NA	0.045	0.25	NA
	830 East Park Street	05-AS-157B	Basement	12/15/2005	0.048	NA	0.06	0.25	NA
	830 East Park Street	08-AS-157L	Main floor	2/29/2008	<0.067	0.51	0.029 J (U)	0.04 J	0.11 J
	830 East Park Street	D1-AS-02-29-08	Indoor Air Duplicate	2/29/2008	<0.035	1.1 (J)	0.041 (U)	0.43 (J)	1.1 (J)
	830 East Park Street	08-AS-157B	Basement	2/29/2008	<0.037	1.2 (J)	0.043 (U)	0.45 (J)	1.2 (J)
	830 East Park Street	08-SG-157	Subslab	2/29/2008	NA	<25	<5	<5 (UJ)	<25
	830 East Park Street	08-SG-157DEQ	Soil Gas DEQ Split	2/29/2008	NA	2.9	<2.7	<3.4	3.7
	830 East Park Street	D1-SG-02-29-08	Soil Gas Duplicate	2/29/2008	NA	<25	<5	5 (UJ)	<25
158	814 East Park Street	08-AS-158L	Country Motor Inn office	2/29/2008	<0.039	1.4	0.028 (U)	0.036 J (U)	0.35
	814 East Park Street	08-AS-158B	Country Motor Inn basement	2/29/2008	<0.039	0.77	0.021 J (U)	0.054 J	0.22
	814 East Park Street	08-SG-158	Subslab	2/29/2008	NA	<25	8.9	47	37
161	120 North H Street	08-AS-161L	Main floor	2/28/2008	<0.038	1.8	0.076	0.53	5
	120 North H Street	08-AS-161B	Basement	2/28/2008	<0.035	0.91	0.054	1.4	2.8
	120 North H Street	08-SG-161	Subslab	2/28/2008	NA	<25	<5	64	<25
166	102 North H Street	08-AS-166	Main floor	2/27/2008	<0.039	0.65	0.038 (U)	0.84	0.6
	102 North H Street	08-SG-166	Soil gas	2/27/2008	NA	<25	<5	140	<25
167	805 East Callender Street	05-AS-167L	Main floor	12/12/2005	0.04	NA	0.12	1.9	NA
	805 East Callender Street	05-AS-167B	Basement	12/12/2005	0.053	NA	0.086	0.49	NA

# BN Livingston 2005-2009 Residential Target Analyte Report

					vinyl chloride	benzene	trichloroethene	tetrachloroethene	ethylbenzene
					0.77	2.2	4.3	1.46	2.3
Location ID	Property Address	Sample ID	Location Type	Date	Cleanup Level (µg/m <sup>3</sup> )				
167	805 East Callender Street	09-AS-AMB-167-02-11-09	Outdoor air	2/11/2009	<0.034	0.94	0.084	0.1 J	2.3
	805 East Callender Street	09-AS-167L	Living Room	2/11/2009	<0.046	6.6	0.029 J (U)	0.26	2.2
	805 East Callender Street	09-AS-167DEQ	Indoor Air DEQ Split	2/12/2009	<0.018	7.1	0.029	0.29	2.7
	805 East Callender Street	09-AS-167B	Basement	2/11/2009	<0.035	10	0.022 J (U)	0.11 J	3.6
168	809 East Callender Street	07-AS-168L	Main floor	4/3/2007	<0.036	0.68	0.26	0.13 J	1.2
	809 East Callender Street	D1-AS-04-03-07 (Dup of 168B)	Indoor Air Duplicate	4/3/2007	<0.031	0.1 J	<0.02	<0.16	0.026 J
	809 East Callender Street	07-AS-168B	Basement	4/3/2007	<0.035	0.77	0.14	0.29	3.4
	809 East Callender Street	07-SG-168-1	Subslab	4/3/2007	<5	<5	<5	5.9	<5
170	813 East Park Street	09-AS-170	Good Time Sports Office	2/12/2009	<0.036	21	0.047	0.37	10
	813 East Park Street	09-SG-170	Subslab	2/12/2009	<5	11 (J)	<5	34 (J)	5 (J)
	813 East Park Street	09-SG-170 Dup	subslab Duplicate	2/12/2009	<5	5.9	<5	82	<5
19	417 North M Street	09-AS-19	Office	3/18/2009	<0.037	0.62	0.016 J	0.17 J	0.35
	417 North M Street	09-SG-19	Subslab	3/18/2009	<5	<5	<5	31	<5
20	North M Street Warehouse	09-AS-AMB-20-03-19-09	Outdoor air	3/19/2009	<0.046	5.2	0.078	0.76	17
	North M Street Warehouse	09-AS-20	Main floor	3/19/2009	<0.087	56	0.069	0.9	22
	North M Street Warehouse	09-AS-20-DEQ	Indoor Air DEQ Split	3/19/2009	<0.018	73	<0.018	1	38
	North M Street Warehouse	09-SG-20	Subslab	3/19/2009	<5	8.8	<5	920	7.3
	North M Street Warehouse	09-SG-20-DEQ	Subslab DEQ Split	3/19/2009	<3.1	3.8	<3.1	1400	3.8
2064	211 South F Street	09-AS-AMB-2064-03-03-09	Outdoor air	3/3/2009	<0.037	8.3	<0.023	0.15 J	15
	211 South F Street	09-AS-2064L	Upstairs	3/3/2009	<0.038	3.5	0.025	0.14 J	0.33
	211 South F Street	09-AS-2064B	Basement	3/3/2009	<0.036	1.4	0.053	0.11 J	0.21
	211 South F Street	09-SG-2064	Subslab	3/3/2009	<5	<5	<5	9.4	<5
23	322 North L Street	D1-AS-12-14-05	Mobile home	12/14/2005	0.046	NA	0.077	0.3	NA
	322 North L Street	05-AS-23L	Mobile home	12/14/2005	0.057	NA	0.072	0.45	NA
	322 North L Street	08-AS-23	Mobile home	2/26/2008	<0.035	0.57	0.034 (U)	0.14 J	0.17
	322 North L Street	08-SG-23	Mobile home crawlspace	2/26/2008	NA	<25	6.5	23	<25
23B	326 North L Street	08-AS-23BL	Living Area	2/29/2008	<0.05	6.6	0.086	1.9	1.5
	326 North L Street	08-SG-23B	Soil gas	2/29/2008	NA	<25	30	3900	<25

# BN Livingston 2005-2009 Residential Target Analyte Report

Location ID	Property Address	Sample ID	Location Type	Date	Cleanup Level (µg/m³)				
					vinyl chloride	benzene	trichloroethene	tetrachloroethene	ethylbenzene
272	507 East Gallatin Street	09-AS-AMB-272-02-27-09	Outdoor air	2/27/2009	<0.033	0.59	0.026	0.34	0.92
	507 East Gallatin Street	09-AS-272	Living Room	2/27/2009	<0.042	0.94	0.045 (J)	0.73	2.9
	507 East Gallatin Street	DI-AS-02-27-09	Indoor Air Duplicate	2/27/2009	<0.04	0.91	0.075 (J)	0.76	2.9
	507 East Gallatin Street	09-SG-272	Soil Gas	2/27/2009	<5	5.8 (J)	<5	<5	<5
	507 East Gallatin Street	D1-SG-02-27-09 (Dup of 09-SG-272)	Soil Gas Duplicate	2/27/2009	<5	<5 U (UJ)	<5	<5	<5
28	328 North M Street	08-AS-28	Transfer station office	2/28/2008	<0.033	0.58	0.028 (U)	0.24	0.37
291	609 East Gallatin Street	07-AS-291L	Main floor	4/3/2007	<0.039	0.77	0.03	<0.2	0.26
	609 East Gallatin Street	07-AS-291B	Basement	4/3/2007	<0.036	0.59	0.026	0.16 J	2.2
	609 East Gallatin Street	07-SG-291-1	Subslab	4/3/2007	<5	<5	<5	34	5.7
292	615 East Gallatin Street	07-AS-292-L	Main floor	6/5/2007	0.022 J	1.7	<0.021	0.032 J	0.81
	615 East Gallatin Street	07-SG-292	Soil gas	6/5/2007	<5	<5	<5	7.9	6.3
300	716 East Park Street	09-AS-300	Office	2/12/2009	<0.043	5.7	0.058	0.36	8.3
301	724 East Park Street	09-AS-301	Office	2/12/2009	<0.044	1.5	0.021 J	0.041 J	1.1
302	123 North H Street	09-AS-AMB-302-03-05-09	Outdoor air	3/5/2009	<0.038	6.1	0.025	0.15 J	11
	123 North H Street	09-AS-302	Living Room	3/5/2009	0.084	0.97	0.032	0.073 J	0.35
	123 North H Street	09-SG-302	Soil Gas	3/5/2009	<5	74	<5	<5	96
303	117.5 North H Street	09-AS-303	Living Room	2/9/2009	0.23	2.2	0.12	0.061 J	0.4
	117.5 North H Street	09-SG-303	Subslab	2/9/2009	<5	<5	<5	5.5	<5
304	115 North H Street	09-AS-304L	Upstairs	2/9/2009	<0.05	0.6	0.086	0.3	0.18
	115 North H Street	09-AS-304B	Basement	2/9/2009	<0.053	0.56	0.07	0.29	0.18
	115 North H Street	09-SG-304	Subslab	2/9/2009	<5	20	<5	8.7	<5
307	103 North H Street	09-AS-307	Living Room	3/17/2009	0.011 J	3.1	0.028	0.084 J	0.37
	103 North H Street	09-SG-307	Subslab	3/17/2009	<5	7.5	<5	<5	<5
308	715 East Callender Street	09-AS-AMB-308-03-04-09	Outdoor air	3/4/2009	<0.04	9.6	0.03	0.17 J	16
	715 East Callender Street	09-AS-308L	Upstairs	3/4/2009	<0.035	0.81	0.057	0.1 J	0.16
	715 East Callender Street	09-AS-308B	Basement	3/4/2009	<0.038	0.77	0.04	0.11 J	0.19
	715 East Callender Street	09-SG-308	Subslab	3/4/2009	<5	6.5	<5	<5	<5
	715 East Callender Street	D1-SG-03-04-09 (Dup of 09-SG-308)	subslab Duplicate	3/4/2009	<5	5.4	<5	<5	<5

# BN Livingston 2005-2009 Residential Target Analyte Report

					vinyl chloride	benzene	trichloroethene	tetrachloroethene	ethylbenzene
					0.77	2.2	4.3	1.46	2.3
Location ID	Property Address	Sample ID	Location Type	Date	Cleanup Level (µg/m³)				
309	711 East Callender Street	09-AS-AMB-309-02-24-09	Outdoor air	2/24/2009	<0.07	1.1	0.083 (J)	0.88	3.2
	711 East Callender Street	09-AS-309L	Upstairs	2/24/2009	<0.043	2.9	<0.027	0.34	2.1
	711 East Callender Street	09-AS-309B	Basement	2/24/2009	<0.041	0.5	<0.026	0.38	1.9
	711 East Callender Street	09-SG-309	Subslab	2/24/2009	<5	9 (J)	<5	7.5	<5
	711 East Callender Street	D1-SG-02-24-09 (Dup of 09-SG-309)	Subslab Duplicate	2/24/2009	<5	6.4 (J)	<5	6.3	<5
31	1211 East Gallatin Street	09-AS-AMB-31-02-26-08	Outdoor air	2/26/2009	<0.035	0.64	0.03	0.38	0.76
	1211 East Gallatin Street	09-AS-31	Living room	2/26/2009	0.056 J	7.3	0.41	0.069 J	1.9
312	102 North G Street	09-AS-AMB-312-03-17-09	Outdoor Air	3/17/2009	<0.034	3.6	0.055	0.42	13
	102 North G Street	09-AS-312	Dining room	3/17/2009	<0.089	0.87	0.11	0.11 J	0.66
	102 North G Street	09-SG-312	soil gas	3/17/2009	<5	6.8	<5	6.4	5.8
	102 North G Street	D1-SG-03-17-09 (Dup of 09-SG-312)	Soil Gas Duplicate	3/17/2009	<5	<5	<5	<5	<5
314	108 North G Street	09-AS-AMB-314-02-9-09	Outdoor air	2/9/2009	<0.041	0.71	0.036	2.1	4.2
	108 North G Street	09-AS-314	Living Room	2/9/2009	<0.046	2.3	0.094	0.049 J	0.62
	108 North G Street	09-SG-314	Soil Gas	2/9/2009	<5	15	<5	7.3	38
315	112 North G Street	09-AS-AMB-315-2-10-09	Outdoor air	2/10/2009	<0.04	0.91	0.055	0.16 J	2.3
	112 North G Street	09-AS-315L	Living Room	2/10/2009	<0.043	1.3	0.13 (J)	0.42 (J)	7.4
	112 North G Street	D1-AS-2-10-09	Indoor Air Duplicate	2/10/2009	<0.047	1.2	0.094 (J)	0.29 (J)	7.1
	112 North G Street	09-SG-315	Subslab	2/10/2009	<5	<5	<5	19	<5
317A	120 South G Street	09-AS-AMB-317A-03-18-09	Outdoor Air	3/18/2009	<0.039	5.2	0.079	0.56	16
	120 South G Street	09-AS-317A	Living Room	3/18/2009	0.01 J	7.9	0.14	1.5	33
	120 South G Street	D1-AS-03-18-09 (Dup of 09-AS-317A)	Living Room	3/18/2009	0.014 J	7.9	0.15	1.6	33
	120 South G Street	09-SG-317A	Subslab	3/18/2009	<5	9.2	<5	6.8	5.3
	120 South G Street	09-SG-317A-DEQ	Subslab DEQ Split	3/18/2009	<3.2	4.1	<3.2	6.8	<3.2
317B	120 ½ South G Street	09-AS-317B	Kitchen	3/18/2009	<0.43	5.2	3.9 B (U)	1.4 JB (U)	1.3 J
	120 ½ South G Street	09-AS-317B-DEQ	Indoor Air DEQ Split	3/18/2009	<0.014	6.2	0.11	0.76	2.4
	120 ½ South G Street	09-SG-317B	Subslab	3/18/2009	<5	19	<5	19	14
319	219 Garnier #3	07-AS-319	Main floor	4/3/2007	<0.041	1.2	0.03	0.28	4.1
	219 Garnier #3	07-SG-319-1	Mobile home crawlspace	4/3/2007	<5	<5	<5	23	6.8

# BN Livingston 2005-2009 Residential Target Analyte Report

					vinyl chloride	benzene	trichloroethene	tetrachloroethene	ethylbenzene
					0.77	2.2	4.3	1.46	2.3
Location ID	Property Address	Sample ID	Location Type	Date	Cleanup Level (µg/m³)				
349A	114 North E Street	09-AS-AMB-349A-02-27-09	Outdoor air	2/27/2009	<0.032	0.66	0.033	0.47	0.99
	114 North E Street	09-AS-349A	Living room	2/27/2009	<0.032	1.2	0.098	0.75	1.3
	114 North E Street	09-SG-349A	Subslab	2/27/2009	<5	5.2	<5	<5	<5
349B	114 ½ North E Street	09-AS-349BL	Upstairs	2/27/2009	<0.048	0.67	<0.03	0.049 J	0.27
	114 ½ North E Street	09-AS-349BB	Basement	2/27/2009	<0.039	0.69	<0.024	0.038 J	0.41
	114 ½ North E Street	09-SG-349B	Subslab	2/27/2009	<5	7.8	<5	<5	<5
349C	118 North E Street	09-AS-349C	Upstairs	2/27/2009	<0.041	2.5	0.041	0.052 J	1.2
	118 North E Street	09-SG-349C	Subslab	2/27/2009	<5	5.2	<5	<5	<5
39	1221 East Gallatin Street	08-AS-39L	Main floor	2/27/2008	0.049	2.5	0.042 (U)	0.18	0.087 J
	1221 East Gallatin Street	08-AS-39B	Basement	2/27/2008	0.064	0.36	0.04 (U)	1.6	0.15 J
	1221 East Gallatin Street	08-SG-39	Subslab	2/27/2008	NA	<25	<5	30	<25
42	510 North N Street	09-AS-AMB-42-02-23-09	Outdoor air	2/23/2009	<0.044	1	0.56	1.4	4.6
	510 North N Street	09-AS-42	Upstairs	2/23/2009	<0.042	5.1	0.048	0.046 J	1.3
	510 North N Street	09-AS-42-DEQ	Indoor Air DEQ Split	2/23/2009	<0.014	15	0.11	0.072	4.3
	510 North N Street	09-SG-42	Soil Gas	2/23/2009	<5	6.3	<5	<5	<5
	510 North N Street	09-SG-42-DEQ	Soil Gas DEQ Split	2/23/2009	<3	<3	<3	<3	<3
43	1311 East Gallatin Street	05-AS-43L	Main floor	12/14/2005	0.053	NA	0.033	<0.28	NA
44	1310 East Gallatin Street	09-AS-AMB-44-03-05-09	Outdoor air	3/5/2009	<0.032	7.1	0.017 J	0.11 J	11
	1310 East Gallatin Street	09-AS-44	Office	3/5/2009	<0.044	0.41	0.087	0.16 J	0.098 J
	1310 East Gallatin Street	09-SG-44	Mobile home crawlspace	3/5/2009	<5	<5	<5	<5	<5
47	1365 East Gallatin Street #27	08-AS-47L	Mobile home	2/25/2008	<0.038	1.2	0.11	0.18 J	0.93
	1365 East Gallatin Street #27	08-SG-47	Mobile home crawlspace	2/25/2008	NA	<25	20	52	53
	1365 East Gallatin Street #27	09-AS-AMB-47-02-12-09	Outdoor air	2/12/2009	<0.04	1.2	0.028 (U)	0.085 J	1.7
	1365 East Gallatin Street #27	09-AS-47	Bedroom	2/12/2009	<0.05	1.4	<0.031	0.057 J	0.26
	1365 East Gallatin Street #27	09-AS-47DEQ	Indoor Air DEQ Split	2/12/2009	<0.02	1.7	<0.02	0.09	0.43
	1365 East Gallatin Street #27	09-SG-47	Mobile home crawlspace	2/12/2009	<5	<5	<5	<5	<5
514	1511 East Lewis Street	08-AS-514	Main floor	2/28/2008	<0.037	0.65	0.012 J (U)	0.047 J	0.17
	1511 East Lewis Street	08-SG-514	Soil gas	2/28/2008	NA	<25	<5	23	<25

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Location ID	Property Address	Sample ID	Location Type	Date	vinyl chloride	benzene	trichloroethene	tetrachloroethene	ethylbenzene
					Cleanup Level (µg/m³)				
514	1511 East Lewis Street	08-SG-514DEQ	Soil Gas DEQ Split	2/28/2008	NA	2.7	<2.7	<3.4	3.1
520	1424 East Callender Street	09-AS-520	Living Room	3/2/2009	0.034 J	10 (J)	0.048	0.44	29
	1424 East Callender Street	D1-AS-03-02-09 (Dup of 09-AS-520)	Indoor Air Duplicate	3/2/2009	<0.08	14 (J)	0.048 J	0.41 J	37
	1424 East Callender Street	09-SG-520	Soil gas	3/2/2009	<5	<5	<5	<5	<5
521	1418 East Callender Street	09-AS-521	Living Room	2/9/2009	<0.042	0.62	<0.027	0.12 J	0.21
	1418 East Callender Street	09-SG-521	Mobile home crawlspace	2/9/2009	<5	<5	<5	<5	<5
528	114 South O Street	09-AS-528	Living Room	2/25/2009	<0.038	0.96	0.045	0.52	0.14
	114 South O Street	09-SG-528	Mobile home crawlspace	2/25/2009	<5	<5	<5	<5	<5
530	102 South O Street	09-AS-530	Bedroom	2/23/2009	<0.046	0.36	<0.029	0.065 J	0.11 J
	102 South O Street	09-SG-530	Mobile home crawlspace	2/23/2009	<5	<5	<5	<5	<5
531	103 South N Street	09-AS-531	Living Room	3/17/2009	<0.12	17	0.083	0.11 J	14
	103 South N Street	09-AS-531-DEQ	Indoor Air DEQ Split	3/18/2009	<0.02	20	0.029	0.15	18
	103 South N Street	09-SG-531	Mobile home crawlspace	3/17/2009	<5	6.8	<5	<5	<5
538	106 South N Street	09-AS-538	Living Room	2/11/2009	<0.044	0.89	0.028 J (U)	0.26	0.28
	106 South N Street	09-SG-538	Mobile home crawlspace	2/11/2009	<5	<5	<5	<5	<5
539	104 South N Street	09-AS-539	Living room	2/26/2009	<0.043	2.1	0.036	0.068 J	0.73
	104 South N Street	09-SG-539	Mobile home crawlspace	2/26/2009	<5	<5	<5	<5	<5
541	101 South M Street	08-AS-541L	Mobile home	2/28/2008	<0.041	1.5	0.062	0.81	2.4
	101 South M Street	08-AS-541LDEQ	Indoor Air DEQ Split	2/28/2008	<0.064	1.7	<0.13	1.1	3.7
	101 South M Street	08-SG-541	Mobile home crawlspace	2/28/2008	NA	<25	<5	5.6	<25
	101 South M Street	09-AS-541	Mobile Home	2/10/2009	<0.041	0.81	<0.026	0.045 J	0.16
	101 South M Street	09-SG-541	Mobile home crawlspace	2/10/2009	<5	<5	<5	<5	<5
542A	103 South M Street	08-AS-542A	Main floor	2/28/2008	<0.037	0.72	<0.023	0.068 J	0.17
	103 South M Street	08-SG-542A	Soil gas	2/28/2008	NA	<25	<5	18	<25
542B	105 South M Street	08-AS-542B	Mobile home	2/28/2008	<0.04	0.77	0.22	0.21	0.28
	105 South M Street	08-SG-542B	Mobile home crawlspace	2/28/2008	NA	<25	7.1	9.9	<25
	105 South M Street	09-AS-542B	Mobile Home	2/10/2009	0.035 J	0.82	0.045	0.057 J	0.19
	105 South M Street	09-SG-542B	Mobile home crawlspace	2/10/2009	<5	<5	<5	44	<5

# BN Livingston 2005-2009 Residential Target Analyte Report

					vinyl chloride	benzene	trichloroethene	tetrachloroethene	ethylbenzene
					0.77	2.2	4.3	1.46	2.3
Location ID	Property Address	Sample ID	Location Type	Date	Cleanup Level (µg/m³)				
543	109 South M Street	09-AS-543	Upstairs	2/24/2009	<0.039	<b>0.74</b>	<b>0.036</b>	<b>0.086 J</b>	<b>2.7</b>
	109 South M Street	09-SG-543	Subslab	2/24/2009	<5	<5	<5	<b>8.2</b>	<5
549A	1119 East Lewis Street	08-AS-549A	Living Room	2/28/2008	<b>0.025 J</b>	<b>1.2</b>	<b>0.26 (J)</b>	<b>0.96</b>	<b>2.2</b>
	1119 East Lewis Street	D1-AS-02-28-08	Indoor Air Duplicate	2/28/2008	<0.039	<b>1.3</b>	<b>0.098 (J)</b>	<b>1</b>	<b>2.1</b>
	1119 East Lewis Street	08-SG-549A	Soil gas	2/28/2008	NA	<25	<5	<5	<25
	1119 East Lewis Street	09-AS-549A	Living Room	2/10/2009	<0.046	<b>2.2</b>	<b>0.032</b>	<b>0.075 J</b>	<b>2</b>
	1119 East Lewis Street	09-SG-549A	Soil gas	2/10/2009	<5	<5	<5	<5	<5
549B	1121 East Lewis Street	08-AS-549B	Mobile home	2/28/2008	<0.039	<b>0.86</b>	<b>0.033 (U)</b>	<b>0.056 J</b>	<b>0.26</b>
	1121 East Lewis Street	08-SG-549B	Mobile home crawlspace	2/28/2008	NA	<25	<5	<5	<25
552	114 South M Street	09-AS-552	Living room	2/24/2009	<0.043	<b>0.81</b>	<b>0.12</b>	<b>0.32</b>	<b>0.66</b>
	114 South M Street	09-SG-552	Mobile home crawlspace	2/24/2009	<5	<5	<5	<5	<5
554	106 South M Street	09-AS-554	Living Room	2/11/2009	<0.04	<b>7.9</b>	<b>0.36</b>	<b>0.16 J</b>	<b>3</b>
555	1114 East Callender Street	09-AS-AMB-555-02-23-09	Outdoor air	2/23/2009	<0.042	<b>1.3</b>	<b>0.11</b>	<b>1.1</b>	<b>4.8</b>
	1114 East Callender Street	09-AS-555L	Upstairs	2/23/2009	<0.044	<b>0.58</b>	<0.028	<b>0.048 J</b>	<b>0.14 J</b>
	1114 East Callender Street	09-AS-555B	Basement	2/23/2009	<0.034	<b>0.43</b>	<0.022	<b>0.053 J</b>	<b>0.11 J</b>
	1114 East Callender Street	09-SG-555	Subslab	2/23/2009	<5	<b>14</b>	<5	<b>9.6</b>	<5
	1114 East Callender Street	D1-SG-02-23-09 (Dup of 09-SG-555)	Subslab Duplicate	2/23/2009	<5	<b>12</b>	<5	<b>11</b>	<5
556	113 South L Street	09-AS-556	Living room	2/23/2009	<0.041	<b>0.43</b>	<b>0.044</b>	<b>0.16 J</b>	<b>0.22</b>
557	111 South L Street	09-AS-557L	Upstairs	2/23/2009	<0.04	<b>0.94</b>	<0.025	<b>0.1 J</b>	<b>0.38</b>
	111 South L Street	09-AS-557B	Basement	2/23/2009	<0.043	<b>0.98</b>	<0.027	<b>0.11 J</b>	<b>0.39</b>
	111 South L Street	09-SG-557	Subslab	2/23/2009	<5	<b>13</b>	<b>14</b>	<b>15</b>	<5
582	118 South K Street	09-AS-582	Living Room	3/18/2009	<0.04	<b>1.3</b>	<b>0.028</b>	<b>0.061 J</b>	<b>0.57</b>
	118 South K Street	09-SG-582	Soil Gas	3/18/2009	<5	<b>5.8</b>	<5	<b>140</b>	<5
583	110 South K Street	09-AS-583L	Upstairs	3/16/2009	<0.1	<b>1.3</b>	<0.064	<b>0.1 J</b>	<b>0.49</b>
	110 South K Street	09-AS-583B-DEQ	Indoor Air DEQ Split	3/16/2009	<0.017	<b>1.1</b>	<b>0.019</b>	<b>0.07</b>	<b>0.72</b>
	110 South K Street	09-AS-583B	Basement	3/16/2009	<0.039	<b>0.75</b>	<0.024	<b>0.053 J</b>	<b>0.37</b>
	110 South K Street	09-SG-583	Subslab	3/16/2009	<5	<5	<5	<5	<5
	110 South K Street	09-SG-583-DEQ	Subslab DEQ Split	3/16/2009	<2.6	<2.6	<2.6	<b>4.6</b>	<2.6

# BN Livingston 2005-2009 Residential Target Analyte Report

Location ID	Property Address	Sample ID	Location Type	Date	Cleanup Level (µg/m <sup>3</sup> )	vinyl chloride	benzene	trichloroethene	tetrachloroethene	ethylbenzene
					0.77	2.2	4.3	1.46	2.3	
584	914 East Callender Street	09-AS-584L	Upstairs	3/16/2009	<b>0.015 J</b>	<b>0.72</b>	<0.03	<b>0.15 J</b>	<b>0.23</b>	
	914 East Callender Street	09-AS-584B	Basement	3/16/2009	<0.033	<b>0.53</b>	<b>0.02 J</b>	<b>0.054 J</b>	<b>0.15</b>	
	914 East Callender Street	09-SG-584	Soil gas	3/16/2009	<5	<5	<5	<5	<5	
585	918 East Callender Street	09-AS-585	Living Room	3/19/2009	<0.044	<b>12</b>	<b>0.1</b>	<b>1.6</b>	<b>36</b>	
	918 East Callender Street	D1-AS-03-19-09 (Dup of 09-AS-585)	Indoor Air Duplicate	3/19/2009	<0.094	<b>13</b>	<b>0.12 B</b>	<b>1.6</b>	<b>37</b>	
	918 East Callender Street	09-SG-585	Subslab	3/19/2009	<5	<b>7.2</b>	<5	<b>7.3</b>	<5	
588	109 South I Street	09-AS-588	Living Room	2/13/2009	<0.047	<b>0.8</b>	<b>0.037 (U)</b>	<b>0.052 J</b>	<b>1.4</b>	
	109 South I Street	09-SG-588	Subslab	2/13/2009	<5	<b>5.6</b>	<5	<b>64</b>	<b>6.1</b>	
589	111 South I Street	09-AS-589	Living Room	3/5/2009	<0.04	<b>0.69</b>	<b>0.026</b>	<b>0.049 J</b>	<b>0.12 J</b>	
	111 South I Street	09-SG-589	Mobile home crawlspace	3/5/2009	<5	<5	<5	<b>5.5</b>	<5	
591	117 South I Street	09-AS-591	Living Room	3/16/2009	<0.074	<b>1.1</b>	<0.046	<b>0.068 J</b>	<b>0.17 J</b>	
	117 South I Street	09-SG-591	Mobile home crawlspace	3/16/2009	<5	<5	<5	<5	<5	
68	111 Miles Avenue	07-AS-68-L	Main floor	6/5/2007	<0.039	<b>0.6</b>	<b>0.21</b>	<b>0.31</b>	<b>0.24</b>	
	111 Miles Avenue	07-AS-68-B	Basement	6/5/2007	<0.04	<b>0.64</b>	<b>0.043</b>	<b>5</b>	<b>0.24</b>	
	111 Miles Avenue	07-SG-68	Soil gas	6/5/2007	<50	<50	<50	<b>2100</b>	<50	
	111 Miles Avenue	08-AS-68L	Main floor	3/5/2008	<0.04	<b>2.8 (J)</b>	<b>0.089 (J)</b>	<b>1.6 (J)</b>	<b>2.6 (J)</b>	
	111 Miles Avenue	D1-AS-03-05-08	Indoor Air Duplicate	3/5/2008	<0.041	<b>2.2 (J)</b>	<b>0.06 (J)</b>	<b>1 (J)</b>	<b>1.8 (J)</b>	
	111 Miles Avenue	08-AS-68B	Basement	3/5/2008	<0.038	<b>0.66</b>	<b>0.066</b>	<b>5.3</b>	<b>0.066 J</b>	
	111 Miles Avenue	08-SG-68	Soil gas	3/5/2008	NA	<b>25 (J)</b>	<5	<b>450</b>	<25	
	111 Miles Avenue	D1-SG-03-05-08	Soil Gas Duplicate	3/5/2008	NA	<25 (UJ)	<5	<b>470</b>	<25	
68B	413 Bennett Street	08-AS-68BL	Schwartz Woodworking	3/4/2008	<0.033	<b>5.6</b>	<b>0.056</b>	<b>0.18</b>	<b>10</b>	
	413 Bennett Street	08-AS-68BB	Schwartz basement	3/4/2008	<0.033	<b>1.6</b>	<b>0.035</b>	<b>0.091 J</b>	<b>0.47</b>	
	413 Bennett Street	08-SG-68B	Subslab	3/4/2008	NA	<25	<5	<5	<25	
69	411 Bennett Street	08-AS-69M	Bresnan office	2/25/2008	<0.037	<b>8</b>	<b>0.085</b>	<b>0.76</b>	<b>2.7</b>	
701	102 South I Street	09-AS-701	Living Room	3/3/2009	<0.11	<b>11</b>	<0.068 U (UJ)	<b>0.3 J</b>	<b>28</b>	
	102 South I Street	D1-AS-03-03-09 (Dup of 09-AS-701)	Indoor Air Duplicate	3/3/2009	<0.058	<b>13</b>	<b>0.039 (J)</b>	<b>0.32</b>	<b>31</b>	
	102 South I Street	09-SG-701	Subslab	3/3/2009	<5	<b>9.3</b>	<5	<b>5.1</b>	<5	
702	106 South I Street	09-AS-AMB-702-02-12-09	Outdoor air	2/12/2009	<0.036	<b>1.4</b>	<b>0.018 J</b>	<b>0.082 J</b>	<b>1.9</b>	

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Location ID	Property Address	Sample ID	Location Type	Date	Cleanup Level (µg/m³)				
					vinyl chloride	benzene	trichloroethene	tetrachloroethene	ethylbenzene
702	106 South I Street	09-AS-702	Dining Room	2/12/2009	<0.046	<b>2.9</b>	<b>0.057</b>	<b>0.14 J</b>	<b>0.62</b>
	106 South I Street	09-SG-702	Soil Gas	2/12/2009	<5 U	<b>8.6 (J)</b>	<5 U	<5 U	<5 U
	106 South I Street	09-SG-702DEQ	Soil Gas DEQ Split	2/12/2009	<3.1	<b>5.4</b>	<3.1	<3.1	<3.1
705	118 South I Street #3	09-AS-705	Bedroom	3/4/2009	<0.064	<b>11</b>	<0.04 (UJ)	<b>0.24 J</b>	<b>23</b>
	118 South I Street #3	D1-AS-03-04-09 (Dup of 09-AS-705)	Indoor Air Duplicate	3/4/2009	<0.048	<b>14</b>	<b>0.044 (J)</b>	<b>0.34 (J)</b>	<b>26</b>
	118 South I Street #3	09-SG-705	Soil gas	3/4/2009	<5	<b>47</b>	<5	<b>5.7</b>	<b>7.2</b>
708	802 East Callender Street	09-AS-AMB-708-03-16-09	Outdoor Air	3/16/2009	<0.032	<b>3.8</b>	<b>0.42</b>	<b>6.5</b>	<b>12</b>
	802 East Callender Street	09-AS-708	Kitchen	3/16/2009	<0.4	<b>1.7 J</b>	<0.25	<b>0.17 J</b>	<b>0.27 J</b>
	802 East Callender Street	09-SG-708	Subslab	3/16/2009	<5	<5	<5	<5	<5
709	806 Callender Street	09-AS-709	Bedroom	3/5/2009	<0.034	<b>0.96</b>	<b>0.15</b>	<b>0.044 J</b>	<b>0.68</b>
	806 Callender Street	09-SG-709	Subslab	3/5/2009	<5	<b>21</b>	<5	<5	<b>5.3</b>
710	810 East Callender Street	09-AS-AMB-710-02-13-09	Outdoor air	2/13/2009	<0.033	<b>0.74</b>	<b>0.021 J (U)</b>	<b>0.066 J</b>	<b>1.9</b>
	810 East Callender Street	09-AS-710	Living room	2/13/2009	<0.05	<b>1.4</b>	<b>0.058 (J)</b>	<b>0.24 J</b>	<b>6.9</b>
	810 East Callender Street	D1-AS-02-13-08 (Dup of 09-AS-710)	Indoor Air Duplicate	2/13/2009	<0.044	<b>1.5</b>	<b>0.05 (U)</b>	<b>0.21 J</b>	<b>6</b>
	810 East Callender Street	09-SG-710	Subslab	2/13/2009	<5	<5	<5	<5	<5
	810 East Callender Street	09-SG-710 Dup	Subslab Duplicate	2/13/2009	<5	<5	<5	<5	<5
712	115 South H Street	09-AS-AMB-712-03-19-09	Outdoor air	3/19/2009	<0.043	<b>6.6</b>	<b>0.096</b>	<b>0.84</b>	<b>20</b>
	115 South H Street	09-AS-712	Living room	3/19/2009	<b>0.015 J</b>	<b>0.82</b>	<b>0.021 J</b>	<b>0.18 J</b>	<b>0.58</b>
	115 South H Street	09-AS-712-DEQ	Indoor Air DEQ Split	3/19/2009	<b>0.02</b>	<b>0.78</b>	<b>0.018</b>	<b>0.21</b>	<b>0.75</b>
	115 South H Street	09-SG-712	Subslab	3/19/2009	<5	<b>11</b>	<5	<b>5.2</b>	<b>5.4</b>
713	119 South H Street	09-AS-713L	Upstairs	3/3/2009	<0.042	<b>0.83</b>	<0.027	<b>2.1</b>	<b>0.36</b>
	119 South H Street	09-AS-713B	Basement	3/3/2009	<0.041	<b>0.74</b>	<0.026	<b>0.94</b>	<b>0.7</b>
	119 South H Street	09-SG-713	Subslab	3/3/2009	<5	<5	<5	<b>7.2</b>	<5
715	801 East Lewis Street	09-AS-AMB-715-03-04-09	Outdoor air	3/4/2009	<0.035	<b>7.9</b>	<b>0.022 J</b>	<b>0.14 J</b>	<b>14</b>
	801 East Lewis Street	09-AS-715L	Upstairs	3/4/2009	<0.041	<b>1.3</b>	<b>0.071</b>	<b>0.14 J</b>	<b>0.84</b>
	801 East Lewis Street	09-AS-715B	Basement	3/4/2009	<0.039	<b>0.94</b>	<0.024	<b>0.061 J</b>	<b>0.3</b>
	801 East Lewis Street	09-SG-715	Subslab	3/4/2009	<5	<b>7.5</b>	<5	<5	<5
721-1	118 South H Street	09-AS-721-1L	Upstairs	2/10/2009	<0.043	<b>0.74</b>	<b>0.021 J</b>	<b>0.044 J</b>	<b>0.8</b>

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Location ID	Property Address	Sample ID	Location Type	Date	Cleanup Level (µg/m³)				
					vinyl chloride	benzene	trichloroethene	tetrachloroethene	ethylbenzene
721-1	118 South H Street	09-AS-721-1B	Basement	2/10/2009	<0.033	0.62	0.013 J	0.044 J	0.31
721-2	118 South H Street	09-AS-721-2L	Living Room	2/10/2009	<0.04	0.68	<0.025	0.031 J	0.11 J
	118 South H Street	09-AS-721DEQ-2L	Indoor Air DEQ Split	2/10/2009	<0.018	0.75	<0.018	0.06	0.23
	118 South H Street	09-SG-721-2	Subslab	3/3/2009	<5	<5	<5	<5	<5
	118 South H Street	09-SG-721-2	Subslab	2/10/2009	<5 (R)	<5 (R)	<5 (R)	<5 (R)	<5 (R)
	118 South H Street	09-SG-721DEQ	Subslab DEQ Split	2/10/2009	<2.9	<2.9	<2.9	<2.9	<2.9
722	114 South H Street	09-AS-722	Kitchen	3/4/2009	<0.053	0.7	0.087	0.57	0.23
	114 South H Street	09-AS-722DEQ	Indoor Air DEQ Split	3/4/2009	<0.016	1.1	0.093	0.073	0.38
	114 South H Street	09-SG-722	Soil gas	3/4/2009	<5	<5	<5	<5	<5
	114 South H Street	09-SG-722DEQ	Soil Gas DEQ Split	3/4/2009	<2.1	<2.1	<2.1	<2.1	12
724	106 South H Street	09-AS-724	Living Room	3/17/2009	<0.034	0.62	0.021 J	0.031 J	0.17
	106 South H Street	09-AS-724-DEQ	Indoor Air DEQ Split	3/17/2009	<0.018	0.76	0.03	<0.046	0.28
	106 South H Street	09-SG-724	Subslab	3/17/2009	<5	<5	<5	10	<5
	106 South H Street	09-SG-724-DEQ	Subslab DEQ Split	3/17/2009	<3	<3	<3	38	<3
733	109 South G Street	09-AS-733	Dining Room	3/20/2009	<0.22	7.2	1.5 (J)	1.4	29
	109 South G Street	D1-AS-03-20-09 (Dup of 09-AS-733)	Indoor Air Duplicate	3/20/2009	<0.18	6.6	0.13 (J)	1.4	29
	109 South G Street	09-SG-733	Soil gas	3/20/2009	<5	10	<5	20	<5
	109 South G Street	D2-SG-03-20-09	Soil gas duplicate	3/20/2009	<5	5.7	<5	<5	<5
734	107 South G Street	09-AS-AMB-734-06-24-09	Outdoor air	6/24/2009	<0.05	1.8	0.18	3.3	28
	107 South G Street	09-AS-AMB-734-02-25-09	Outdoor air	2/25/2009	<0.035	0.82	0.05	0.76	1.8
	107 South G Street	09-AS-AMB-734-04-15-09	Outdoor air	4/15/2009	<0.036	0.9	0.022 J	0.89	3.9
	107 South G Street	09-AS-734L	Upstairs	2/25/2009	<0.043	0.73	0.027 J	0.074 J	0.69
	107 South G Street	09-AS-734L	Upstairs	6/24/2009	<0.048	0.62	<0.03	0.12 J	0.41
	107 South G Street	09-AS-734L-2	Upstairs	4/15/2009	<0.041	0.8	0.023 J	0.066 J	7.7
	107 South G Street	09-AS-734B	Basement	6/24/2009	0.026 J	0.88	0.049	0.11 J	2.1
	107 South G Street	09-AS-734B-2	Basement	4/15/2009	<0.078	1.1	0.028 J	0.048 J	34
	107 South G Street	09-AS-734B	Basement	2/25/2009	<0.046	0.91	0.022 J	0.054 J	0.83
	107 South G Street	09-SG-734	Subslab	2/25/2009	<5	9.1	<5	5.5	<5
	107 South G Street	09-SG-734-2	Subslab	4/15/2009	<5	6.5	<5	22	16

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Location ID	Property Address	Sample ID	Location Type	Date	Cleanup Level (µg/m³)				
					vinyl chloride	benzene	trichloroethene	tetrachloroethene	ethylbenzene
735	714 East Callender Street	09-AS-735L	Upstairs	2/13/2009	<0.042	<b>3.3</b>	<b>0.065</b>	<b>0.074 J</b>	<b>2.4</b>
	714 East Callender Street	09-AS-735B	Basement	2/13/2009	<0.046	<b>1.8</b>	<b>0.048 (U)</b>	<b>0.091 J</b>	<b>2.4</b>
	714 East Callender Street	09-SG-735	Subslab	2/13/2009	<5	<5	<5	<5	<5
75A	1404 East Park Street	08-AS-75A	Coffee shop	2/25/2008	<0.039	<b>1.6</b>	<b>0.11</b>	<b>5.6</b>	<b>8.2</b>
	1404 East Park Street	08-SG-75A	Subslab	2/25/2008	NA	<25	<5	<b>58</b>	<25
75B	1500 East Park Street	08-AS-75BM	Antique store	2/25/2008	<0.037	<b>0.63</b>	<b>0.11</b>	<b>3.4</b>	<b>0.71</b>
	1500 East Park Street	08-SG-75B	Subslab	2/25/2008	NA	<25	<b>23</b>	<b>520</b>	<25
75C	1490 East Park Street Firework	09-AS-75C	Main Floor	2/11/2009	<0.036	<b>4.2</b>	<b>0.026 (U)</b>	<b>19</b>	<b>3.1</b>
	1490 East Park Street Firework	09-SG-75C	Subslab	2/11/2009	<5	<5	<5	<5	<5
	1490 East Park Street Firework	09-SG-75C Dup	Subslab Duplicate	2/11/2009	<5	<5	<5	<5	<5
76A	1500 East Callender Street	08-AS-76AB	Basement	2/25/2008	<0.032	<b>0.14 J</b>	<b>0.18</b>	<b>6.1</b>	<b>0.035 J (U)</b>
	1500 East Callender Street	08-SG-76A	Subslab	2/25/2008	NA	<25	<b>39</b>	<b>180</b>	<b>160</b>
76B	1495 East Callender Street	08-AS-76BL	Main Floor	2/25/2008	<0.032	<b>0.39 (J)</b>	<b>0.027 (U)</b>	<b>0.4 (J)</b>	<b>0.54 (J)</b>
	1495 East Callender Street	D1-AS-02-25-08	Indoor Air Duplicate	2/25/2008	<0.037	<b>0.64 (J)</b>	<b>0.044 (U)</b>	<b>3 (J)</b>	<b>4.6 (J)</b>
	1495 East Callender Street	08-SG-76B	Subslab	2/25/2008	NA	<25	<5	<b>49</b>	<25
76C	1490 East Callender Street	09-AS-76C	Living Room	2/11/2009	<0.039	<b>17</b>	<b>0.026 (U)</b>	<b>13</b>	<b>7.6</b>
	1490 East Callender Street	D2-AS-02-11-09 (Dup of 09-AS-76C)	Indoor Air Duplicate	2/11/2009	<0.041	<b>17</b>	<b>0.022 J (U)</b>	<b>13</b>	<b>7.5</b>
	1490 East Callender Street	09-SG-76C	Mobile home crawlspace	2/11/2009	<5	<5	<5	<5	<5
78	330 Bennett Street -- WWTP	05-AS-78L	WWTP office	12/14/2005	<b>0.048</b>	NA	<b>0.03</b>	<b>2</b>	NA
	330 Bennett Street -- WWTP	05-AS-78B	WWTP basement	12/14/2005	<0.049	NA	<0.031	<b>1.1</b>	NA
	330 Bennett Street -- WWTP	06-SG-78-1	Subslab	4/6/2006	<5	NA	<b>95</b>	<b>1500</b>	NA
	330 Bennett Street -- WWTP	06-SG-78-2	Subslab	4/6/2006	<5	NA	<5	<b>43</b>	NA
	330 Bennett Street -- WWTP	D1-06-SG-78-3	Subslab	4/6/2006	<5	NA	<5	<b>39</b>	NA
	330 Bennett Street -- WWTP	07-AS-78B	WWTP basement	4/2/2007	<0.032	<b>0.61</b>	<b>0.061</b>	<b>1.2</b>	<b>0.45</b>
	330 Bennett Street -- WWTP	08-AS-78L	WWTP office	3/3/2008	<0.042	<b>2.4 (J)</b>	<b>0.083 (J)</b>	<b>1 (J)</b>	<b>2.4 (J)</b>
	330 Bennett Street -- WWTP	08-AS-78L-1S	Indoor Air DEQ Split	3/3/2008	<0.1	<b>0.71</b>	<0.22	<0.27	<b>0.24</b>
	330 Bennett Street -- WWTP	08-AS-78B	WWTP basement	3/3/2008	<0.043	<b>0.56</b>	<b>0.027 J</b>	<b>0.42</b>	<b>0.11 J</b>
78M	330 Bennett Street	08-AS-78M-1	City/County shop	3/3/2008	<0.041	<b>89</b>	<b>16</b>	<b>1.1</b>	<b>42</b>

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					vinyl chloride	benzene	trichloroethene	tetrachloroethene	ethylbenzene
					0.77	2.2	4.3	1.46	2.3
Location ID	Property Address	Sample ID	Location Type	Date	Cleanup Level (µg/m³)				
78M	330 Bennett Street	08-AS-78M-2	City/County office	3/3/2008	<0.034	4.8	0.16	0.3	2.5
	330 Bennett Street	08-SG-78M	Subslab	3/3/2008	NA	<25	<5	26 (J)	<25
	330 Bennett Street	09-AS-78M-1	City/County shop	3/2/2009	<0.058	38	1.2	0.64	14
	330 Bennett Street	09-AS-78M-2	City/County office	3/2/2009	<0.04	11	0.4	0.53	4.1
	330 Bennett Street	09-SG-78M	Subslab	3/2/2009	<5	35 (J)	<5	210	5.4
	330 Bennett Street	D1-SG-03-02-09 (Dup of 09-SG-78M)	subslab duplicate	3/2/2009	<5	10 (J)	<5	270	5.4
80 (SE-29)	Rainbow Motel--5574 US Highw	08-AS-80	Rainbow motel office/home	3/5/2008	<0.035	1.2	0.53	6.4	0.87
	Rainbow Motel--5574 US Highw	08-SG-80	Soil gas	3/5/2008	NA	<25	5	21	<25
80-2	5574 US Hwy 89 #2	08-AS-80-2	Mobile home	2/27/2008	<0.039	1.2	0.018 J (U)	0.079 J	1.5
	5574 US Hwy 89 #2	08-SG-80-2	Mobile home crawlspace	2/27/2008	NA	<25	<5	71	<25
80-4	5574 US Hwy 89 #4	08-AS-80-4	Mobile home	3/5/2008	<0.04	2.4	0.059	0.29	0.49
	5574 US Hwy 89 #4	08-SG-80-4	Mobile home crawlspace	3/5/2008	NA	<25	<5	25	<25
80-5	5574 Hwy 89S #5	05-AS-80-5L	Mobile home	12/12/2005	0.049	NA	0.075	<0.26	NA
80-8	5574 US Hwy 89 #8	08-AS-80-8	Mobile home	3/5/2008	<0.047	6.7	0.051 (U)	0.14 J	8.7
	5574 US Hwy 89 #8	08-SG-80-8	Mobile home crawlspace	3/5/2008	NA	<25	<5	<5	<25
83	2 Harris Pl.	08-AS-83LDEQ	Indoor Air DEQ Split	2/26/2008	<0.26	1.5	<0.54	7	9.3
	2 Harris Pl.	08-AS-83L	House w/narrow crawlspace	2/26/2008	<0.034	0.57	0.036 (U)	3.6	4.6
84	5576 US Hwy 89 S	08-AS-84M	KPRK office	2/27/2008	<0.038	0.29	0.02 J (U)	0.2	0.11 J
	5576 US Hwy 89 S	08-SG-84	Subslab	2/27/2008	NA	<25	14	83	60
	5576 US Hwy 89 S	09-AS-84	KPRK Office	2/11/2009	<0.043	0.86	0.036 (U)	0.33	5.5
	5576 US Hwy 89 S	D1-AS-02-11-09 (Dup of 09-AS-84)	Indoor Air Duplicate	2/11/2009	<0.06	0.98	0.065 (J)	0.33	6.6
	5576 US Hwy 89 S	09-SG-84	Subslab	2/11/2009	<5	6.6	<5	26	5.3
89-1	116 South Q Street	09-AS-89-1	Sewing Room	2/26/2009	<0.035	0.57	<0.022	0.88	0.14
	116 South Q Street	09-SG-89-1	Soil gas	2/26/2009	<5	<5	<5	<5	<5
89-2	115 South P Street	09-AS-89-2	Living Room	3/17/2009	<0.054	6.6	0.091	0.88	29
	115 South P Street	D1-AS-03-17-09 (Dup of 09-AS-89-2)	Living Room	3/17/2009	<0.056	7.9	0.096	0.93	32
	115 South P Street	09-SG-89-2	Subslab	3/17/2009	<5	8.3	<5	27	<5
	115 South P Street	09-SG-89-2-DEQ	Subslab DEQ Split	3/17/2009	<3	3.2	<3	15	<3

# BN Livingston 2005-2009 Residential Target Analyte Report

Location ID	Property Address	Sample ID	Location Type	Date	Cleanup Level (µg/m³)				
					vinyl chloride	benzene	trichloroethene	tetrachloroethene	ethylbenzene
89-3	101 South I Street	09-AS-89-3	Living room	2/12/2009	<0.05	1.3	0.031 J (U)	0.088 J	0.33
	101 South I Street	09-SG-89-3	Soil Gas	2/12/2009	<5	<5	<5	<5	<5
	101 South I Street	09-SG-89-3DEQ	Soil Gas DEQ Split	2/12/2009	<2.9	<2.9	<2.9	<2.9	<2.9
89-4	910 East Callender Street	09-AS-89-4L	Upstairs	2/25/2009	<0.044	1.2	<0.028	0.078 J	0.14 J
	910 East Callender Street	09-AS-89-4B	Basement	2/25/2009	0.022 J	0.96	<0.025	0.62	0.16
	910 East Callender Street	09-SG-89-4	Subslab	2/25/2009	<5	<5	<5	<5	<5
	910 East Callender Street	D1-SG-02-25-09	Subslab Duplicate	2/25/2009	<5	<5	<5	<5	<5
91	1305 East Park Street	08-AS-91M-1	Guy's Glass shop	2/25/2008	<0.035	3.6	0.28	6.7	2.6
	1305 East Park Street	08-AS-91M-2	Guy's Glass office	2/25/2008	<0.035	0.76	0.024 (U)	0.26	0.21
	1305 East Park Street	08-SG-91	Subslab	2/25/2008	NA	<25	89	5200	<25
92	1122 East Park Street	08-AS-92-2	John Deer back office	2/26/2008	<0.04	12	0.24	0.38	7.4
	1122 East Park Street	08-AS-92-1	John Deer manager office	2/26/2008	<0.042	13	0.2	0.25	7.5
93	1415 East Callender Street	08-AS-93	Main floor	2/28/2008	<0.037	3.4	<0.023	<0.2	<0.12
	1415 East Callender Street	08-SG-93	Soil gas	2/28/2008	NA	<25	<5	74	<25
	1415 East Callender Street	09-AS-93	Bedroom	3/6/2009	<0.041	6.5	0.22	0.85	0.18
	1415 East Callender Street	09-SG-93	Soil Gas	3/6/2009	<5	8.7	<5	26	<5
99	1403 East Callender Street	05-AS-99L	Main floor	12/12/2005	0.047	NA	0.084	1.7	NA
	1403 East Callender Street	06-SG-99-1	Soil gas	4/7/2006	<5	NA	<5	<5	NA
	1403 East Callender Street	08-AS-99	Main floor	3/5/2008	0.018 J	3.2 (J)	0.15 (J)	4.1 (J)	4.4 (J)
	1403 East Callender Street	08-AS-99S	Indoor Air DEQ Split	3/5/2008	<0.14	5.1	0.36	9.1	5.9
	1403 East Callender Street	08-SG-99	Soil gas	3/5/2008	NA	<25	<5	5	<25
	1403 East Callender Street	08-SG-99-S	Soil Gas DEQ Split	3/5/2008	<2.5	<3.2	720	11	<4.3
AMB-1	2nd & West Gallatin, on hill	05-AS-AMB-1-12-12-05	Outdoor air	12/12/2005	0.045	NA	0.041	0.24	NA
	2nd & West Gallatin, on hill	05-AS-AMB-1-12-14-05	Outdoor air	12/14/2005	0.036	NA	0.026	0.19	NA
	2nd & West Gallatin, on hill	07-AS-AMB-1-04-04-07	Outdoor air	4/4/2007	NA	NA	NA	NA	NA
	2nd & West Gallatin, on hill	07-AS-AMB-1	Outdoor air	6/5/2007	<0.041	0.95	0.029	0.57	4.2
	2nd & West Gallatin, on hill	07-AS-AMB-1-04-06-07	Outdoor air	4/6/2007	NA	NA	NA	NA	NA
	2nd & West Gallatin, on hill	07-AS-AMB-1-04-06-07	Outdoor air	4/6/2007	<0.03	0.42	<0.019	0.051 J	0.28
	2nd & West Gallatin, on hill	07-AS-AMB-1	Outdoor air	6/5/2007	NA	NA	NA	NA	NA

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					vinyl chloride	benzene	trichloroethene	tetrachloroethene	ethylbenzene
					0.77	2.2	4.3	1.46	2.3
Location ID	Property Address	Sample ID	Location Type	Date	Cleanup Level (µg/m <sup>3</sup> )				
AMB-1	2nd & West Gallatin, on hill	07-AS-AMB-1-04-05-07	Outdoor air	4/5/2007	<0.035	0.52	0.024	0.079 J	0.59
	2nd & West Gallatin, on hill	07-AS-AMB-1-04-03-07	Outdoor air	4/3/2007	NA	NA	NA	NA	NA
	2nd & West Gallatin, on hill	07-AS-AMB-1-04-03-07	Outdoor air	4/3/2007	<0.033	0.55	<0.021	0.09 J	1
	2nd & West Gallatin, on hill	07-AS-AMB-1-04-02-07	Outdoor air	4/2/2007	NA	NA	NA	NA	NA
	2nd & West Gallatin, on hill	07-AS-AMB-1-04-02-07	Outdoor air	4/2/2007	<0.032	0.64	<0.02	0.094 J	1
	2nd & West Gallatin, on hill	07-AS-AMB-1-04-05-07	Outdoor air	4/5/2007	NA	NA	NA	NA	NA
	2nd & West Gallatin, on hill	07-AS-AMB-1-04-04-07	Outdoor air	4/4/2007	<0.034	0.67	0.026	0.093 J	0.87
	2nd & West Gallatin, on hill	08-AS-AMB-1-02-28-08	Outdoor air	2/28/2008	<0.038	1.3	0.067	0.75	1.6
	2nd & West Gallatin, on hill	08-AS-AMB-1-7-14-08	Outdoor air	7/14/2008	<0.039	0.85	0.042	0.22	2.4
	2nd & West Gallatin, on hill	08-AS-AMB-1-5-7-08	Outdoor air	5/7/2008	<0.038	1.2	0.079	0.63	4
	2nd & West Gallatin, on hill	08-AS-AMB-1-5-6-08	Outdoor air	5/6/2008	0.023 J	1.3	0.069	0.62	3.6
	2nd & West Gallatin, on hill	08-AS-AMB-1-03-05-08	Outdoor air	3/5/2008	<0.041	2.3 (J)	0.09 (J)	0.82 (J)	1.6 (J)
	2nd & West Gallatin, on hill	08-AS-AMB-1-03-04-08	Outdoor air	3/4/2008	<0.03	1.4 (J)	0.044 (U)	0.41 (J)	0.88 (J)
	2nd & West Gallatin, on hill	08-AS-AMB-1-02-29-08	Outdoor air	2/29/2008	<0.039	3.1 (J)	0.12 (J)	1.3 (J)	2.8 (J)
	2nd & West Gallatin, on hill	08-AS-AMB-1-02-27-08	Outdoor air	2/27/2008	<0.033	1.5	0.067	0.93	2
	2nd & West Gallatin, on hill	08-AS-AMB-1-02-26-08	Outdoor air	2/26/2008	<0.035	0.77	0.025 (U)	1.9	2.6
	2nd & West Gallatin, on hill	08-AS-AMB-1-02-25-08	Outdoor air	2/25/2008	<0.039	0.73	0.021 J (U)	2	2.3
	2nd & West Gallatin, on hill	08-AS-AMB-1-03-03-08	Outdoor air	3/3/2008	<0.031	1.9 (J)	0.084 (J)	0.78 (J)	1.7 (J)
	2nd & West Gallatin, on hill	08-AS-AMB-1-5-6-08 DEQ	Outdoor Air DEQ Split	5/6/2008	<0.15	1.7	0.074	0.95	5.9
	2nd & West Gallatin, on hill	08-AS-AMB-1-5-7-08 DEQ	Outdoor Air DEQ Split	5/7/2008	<0.049	1.6	0.097	0.9	5.9
AMB-2	East end of Iron Horse Trailer P	05-AS-AMB-2-12-12-05	Outdoor air	12/12/2005	0.042	NA	0.036	0.22	NA
	East end of Iron Horse Trailer P	05-AS-AMB-2-12-14-05	Outdoor air	12/14/2005	0.042	NA	0.026	0.22	NA
AMB-3	Lewis Street & "N" St at tree	05-AS-AMB-3-12-12-05	Outdoor air	12/12/2005	0.046	NA	0.038	0.24	NA
	Lewis Street & "N" St at tree	05-AS-AMB-3-12-14-05	Outdoor air	12/14/2005	0.041	NA	0.027	0.22	NA
AMB-4	Pumphouse at Reservoir and B	08-AS-AMB-4-5-6-08	Outdoor air	5/6/2008	<0.036	0.61	0.053	0.6	3.4
	Pumphouse at Reservoir and B	08-AS-AMB-4-5-7-08	Outdoor air	5/7/2008	<0.038	0.67	0.052	0.56	3.6
	Pumphouse at Reservoir and B	08-AS-AMB-4-5-6-08 DEQ	Outdoor Air DEQ Split	5/6/2008	<0.1	0.86	0.057	0.86	5
	Pumphouse at Reservoir and B	08-AS-AMB-4-5-7-08 DEQ	Outdoor Air DEQ Split	5/7/2008	<0.04	0.92	0.66	0.73	4.9
AMB-5	Pumphouse below reservior	08-AS-AMB-5-5-7-08	Outdoor air	5/7/2008	<0.035	0.72	0.031	1.1	6.8
	Pumphouse below reservior	08-AS-AMB-5-5-6-08	Outdoor air	5/6/2008	0.15	0.82	1.4	20	4

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					vinyl chloride	benzene	trichloroethene	tetrachloroethene	ethylbenzene
					0.77	2.2	4.3	1.46	2.3
Location ID	Property Address	Sample ID	Location Type	Date	Cleanup Level (µg/m³)				
AMB-5	Pumphouse below reservior	08-AS-AMB-5-5-7-08 DEQ	Outdoor Air DEQ Split	5/7/2008	<0.043	<b>0.89</b>	<b>0.038</b>	<b>1.6</b>	<b>10</b>
	Pumphouse below reservior	08-AS-AMB-5-5-6-08 DEQ	Outdoor Air DEQ Split	5/6/2008	<0.42	<b>1.3</b>	<b>0.11</b>	<b>0.64</b>	<b>4.2</b>
AMB-6	300 View Vista Dr.	09-AS-AMB-6-02-27-09	Outdoor air	2/27/2009	<0.036	<b>0.47</b>	<b>0.021 J</b>	<b>0.14 J</b>	<b>0.54</b>
	300 View Vista Dr.	09-AS-AMB-6-03-19-09	Outdoor air	3/19/2009	<0.038	<b>2.9</b>	<b>3.6 B</b>	<b>0.47</b>	<b>12</b>
	300 View Vista Dr.	09-AS-AMB-6-03-18-09	Outdoor Air	3/18/2009	<0.042	<b>2.3</b>	<b>0.044</b>	<b>0.3</b>	<b>9.6</b>
	300 View Vista Dr.	09-AS-AMB-6-03-17-09	Outdoor Air	3/17/2009	<0.036	<b>1.9</b>	<b>0.03</b>	<b>0.23</b>	<b>8</b>
	300 View Vista Dr.	09-AS-AMB-6-03-05-09	Outdoor air	3/5/2009	<0.13	<b>0.38 J</b>	<0.081	<b>0.17 J</b>	<b>0.34 J</b>
	300 View Vista Dr.	09-AS-AMB-6-03-06-09	Outdoor air	3/6/2009	<0.031	<0.47	<0.02	<b>0.06 J</b>	<b>0.12</b>
	300 View Vista Dr.	09-AS-AMB-6-03-04-09	Outdoor air	3/4/2009	<0.095	<b>0.52 J</b>	<0.06	<b>0.2 J</b>	<b>0.51</b>
	300 View Vista Dr.	09-AS-AMB-6-03-03-09	Outdoor air	3/3/2009	<0.036	<b>0.63</b>	<b>0.016 J</b>	<b>0.39</b>	<b>0.94</b>
	300 View Vista Dr.	09-AS-AMB-6-03-02-09	Outdoor air	3/2/2009	<0.094	<b>0.76</b>	<0.06	<b>1.2</b>	<b>2.7</b>
	300 View Vista Dr.	09-AS-AMB-6-03-20-09	Outdoor air	3/20/2009	<0.033	<b>2.4</b>	<b>0.048</b>	<b>0.6</b>	<b>9.6</b>
	300 View Vista Dr.	09-AS-AMB-1-02-10-09	Outdoor air	2/10/2009	<0.033	<b>0.53</b>	<0.013 J	<b>0.93</b>	<b>2.5</b>
	300 View Vista Dr.	09-AS-AMB-6-02-26-09	Outdoor air	2/26/2009	<0.037	<b>0.45</b>	<b>0.013 J</b>	<b>0.082 J</b>	<b>0.31</b>
	300 View Vista Dr.	09-AS-AMB-1-02-09-09	Outdoor air	2/9/2009	<0.039	<b>0.44</b>	<0.024	<b>1.8</b>	<b>4</b>
	300 View Vista Dr.	09-AS-AMB-1-02-11-09	Outdoor air	2/11/2009	<0.04	<b>0.61</b>	<b>0.025 J (U)</b>	<b>0.91</b>	<b>2.4</b>
	300 View Vista Dr.	09-AS-AMB-1-02-12-09	Outdoor air	2/12/2009	<0.042	<b>0.59</b>	<0.027	<b>0.72</b>	<b>1.9</b>
	300 View Vista Dr.	09-AS-AMB-1-02-13-09	Outdoor air	2/13/2009	<0.034	<b>0.45</b>	<b>0.022 J (U)</b>	<b>0.98</b>	<b>1.4</b>
	300 View Vista Dr.	09-AS-AMB-6-02-23-09	Outdoor air	2/23/2009	<0.04	<b>1.2</b>	<b>0.29</b>	<b>1.4</b>	<b>4.9</b>
	300 View Vista Dr.	09-AS-AMB-6-03-16-09	Outdoor Air	3/16/2009	<0.032	<b>4.4</b>	<b>0.054</b>	<b>0.45</b>	<b>16</b>
	300 View Vista Dr.	09-AS-AMB-6-02-24-09	Outdoor air	2/24/2009	<0.032	<b>0.73</b>	<b>0.037</b>	<b>1.1</b>	<b>2.5</b>
	300 View Vista Dr.	09-AS-AMB-6-02-25-09	Outdoor air	2/25/2009	<0.036	<b>0.47</b>	<b>0.025</b>	<b>0.31</b>	<b>1.2</b>
	300 View Vista Dr.	09-AS-AMB-6-DEQ-02-24-09	Outdoor Air DEQ Split	2/24/2009	<0.015	<b>0.42</b>	<0.015	<0.038	<0.15
AMB-AD	809 East Callender	07-AS-AMB-AD-04-03-07	Outdoor air	4/3/2007	NA	NA	NA	NA	NA
	809 East Callender	07-AS-AMB-AD-04-04-07	Outdoor air	4/4/2007	<0.034	<b>0.7</b>	<0.022	<b>0.056 J</b>	<b>0.21</b>
	809 East Callender	07-AS-AMB-AD-04-04-07	Outdoor air	4/4/2007	NA	NA	NA	NA	NA
	809 East Callender	07-AS-AMB-AD-04-03-07	Outdoor air	4/3/2007	<0.031	<b>0.5</b>	<0.02	<0.16	<b>0.089 J</b>
AMB-AU	809 East Callender	07-AS-AMB-AU-04-03-07	Outdoor air	4/3/2007	<0.033	<b>0.54</b>	<0.021	<0.18	<b>0.12</b>
	809 East Callender	07-AS-AMB-AU-04-03-07	Outdoor air	4/3/2007	NA	NA	NA	NA	NA
AMB-CU	330 Bennet Street	07-AS-AMB-CU-04-02-07	Outdoor air	4/2/2007	<0.035	<b>0.49</b>	<0.022	<b>0.056 J</b>	<b>0.13</b>

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Location ID	Property Address	Sample ID	Location Type	Date	vinyl chloride	benzene	trichloroethene	tetrachloroethene	ethylbenzene
					Cleanup Level (µg/m³)				
AMB-CU	330 Bennet Street	07-AS-AMB-CU-04-02-07	Outdoor air	4/2/2007	NA	NA	NA	NA	NA
AMB-ED	Corner of Chinook and North '	07-AS-AMB-ED-04-06-07	Outdoor air	4/6/2007	NA	NA	NA	NA	NA
	Corner of Chinook and North '	07-AS-AMB-ED-04-06-07	Outdoor air	4/6/2007	<0.032	<b>0.32</b>	<0.02	<b>0.048 J</b>	<b>0.066 J</b>
E	809 East Gallatin Street	08-AS-EL	House w/narrow crawlspace	2/25/2008	<0.04	<b>0.96</b>	<b>0.12</b>	<b>0.18 J</b>	<b>0.65</b>
H	513 North I Street	09-AS-AMB-H-02-25-09	Outdoor air	2/25/2009	<0.033	<b>0.66</b>	<b>0.037</b>	<b>0.47</b>	<b>1.3</b>
	513 North I Street	09-AS-H	Living Room	2/25/2009	<0.044	<b>0.89 (J)</b>	<b>0.15 (J)</b>	<b>3.5 (J)</b>	<b>4.6</b>
	513 North I Street	D1-AS-02-25-09 (Dup of 09-AS-H)	Indoor Air Duplicate	2/25/2009	<0.048	<b>1.3 (J)</b>	<b>0.076 (J)</b>	<b>0.91 (J)</b>	<b>5.1</b>
	513 North I Street	09-SG-H	Subslab	2/25/2009	<5	<5	<5	<b>6.4</b>	<5
	513 North I Street	09-SG-H-DEQ	Subslab DEQ Split	2/25/2009	<3.4	<3.4	<3.4	<b>4.4</b>	<3.4
IIA	503 North L Street	09-AS-IIA	Living Room	3/18/2009	<b>0.017 J</b>	<b>2.3</b>	<0.051	<b>0.39 J</b>	<b>0.82</b>
	503 North L Street	09-SG-IIa	Soil Gas	3/18/2009	<5	<b>12</b>	<5	<5	<b>5.3</b>
	503 North L Street	D1-SG-03-18-09 (Dup of 09-SG-IIa)	Soil Gas Duplicate	3/18/2009	<5	<b>8.2</b>	<5	<5	<5
IIB	1005 East Gallatin	09-AS-AMB-IIB-03-18-09	Outdoor Air	3/18/2009	<b>0.0097 J</b>	<b>5.9</b>	<b>0.053</b>	<b>0.6</b>	<b>17</b>
	1005 East Gallatin	09-AS-IIB	Living Room	3/18/2009	<0.079	<b>1.4</b>	<0.05	<b>0.049 J</b>	<b>0.31</b>
	1005 East Gallatin	09-SG-IIb	Mobile home crawlspace	3/18/2009	<5	<5	<5	<b>48</b>	<5
NE-1	408 North K Street	05-AS-NE-1L	Main floor	12/12/2005	<b>0.048</b>	NA	<b>0.18</b>	<b>5.2</b>	<b>0.74</b>
	408 North K Street	D1-AS-12-12-05	Indoor Air Duplicate	12/12/2005	<b>0.045</b>	NA	<b>0.24</b>	<b>6.4</b>	<b>0.69</b>
	408 North K Street	05-AS-NE-1B	Basement	12/12/2005	<b>0.048</b>	NA	<b>0.24</b>	<b>6</b>	<b>0.74</b>
NE-14	403 North L Street	08-AS-NE-14	Mobile home	3/4/2008	<0.04	<b>1.7</b>	<b>0.022 J</b>	<b>0.34</b>	<b>0.48</b>
	403 North L Street	08-SG-NE-14	Mobile home crawlspace	3/4/2008	NA	<25	<5	<5	<25
NE-16	1104 East Gallatin Street	07-AS-NE-16L	Main floor	4/6/2007	<0.03	<b>5.6</b>	<b>0.071</b>	<b>0.36</b>	<b>3.7</b>
	1104 East Gallatin Street	07-AS-NE-16B	Basement	4/6/2007	<0.033	<b>5.6</b>	<b>0.043</b>	<b>0.49</b>	<b>3</b>
	1104 East Gallatin Street	07-SG-NE-16-1	Subslab	4/6/2007	<5	<b>7.6</b>	<5	<b>7.3</b>	<b>8</b>
	1104 East Gallatin Street	08-AS-NE-16L	Main floor	2/26/2008	<0.04	<b>10</b>	<b>0.085</b>	<b>2.2</b>	<b>8</b>
	1104 East Gallatin Street	08-AS-NE-16B	Basement	2/26/2008	<0.035	<b>10</b>	<b>0.02 J (U)</b>	<b>1.8</b>	<b>7.3</b>
	1104 East Gallatin Street	08-SG-NE-16	Subslab	2/26/2008	NA	<25	<5	<b>7.5</b>	<25
NE-17	1123 East Gallatin Street	08-AS-NE-17L	Main floor	3/3/2008	<b>0.013 J</b>	<b>1.7 (J)</b>	<b>0.11 (J)</b>	<b>0.99 (J)</b>	<b>2 (J)</b>
	1123 East Gallatin Street	D1-AS-03-03-08	Indoor Air Duplicate	3/3/2008	<b>0.012 J</b>	<b>1.5</b>	<b>0.1</b>	<b>0.82</b>	<b>1.7</b>

# BN Livingston 2005-2009 Residential Target Analyte Report

					vinyl chloride	benzene	trichloroethene	tetrachloroethene	ethylbenzene
					0.77	2.2	4.3	1.46	2.3
Location ID	Property Address	Sample ID	Location Type	Date	Cleanup Level (µg/m³)				
NE-17	1123 East Gallatin Street	08-AS-NE-17B	Basement	3/3/2008	0.014 J	0.85	0.068	0.34	0.7
	1123 East Gallatin Street	08-SG-NE-17	Subslab	3/3/2008	NA	<25	<5	5.1	<25
	1123 East Gallatin Street	08-SG-NE-17-S	Soil Gas DEQ Split	3/3/2008	<2.5	3.9	<5.3	<6.7	<4.3
	1123 East Gallatin Street	09-AS-AMB-NE-17-02-24-09	Outdoor air	2/24/2009	<0.04	0.88	0.071	0.84	2.9
	1123 East Gallatin Street	09-AS-NE-17L	Upstairs	2/24/2009	<0.043	0.62	0.059	0.26	0.6
	1123 East Gallatin Street	09-AS-NE-17B	Basement	2/24/2009	<0.05	0.65	0.19	0.18 J	0.73
	1123 East Gallatin Street	09-SG-NE-17	Subslab	2/24/2009	<5	9	<5	5.8	<5
	1123 East Gallatin Street	09-SG-NE-17-DEQ	Subslab DEQ Split	2/24/2009	<3.4	<3.4	<3.4	3.7	<3.4
NE-2	405 North L Street	06-AS-NE-2L	Main floor	4/7/2006	<0.045	NA	0.05	2.5	NA
	405 North L Street	06-AS-NE-2B	Basement	4/7/2006	<0.045	NA	0.061	4	NA
	405 North L Street	06-SG-NE-2-1	Unknown	4/6/2006	<5	NA	32	830	NA
	405 North L Street	06-SG-NE-2-2	Unknown	4/6/2006	<5	NA	36	3600	NA
	405 North L Street	06-SG-NE-2-3	Unknown	4/6/2006	<5	NA	70	4200	NA
NE-3	920 East Gallatin Street	05-AS-NE-3L	Main floor	12/14/2005	0.047	NA	0.082	0.58	NA
	920 East Gallatin Street	05-AS-NE-3B	Basement	12/14/2005	0.045	NA	0.086	0.57	NA
	920 East Gallatin Street	08-AS-NE-3L	Main floor	2/25/2008	0.016 J	0.8	0.045	0.57	0.51
	920 East Gallatin Street	08-AS-NE-3B	Basement	2/25/2008	0.018 J	0.79	0.03 (U)	0.43	0.42
	920 East Gallatin Street	08-SG-NE-3	Subslab	2/25/2008	NA	<25	20	66	56
NE-4	416 North K Street	05-AS-NE-4L	Main floor	12/14/2005	<0.047	NA	0.53	0.69	NA
	416 North K Street	05-AS-NE-4B	Basement	12/14/2005	<0.048	NA	0.96	1.3	NA
	416 North K Street	07-AS-NE-4L	Main floor	4/4/2007	<0.035	2.8	0.53	1.1	1
	416 North K Street	07-AS-NE-4B	Basement	4/4/2007	<0.04	0.74	0.77	1.9	0.28
	416 North K Street	07-SG-NE-4-1	Soil gas	4/4/2007	<5	11	210	250	31
	416 North K Street	D1-SG-04-04-07 (Dup for NE-4)	Soil Gas Duplicate	4/4/2007	<5	5	44	55	5.5
NE-5	430 North K Street	05-AS-NE-5L	Main floor	12/14/2005	0.046	NA	0.13	0.36	NA
	430 North K Street	05-AS-NE-5B	Basement	12/14/2005	0.049	NA	0.088	0.74	NA
NE-7	1003 East Gallatin Street	08-AS-NE-7L	Main floor	3/4/2008	<0.033	1.4 (J)	0.045 (J)	0.38 (J)	1 (J)
	1003 East Gallatin Street	08-AS-NE-7B-S	Indoor Air DEQ Split	3/4/2008	<0.11	1.4	<0.24	0.77	2.2
	1003 East Gallatin Street	08-AS-NE-7L-S	Indoor Air DEQ Split	3/4/2008	<0.11	1.6	<0.24	2.4	2.8
	1003 East Gallatin Street	08-AS-NE-7B	Basement	3/4/2008	<0.043	1.8	0.066	0.62	1.5

# BN Livingston 2005-2009 Residential Target Analyte Report

					vinyl chloride	benzene	trichloroethene	tetrachloroethene	ethylbenzene
					0.77	2.2	4.3	1.46	2.3
Location ID	Property Address	Sample ID	Location Type	Date	Cleanup Level (µg/m³)				
NE-7	1003 East Gallatin Street	08-SG-NE-7	Subslab	3/4/2008	NA	<25	<5	<5	<25
	1003 East Gallatin Street	09-AS-AMB-NE-7-03-02-09	Outdoor air	3/2/2009	<0.063	13	<0.04	0.24 J	25
	1003 East Gallatin Street	09-AS-NE-7	Upstairs	3/2/2009	<0.05	0.31	<0.031	<0.26	0.12 J
	1003 East Gallatin Street	09-AS-NE-7DEQ	Indoor Air DEQ Split	3/2/2009	<0.017	0.46	<0.017	0.058	0.22
	1003 East Gallatin Street	09-SG-NE-7	Subslab	3/2/2009	<5	13	<5	6.1	<5
	1003 East Gallatin Street	09-SG-NE-7DEQ	Subslab DEQ Split	3/2/2009	<2	2.5	<2	9	<2
SE-1	108 North L Street	06-AS-SE-1L	Main floor	4/8/2006	<0.05	NA	0.42	0.27	NA
	108 North L Street	06-AS-SE-1DUP	Indoor Air Duplicate	4/8/2006	<0.046	NA	0.3	0.7	NA
	108 North L Street	06-AS-SE-1B	Basement	4/8/2006	<0.051	NA	0.51	0.87	NA
	108 North L Street	08-AS-SE 1L	Main floor	3/3/2008	0.011 J	1.6	0.11	0.096 J	0.51
	108 North L Street	08-AS-SE-1B	Basement	3/3/2008	<0.035	0.93	0.034 (J)	0.34	0.5
	108 North L Street	08-SG-SE-1	subslab	3/3/2008	NA	<25	16	72	26
	108 North L Street	09-AS-SE-1	Living Room	3/2/2009	<0.046	4.2	0.054	0.43	1.3
	108 North L Street	09-SG-SE-1	Subslab	3/2/2009	<5	<5	5.7	54	<5
SE-10	124 North H Street	07-AS-SE-10-L	Main floor	6/5/2007	<0.042	1.1	0.025 J	0.043 J	0.37
	124 North H Street	07-AS-SE-10-B	Basement	6/5/2007	<0.039	1	0.39	0.066 J	0.59
	124 North H Street	07-SG-SE-10	Subslab	6/5/2007	<5	9.1	<5	74	13
	124 North H Street	08-AS-SE-10	Main floor	2/29/2008	<0.035	2.7	0.11	0.14 J	1.4
	124 North H Street	08-SG-SE-10	Subslab	2/28/2008	NA	<25	<5	59	<25
SE-11	116 North H Street	07-AS-SE-11L	Main floor	4/4/2007	<0.038	1.4	0.075	0.39	4.2
	116 North H Street	D1-AS-04-04-07 (Dup of SE-11B)	Indoor Air duplicate	4/4/2007	<0.033	1	0.26	0.55	3.2
	116 North H Street	07-AS-SE-11B	Basement	4/4/2007	<0.03	3.1	0.37	0.76	4.7
	116 North H Street	07-SG-SE-11-1	Subslab	4/4/2007	<5	12	<5	24	9.8
	116 North H Street	07-SG-SE11-1S	Subslab DEQ Split	4/4/2007	<2.5	<3.1	<5.2	12.9	6.5
	116 North H Street	08-AS-SE-11L	Main floor	2/28/2008	<0.033	0.99	<0.021	<0.18	<0.11
	116 North H Street	08-AS-SE-11B	Basement	2/28/2008	<0.04	0.97	<0.025	<0.21	<0.14
	116 North H Street	08-SG-SE-11	Subslab	2/28/2008	NA	<25	<5 (UJ)	22 (J)	<25
	116 North H Street	D1-SG-02-28-08	Subslab Duplicate	2/28/2008	NA	<25	5.5 (J)	110 (J)	<25
SE-12A	116 North K Street	09-AS-SE-12AL	Upstairs	3/18/2009	<0.042	0.95	0.022 J	0.1 J	0.9
	116 North K Street	09-AS-SE-12AB	Basement	3/18/2009	<0.042	0.89	0.84	0.22 J	1.4

# BN Livingston 2005-2009 Residential Target Analyte Report

					vinyl chloride	benzene	trichloroethene	tetrachloroethene	ethylbenzene
					0.77	2.2	4.3	1.46	2.3
Location ID	Property Address	Sample ID	Location Type	Date	Cleanup Level (µg/m <sup>3</sup> )				
SE-12A	116 North K Street	09-SG-SE-12A	Subslab	3/18/2009	<5	12	<5	11	<5
SE-12B	118 North K Street	09-AS-SE-12B	Bedroom	3/18/2009	<0.039	0.73	<0.024	0.14 J	0.28
	118 North K Street	09-SG-SE-12B	Subslab	3/18/2009	<5	6.1	<5	<5	<5
SE-12C	116 ½ North K Street	09-AS-SE-12C	Office	3/18/2009	<0.039	0.81	0.3	0.042 J	0.31
	116 ½ North K Street	09-SG-SE-12C	Subslab	3/18/2009	<5	7.2	<5	<5	5.9
SE-14	116 North L Street	08-AS-SE-14L	Main floor	2/27/2008	<0.035	1.4 (J)	2 (J)	<0.18	1.6 (J)
	116 North L Street	08-AS-SE14L (S)	Indoor Air DEQ Split	2/27/2008	<0.064	1.1	2.3	1.1	3.1
	116 North L Street	08-AS-SE-14B	Basement	2/27/2008	<0.032	0.55	5.3	0.047 J	0.35
	116 North L Street	08-SG-SE-14	Subslab	2/27/2008	NA	<25	<5	10	<25
	116 North L Street	09-AS-SE-14	Living Room	3/2/2009	<0.04	0.25 J	0.42	0.062 J	0.14
	116 North L Street	09-SG-SE-14	Subslab	3/2/2009	<5	<5	<5	7.3	<5
SE-16	113 South M Street	09-AS-SE-16	Living Room	3/3/2009	<0.04	0.89	0.034	1.1	0.22
	113 South M Street	09-SG-SE-16	Soil gas	3/3/2009	<5	<5	<5	<5	<5
SE-18	120 South N Street	09-AS-SE-18	Upstairs	3/19/2009	<0.046	1.3	0.79	1.2	1.8
	120 South N Street	09-SG-SE-18	Soil gas	3/19/2009	<5	<5	<5	<5	<5
SE-19	108 South O Street	09-AS-SE-19	Living room	3/17/2009	<0.041	0.48	0.029	0.21 J	0.11 J
	108 South O Street	09-SG-SE-19	Soil gas	3/17/2009	<5	<5	<5	<5	<5
SE-2	823 East Callender Street	06-AS-SE-2L	Main floor	4/8/2006	0.5	NA	0.15	1.7	NA
	823 East Callender Street	06-AS-SE2B	Basement	4/8/2006	0.29	NA	0.15	1.5	NA
	823 East Callender Street	06-SG-SE-2-1	Subslab	4/7/2006	<5	NA	<5	26	NA
	823 East Callender Street	08-AS-SE-2L	Main floor	3/3/2008	0.15	1.3	0.07	0.58	1.4
	823 East Callender Street	08-AS-SE-2S (L)	Indoor Air DEQ Split	3/3/2008	0.21	1.1	<0.25	1	2.4
	823 East Callender Street	08-AS-SE-2B	Basement	3/3/2008	0.11	0.61	0.04	0.14 J	0.15
	823 East Callender Street	08-SG-SE-2	Subslab	3/3/2008	NA	<25	<5	<5	<25
SE-20	1401 East Callender Street	08-AS-SE-20	Kitchen	3/3/2008	0.021 J	0.95	0.034	0.14 J	0.25
SE-23	103 South P Street	09-AS-SE-23	Bedroom	2/26/2009	<0.035	1.6	0.073	2.2	0.74
	103 South P Street	09-SG-SE-23	Soil gas	2/26/2009	<5	<5	<5	<5	<5
SE-25	112 South Q Street	09-AS-SE-25	Living Room	2/25/2009	<0.042	0.67	<0.027	0.27	0.15

# BN Livingston 2005-2009 Residential Target Analyte Report

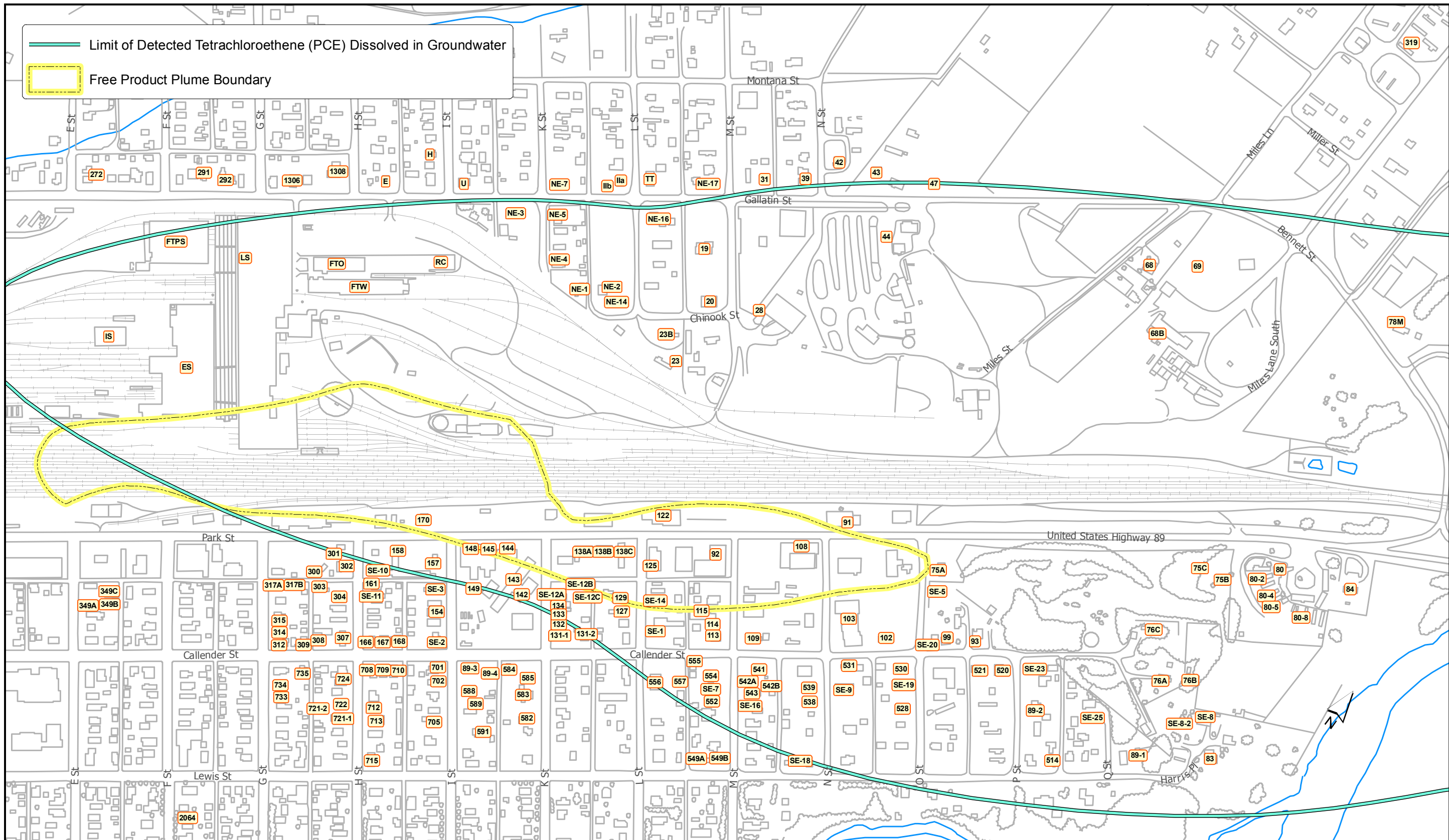
Location ID	Property Address	Sample ID	Location Type	Date	vinyl chloride	benzene	trichloroethene	tetrachloroethene	ethylbenzene
					Cleanup Level (µg/m³)				
SE-25	112 South Q Street	09-SG-SE-25	Mobile home crawlspace	2/25/2009	<5	<5	<5	<5	<5
SE-3	119 North I Street	08-AS-SE-3L	Main floor	2/28/2008	<0.04	<b>0.87</b>	<b>0.037 (U)</b>	<b>0.068 J</b>	<b>0.27</b>
	119 North I Street	08-AS-SE-3BDEQ	Indoor Air DEQ Split	2/28/2008	<0.064	<b>1.5</b>	<0.08	<b>1.3</b>	<b>3.8</b>
	119 North I Street	08-AS-SE-3B	Basement	2/28/2008	<0.037	<b>1.4</b>	<b>0.081</b>	<b>0.98</b>	<b>2.4</b>
	119 North I Street	08-SG-SE-3	Subslab	2/28/2008	NA	<25	<5	<b>6.7</b>	<25
	119 North I Street	08-SG-SE-3DEQ	Soil Gas DEQ Split	2/28/2008	NA	<b>2.9</b>	<2.7	<3.4	<2.2
SE-5	110 North O Street	05-AS-SE-5L	Main floor	12/1/2005	<b>0.047</b>	NA	<b>0.27</b>	<b>0.42</b>	NA
	110 North O Street	08-AS-SE-5	Main floor	3/5/2008	<b>0.022 J</b>	<b>2.9 (J)</b>	<b>0.18 (J)</b>	<b>1.4 (J)</b>	<b>6.3 (J)</b>
	110 North O Street	08-AS-SE-5-S	Indoor Air DEQ Split	3/5/2008	<0.11	<b>1.7</b>	<0.24	<b>2.1</b>	<b>11</b>
	110 North O Street	08-SG-SE-5	Soil gas	3/5/2008	NA	<25	<5	<b>30</b>	<25
SE-7	108 South M Street	09-AS-SE-7L	Upstairs	3/17/2009	<0.041	<b>0.92</b>	<0.026	<b>0.044 J</b>	<b>0.3</b>
	108 South M Street	09-AS-SE-7B	Basement	3/17/2009	<0.033	<b>0.96</b>	<0.021	<b>0.052 J</b>	<b>0.3</b>
	108 South M Street	09-SG-SE-7	Subslab	3/17/2009	<5	<5	<5	<5	<5
	108 South M Street	D2-SG-03-17-09 (Dup of 09-SG-SE-7)	Subslab Duplicate	3/17/2009	<5	<5	<5	<5	<5
SE-8	1605 East Lewis Street	08-AS-SE-8	Main floor	2/27/2008	<0.037	<b>0.74</b>	<0.023	<0.2	<0.12
	1605 East Lewis Street	08-SG-SE-8	Soil gas	2/27/2008	NA	<25	<5	<b>36</b>	<25
	1605 East Lewis Street	08-SG-SE-8DEQ	Soil Gas DEQ Split	2/27/2008	NA	<b>6.3</b>	<b>7.5</b>	<b>31</b>	<b>3.2</b>
	1605 East Lewis Street	09-AS-SE-8-1	Bedroom	2/11/2009	<0.042	<b>0.95</b>	<0.027	<b>0.089 J</b>	<b>14</b>
	1605 East Lewis Street	09-SG-SE8-1	Soil Gas	2/11/2009	<5	<b>6.3</b>	<5	<b>46</b>	<5
SE-8-2	3 Harris Place	09-AS-SE-8-2	Living Room	2/11/2009	<0.044	<b>0.91</b>	<0.028	<b>0.15 J</b>	<b>1.4</b>
	3 Harris Place	09-SG-SE8-2	Soil gas	2/11/2009	<5	<5	<5	<b>16</b>	<5
SE-9	117 South N Street	08-AS-SE-9L	Living room	7/14/2008	<b>0.024 J</b>	<b>0.65</b>	<b>0.054</b>	<b>0.15 J</b>	<b>0.29</b>
	117 South N Street	08-AS-SE-9B	Basement	7/14/2008	<0.04	<b>0.65</b>	<b>0.052</b>	<b>0.77</b>	<b>0.22</b>
	117 South N Street	08-SG-SE-9	Subslab	7/14/2008	<5	<b>14</b>	<5	<b>42</b>	<b>8.1</b>
	117 South N Street	09-AS-SE-9L	Upstairs	2/25/2009	<0.056	<b>0.61</b>	<0.035	<b>0.18 J</b>	<b>0.34</b>
	117 South N Street	09-AS-SE-9-DEQ	Indoor Air DEQ Split	2/25/2009	<0.018	<b>0.85</b>	<b>0.032</b>	<b>0.26</b>	<b>0.56</b>
	117 South N Street	09-SG-SE-9	Subslab	2/25/2009	<5	<b>30</b>	<5	<b>30</b>	<b>9.8</b>
TT	1103 East Gallatin Street	09-AS-TTL	Upstairs	3/19/2009	<0.13	<b>2.6</b>	<b>0.074 J</b>	<b>0.089 J</b>	<b>1.6</b>
	1103 East Gallatin Street	09-AS-TTB	Basement	3/19/2009	<0.033	<b>1.6</b>	<b>0.1</b>	<b>0.11 J</b>	<b>2.1</b>

# BN Livingston 2005-2009 Residential Target Analyte Report

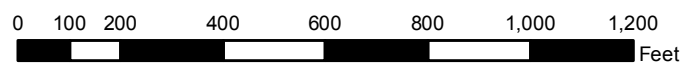
					vinyl chloride	benzene	trichloroethene	tetrachloroethene	ethylbenzene
					0.77	2.2	4.3	1.46	2.3
Location ID	Property Address	Sample ID	Location Type	Date	Cleanup Level (µg/m <sup>3</sup> )				
TT	1103 East Gallatin Street	09-SG-TT	Subslab	3/19/2009	<5	9	<5	7	7.2
U	903 East Gallatin Street	08-AS-UL	Main floor	3/4/2008	<0.04	2.6	0.23	8.6	0.94
	903 East Gallatin Street	08-AS-UB	Basement	3/4/2008	<0.06	1.8	0.42	1.6	0.83
	903 East Gallatin Street	08-SG-U	Subslab	3/4/2008	NA	<25	<5 (UJ)	6.5 (J)	<25
	903 East Gallatin Street	D1-SG-03-04-08	Soil Gas Duplicate	3/4/2008	NA	<25	25 (J)	12 (J)	<25
	903 East Gallatin Street	09-AS-UL	Upstairs	2/25/2009	<0.058	1.8	0.16	0.074 J	0.7
	903 East Gallatin Street	09-AS-UB	Basement	2/25/2009	<0.041	0.86	0.38	0.071 J	0.41
	903 East Gallatin Street	09-SG-U	Subslab	2/25/2009	<5	12	<5	5.4	<5

**1.5** = Concentration Detected in Sample  
**2.5** = Greater Than or Equal to Target Indoor Air Screening Level  
 (X) = Data Validation Qualifier as Identified by CDM  
**SG** = Subslab or Soil Gas Sample

µg/m<sup>3</sup> = micrograms per cubic meter  
 NA = Not Analyzed  
 NF = Compound Analyzed But Not Found



**Task I Indoor Air Sample Locations**  
**2005 - 2009**  
 Burlington Northern Shop Complex Facility  
 Livingston, Montana



**CDM**  
 Camp, Dresser & McKee Inc.  
 50 West 14th Street Suite 200  
 Helena, MT 59601  
 Tel: (406) 441-1400  
 consulting - engineering - construction - operations



**Next Steps For Vapor Intrusion Investigation/Mitigation (February 2010)**  
**Burlington Northern Livingston Shop Complex Facility**  
**Livingston, Montana**

Location ID	Property Address	Building Usage	Building Construction	Proximity to Groundwater Plumes*	Primary COCs Contributing to Decision-Making*	Number of Rounds of Sampling Conducted on Structure*	Indoor Air > Site-Specific Cleanup Levels*	Lower Level Indoor Air > Upper Level	Indoor Air Detection Limits Appropriate for Evaluation	Substructure > Indoor Air	Subsurface Detection Limits Appropriate for Evaluation	Potential Outdoor Source Influence Above Cleanup Levels*	Potential Indoor Source Influence Above Cleanup Levels	Other Notes Regarding Lines of Evidence	Final Recommendation
102	1317 East Callender Street	Autoshop Office	slab on grade	within PCE plume	PCE, B&E	One	Yes	NA	BNSF - no DEQ - yes	Yes	Yes	B&E - yes PCE - no	B&E - yes but also under slab	autoshop but potential for multiple sources	resample to determine if mitigation is needed
103	110 North N Street	residence next to cabinet shop	slab on grade	within PCE plume and near free product plume	PCE, B&E	One	B&E - yes PCE - no	NA	Yes	Yes	Yes	B&E - yes PCE - no	B&E - yes PCE - no	PCE in subslab; woodstove?	resample to verify VI or support no further action
108	1222 East Park Street	Tirerama Office	slab on grade	within PCE and free product plumes	PCE, TCE, B&E	Three partial	No	NA	Yes	Yes	Yes	B&E - yes PCE - no	TCE, B&E - yes PCE - no	SGP contamination too; VI of PCE apparently not occurring; IA is apparently result of indoor TCE, B & E sources	no further action
109	104 North M Street	residence	basement w/concrete floor	within PCE plume	PCE and E	One	Yes	Yes	Yes	Yes	B&E - no PCE - yes	No	No	PCE in subslab and IA above cleanup levels	resample to determine if mitigation is needed
113	103 North M Street	residence	basement w/dirt floor	within PCE plume and near free product plume	PCE	One	Yes	NA	Yes	Yes	B&E - no PCE - yes	No	No	PCE in subslab and IA above cleanup levels	resample to determine if mitigation is needed
114	107 North M Street	residence	basement w/concrete floor	within PCE plume/on edge of free product plume	PCE, B&E	One	B - yes Others - no	No	Yes	Yes	No	B&E - yes PCE - no	No	Extremely high subsurface concentrations of B&E with confounding source information	resample to determine if mitigation is needed
115	115 North M Street	snowmobile repair	slab on grade	within PCE plume/on edge of free product plume	PCE, B&E	One	Yes	NA	Yes	Yes	Yes	B&E - yes PCE - no	B&E - yes PCE - possible	Shope is possible source for 115 and 114; however, higher subslab in 114 than 115 is confounding	resample to determine if mitigation is needed
122	1109 East Park Street	welding shop	basement w/concrete floor	within PCE and free product plumes	PCE, B&E	One	B&E - yes PCE - no	NA	Yes	Yes	Yes	B&E - yes PCE - no	B&E - yes PCE - no	possibility of multiple sources	resample to determine if mitigation is needed
125	1104 East Park Street	veterinarian office	slab on grade	within PCE and free product plumes	PCE	One	No	NA	Yes	Yes	Yes	No	No	DEQ subslab split was ND for PCE; superior HVACs result in very low IA levels even for B&E	no further action
127	109 North L Street	residence	basement w/stone, brick, & dirt floor	within PCE and free product plumes	PCE	One	Yes	NA	Yes	Yes	B&E - no PCE - yes	No	No	PCE in subslab and IA above cleanup levels	resample to determine if mitigation is needed
129	117 North L Street	residence	basement w/dirt floor	within PCE plume/on edge of free product plume	PCE	One	No	NA	Yes	Yes	B&E - no PCE - yes	No	No	PCE in subsurface	resample to verify VI or support no further action
1306	709 East Gallatin Street	residence	crawlspace w/dirt floor	on edge of PCE plume	PCE, TCE & E	One	No	NA	Yes	Yes	B&E - no PCE - yes	No	No	PCE in subsurface	resample to verify VI or support no further action
1308	725 East Gallatin Street	residence	basement w/concrete floor	on edge of PCE plume	PCE and E	One	E - yes Others - no	Yes	Yes	Yes	B&E - no PCE - yes	No	No	PCE in subsurface; high indoor E but higher upstairs; subsurface E DL too high	resample to verify VI or support no further action
131-1	104 North K Street	residence	basement/crawlspace w/dirt floor	on edge of PCE plume	PCE	One	No	NA	Yes	Yes	Yes	No	No	No IA exceedance; very low PCE in subsurface; just outside PCE plume; other locations nearby	no further action
131-2	104 1/2 North K Street	residence	crawlspace w/dirt floor	on edge of PCE plume	PCE	One	No	NA	Yes	All ND	Yes	No	No	No IA exceedance; ND for all subsurface; just outside PCE plume	no further action
132	108 North K Street	residence	partial crawlspace (10%) w/dirt floor	on edge of PCE plume	PCE	One partial	No	NA	Yes	NA	NA	No	No	No IA exceedance; just outside PCE plume	no further action
133	112 North K Street	residence	basement w/concrete floor crawlspace w/dirt floor	within PCE plume	PCE and E	Two	Yes	No	Yes	Yes	Yes	No	No	Based upon low basement concentrations PCE & E in second upstairs sample apparently due to upstairs source	no further action
134	114 North K Street	residence	basement w/dirt floor	within PCE plume/near free product plume	PCE and VC	One	PCE - no VC - yes	Yes	Yes	PCE, B&E - yes VC - no	Yes	No	No	Apparent indoor source of VC; PCE in subsurface	resample to verify VI or support no further action
138A	1010 East Park Street	Chappell's Body Shop	slab on grade	within PCE and free product plumes	PCE	One	No	NA	Yes	Yes	Yes	No	B&E - yes PCE - no	body shop but potential for multiple sources; higher PCE beneath common slab at 138B and 138C	resample to verify VI or support no further action
138B	1014 East Park Street	Chappell's Body Shop	slab on grade	within PCE and free product plumes	PCE	One	No	NA	Yes	Yes	Yes	No	B&E - potential but not reflected in the data	body shop office but potential for multiple sources; higher PCE beneath common slab at 138C	resample to verify VI or support no further action
138C	1022 East Park Street	Rudy's Auto Works Shop	slab on grade	within PCE and free product plumes	PCE	One	Yes	NA	Yes	No	Yes	No	Yes	apparent indoor sources of PCE, B&E but potential for multiple sources	resample to verify VI or support no further action
142	121 North K Street	East Park Antique	basement w/concrete floor	within PCE and free product plumes	PCE	Two partial	No	Yes	Yes	Yes	Yes	No	Yes	based upon other contaminants detected apparent indoor sources and no PCE VI occurring	no further action
143	924 East Park Street	5 story former Feed Store	basement w/dirt floor	within PCE and free product plumes	PCE	One	No	No	Yes	Yes	Yes	B&E - yes PCE - no	No	PCE in subsurface	resample to verify VI or support no further action
144	920 East Park Street	garage office	slab on grade	within PCE and free product plumes	PCE, B&E	One	Yes	NA	No	No	Yes	No	B&E - yes PCE - no	apparent indoor sources of B&E but PCE DL too high	resample to verify VI or support no further action
145	908 East Park Street	O'Connor Autobody Shop	slab on grade	within PCE and free product plumes	PCE	One	Yes	NA	Yes	Yes	Yes	No	B&E - yes PCE - possible	PCE, B&E in subsurface	resample to verify VI or support no further action
148	120 North I Street	Auto shop	slab on grade	within PCE plume/near free product plume	PCE	One	No	NA	Yes	No	Yes	B&E - yes PCE - no	B&E - potential but not reflected in the data	No IA exceedance; ND for all subsurface	no further action
149	110 North I Street	Woodshop	slab on grade w/radiant heat	on edge of PCE plume	PCE	One partial	No	NA	Yes	NA	NA	No	B&E - yes PCE - no	apparent indoor sources of B&E; no PCE above cleanup levels	no further action
154	109 North I Street	residence	basement w/concrete floor	near PCE plume	PCE	Two	No	Yes	Yes	Yes	w/DEQ split yes	No	No	No IA exceedance in two sampling rounds; VI apparently not occurring	no further action
157	830 East Park Street	residence	basement w/concrete floor	within PCE plume/near free product plume	PCE	One partial One complete	No	Yes	Yes	Yes	w/DEQ split yes	No	No	No IA exceedance in two sampling rounds; VI apparently not occurring	no further action

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158	814 East Park Street	Country Motor Inn	basement w/concrete floor	within PCE plume/near free product plume	PCE	One	No	B&E - no PCE - yes	Yes	Yes	B&E - no PCE - yes	No	No	PCE in subsurface	resample to verify VI or support no further action
161	120 North H Street	residence	basement w/concrete floor crawlspace w/dirt floor	near PCE plume	PCE	One	No	E - no PCE - yes	Yes	Yes	B&E - no PCE - yes	No	No	PCE in subsurface; E in indoor air and E DL in subsurface too high; near plumes	resample to verify VI or support no further action
166	102 North H Street	residence	basement/crawlspace w/dirt floor	outside plumes	PCE	One	No	NA	Yes	Yes	B&E - no PCE - yes	No	No	PCE in subsurface very high	resample to verify VI or support no further action
167	805 East Callender Street	residence	basement w/concrete floor	outside plumes	PCE	Two partial	B&E - yes PCE - no	B&E - yes PCE - no	Yes	NA	NA	No	B&E - probable	apparent indoor sources of B&E (smoking?); no PCE above cleanup levels; no subsurface sample; 166 has very high PCE	resample with subslab to verify VI or support no further action
168	809 East Callender Street	residence	basement w/concrete floor	outside plumes	PCE	One	E - yes PCE - no	Yes	Yes	PCE - yes	Yes	No	E - probable	PCE in subsurface	resample to verify VI or support no further action
170	813 East Park Street	Good Time Sports	slab on grade	within PCE and free product plumes	PCE	One	B&E - yes PCE - no	NA	Yes	B&E - no PCE - yes	Yes	No	B&E - yes	possibility of multiple sources	resample to verify VI or support no further action
19	417 North M Street	residence	slab on grade	within PCE plume	PCE	One	No	NA	Yes	Yes	Yes	No	No	PCE in subsurface	resample to verify VI or support no further action
20	North M St	Warehouse	slab on grade	within PCE plume	PCE	One	B&E - yes PCE - no	NA	Yes	B&E - no PCE - yes	Yes	B&E - yes PCE - no	B&E - probable	PCE subslab very high; B&E indoors very high	resample to verify VI or support no further action
2064	211 South F Street	residence	basement w/concrete floor	outside plumes	PCE	One	B&E - yes PCE - no	No	Yes	B&E - no PCE - yes	Yes	B&E - yes PCE - no	No	No IA exceedances except B upstairs but not in basement, outdoor air likely source; some PCE in subslab but well outside plumes; no VI apparent	no further action
23	322 North L Street	residence	mobile home	within PCE plume	PCE	One partial One complete	No	NA	Yes	Yes	B&E - no PCE - yes	No	No	VI apparently not occurring based upon two rounds of sampling; consistent with most mobile home analyses	no further action
23B	326 North L Street	residence	mobile home w/basement w/dirt floor	within PCE plume	PCE	One	Yes	NA	Yes	Yes	B&E - no PCE - yes	No	B&E - yes (smoking)	Presence of basement differs from other mobile homes; PCE in soil gas beneath dug out basement very high	resample to determine if mitigation is needed
272	507 East Gallatin Street	residence	crawlspace w/dirt floor	outside plumes	PCE	One	E - yes Others - no	NA	Yes	No	Yes	No	E - probable	B (J) value in subslab barely above DL; no E in subslab; upgradient of sources	no further action
28	328 North M Street	transfer	slab on grade	within PCE plume	PCE	One partial	No	NA	Yes	NA	NA	No	No	VI apparently not occurring; not possible to sample subsurface	no further action
291	609 East Gallatin Street	residence	basement w/dirt floor	near PCE plume	PCE and E	One	No	E - yes Others - no	Yes	Yes	Yes	No	No	PCE in subsurface	resample to verify VI or support no further action
292	615 East Gallatin Street	residence	crawlspace w/dirt floor	near PCE plume	PCE and E	One	No	NA	Yes	Yes	Yes	No	No	PCE in subsurface	resample to verify VI or support no further action
300	716 East Park Street	Town Pump	slab on grade	near PCE plume	PCE	One partial	B&E - yes PCE - no	NA	Yes	NA	NA	B&E - yes PCE - no	B&E - yes	Indoor and outdoor B&E sources likely (gas station and casino); VI apparently not occurring similar to 301 next door	no further action
301	724 East Park Street	Title Cash Office	concrete floor/crawlspace w/dirt floor	within PCE plume	PCE	One partial	No	NA	Yes	NA	NA	B&E - yes PCE - no	No	VI apparently not occurring similar to 300 next door	no further action
302	123 North H Street	residence	basement/crawlspace w/dirt floor	on edge of PCE plume	PCE, B&E	One	No	NA	Yes	B&E - yes PCE - no	Yes	B&E - yes PCE - no	No	B&E in subsurface; near plumes	resample to verify VI or support no further action
303	117 1/2 North H Street	residence	basement w/concrete floor crawlspace w/dirt floor	near PCE plume	PCE	One	No	NA	Yes	Yes	Yes	B&E - yes PCE - no	No	PCE in subsurface	resample to verify VI or support no further action
304	115 North H Street	residence	basement w/concrete floor	near PCE plume	PCE	One	No	No	Yes	Yes	Yes	No	No	B&PCE in subsurface	resample to verify VI or support no further action
307	103 North H Street	residence	basement w/concrete floor crawlspace w/dirt floor 50%/50%	outside plumes	PCE and B	One	B - yes Others - no	NA	Yes	B - yes Others - no	Yes	No	B - yes (smoking)	IA B source likely smoking; B values in subslab very low; nothing else in subslab; outside plumes	no further action
308	715 East Callender Street	residence	basement w/concrete floor	outside plumes	PCE and B	One	No	No	Yes	B - yes Others - no	Yes	B&E - yes PCE - no	No	IA levels very low; B values in subslab very low; nothing else in subslab; outside plumes	no further action
309	711 East Callender Street	residence	basement w/concrete floor	outside plumes	PCE and B	One	B - yes Others - no	No	Yes	PCE & B - yes	Yes	B&E - yes PCE - no	No	Slight B exceedance in IA upstairs; lower in basement; B & PCE in subslab	resample to verify VI or support no further action
31	1211 East Gallatin Street	residence	slab on grade	on edge of PCE plume	PCE	One partial	B - yes Others - no	NA	Yes	NA	NA	No	B - yes (smoking)	If no PCE detected in additional IA sample, likely smoking is B source.	resample to verify VI or support no further action
312	102 North G Street	residence	basement/crawlspace w/dirt floor	outside of plumes	PCE	One	No	NA	Yes	Yes	Yes	B&E - yes PCE - no	No	PCE, B&E in soil gas; PCE & E high in outdoor air but not in IA; other nearby locations also have PCE in subsurface (e.g., 303, 309, 317A, 317B, 315, and 314)	resample to verify VI or support no further action
314	108 North G Street	residence	basement w/dirt floor	outside of plumes	PCE	One	B - yes Others - no	NA	Yes	Yes	Yes	?	No	Some B in IA; PCE, B&E in soil gas; other nearby locations also have PCE in subsurface (e.g., 303, 309, 317A, 317B, 315, and 312)	resample to verify VI or support no further action
315	112 North G Street	residence	basement w/concrete floor	outside of plumes	PCE and E	One	E - yes Others - no	NA	Yes	PCE - yes	Yes	No	E - probable	PCE in soil gas; other nearby locations also have PCE in subsurface (e.g., 303, 309, 317A, 317B, 314, and 312)	resample to verify VI or support no further action

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317A	120 South G Street	residence	basement w/concrete floor	near PCE plume	PCE, B&E	One	Yes	NA	Yes	B - maybe E - no PCE - yes	Yes	B&E - yes PCE - no	B - possible E - probable	PCE & B in soil gas; other nearby locations also have PCE in subsurface (e.g., 303, 309, 315, 317B, 314, and 312)	resample to determine if mitigation is needed
317B	120 1/2 South G Street	residence	basement w/concrete floor	near PCE plume	PCE, B&E	One	B&E - yes PCE - no	NA	Yes	Yes	Yes	B&E - yes PCE - no	No	PCE, B&E in soil gas; B&E in IA; other nearby locations also have PCE in subsurface (e.g., 303, 309, 315, 317A, 314, and 312)	resample to determine if mitigation is needed
319	219 Garnier #3	residence	mobile home	outside plumes	PCE and E	One	E - yes Others - no	NA	Yes	Yes	Yes	No	Yes	Mobile home had had extensive remodeling; no one currently living there; well outside plumes	no further action
349A	114 North E Street	residence	basement w/concrete floor	outside plumes	PCE and B	One	No	NA	Yes	B - yes Others - no	Yes	No	No	No IA exceedance; B value in subslab barely above DL; well outside plumes	no further action
349B	114 1/2 North E Street	residence	basement w/concrete floor	outside plumes	PCE and B	One	No	No	Yes	B - yes Others - no	Yes	No	No	No IA exceedance; well outside plumes	no further action
349C	118 North E Street	residence w/attached garage	basement w/concrete floor	outside plumes	PCE and B	One	B - yes Others - no	NA	Yes	B - yes Others - no	Yes	No	B - probable (attached garage)	Slight B exceedance in IA w/attached garage; B value in subslab barely above DL; well outside plumes	no further action
39	1221 East Gallatin Street	residence	basement/crawlspace w/dirt floor	on edge of PCE plume	PCE and B	One	Yes	PCE - yes B - no	Yes	PCE - yes	B&E - no PCE - yes	No	No	PCE in subslab and IA above cleanup levels	resample to determine if mitigation is needed
42	510 North N Street	residence	crawlspace w/dirt floor	near PCE plume	PCE	One	B&E - yes PCE - no	NA	NA	No	Yes	E - yes Others - no	B&E - yes (heavy smoking)	No IA exceedances except those related to smoking; little or no B in subslab and no other detections	no further action
43	1311 East Gallatin Street	residence	crawlspace w/dirt floor	on edge of PCE plume	PCE	One partial	No	NA	Yes	NA	NA	No	No	PCE was ND; others very low	no further action
44	1310 East Gallatin Street	cement plant office	mobile home	within PCE plume	PCE	One	No	NA	Yes	No	Yes	B&E - yes PCE - no	No	No IA exceedances; consistent with most mobile home analyses	no further action
47	1365 East Gallatin Street #27	residence	mobile home	within PCE plume	PCE	Two	No	NA	Yes	yes - 1st round ND - 2nd round	Yes	No	No	No IA exceedances in 2 rounds	no further action
514	1511 East Lewis Street	residence	crawlspace w/dirt floor	within PCE plume	PCE	One	No	NA	Yes	Yes	B&E - no PCE - yes	No	No	PCE in subsurface	resample to verify VI or support no further action
520	1424 East Callender Street	residence	crawlspace w/dirt floor	within PCE plume	PCE	One	B&E - yes PCE - no	NA	Yes	All ND	Yes	No	Ongoing remodeling	Clear evidence of indoor B&E source w/nothing detected in subsurface and very low PCE indoors	no further action
521	1418 East Callender Street	residence	mobile home	within PCE plume	PCE	One	No	NA	Yes	All ND	Yes	No	No	No IA exceedances; consistent with most mobile home analyses	no further action
528	114 South O Street	residence	mobile home	within PCE plume	PCE	One	No	NA	Yes	All ND	Yes	No	No	No IA exceedances; consistent with most mobile home analyses	no further action
530	102 South O Street	residence	mobile home	within PCE plume	PCE	One	No	NA	Yes	All ND	Yes	No	No	No IA exceedances; consistent with most mobile home analyses	no further action
531	103 South N Street	residence	mobile home	within PCE plume	PCE, B&E	One	B&E - yes PCE - no	NA	Yes	B - yes Others - no	Yes	No	B&E - yes (smoking)	No IA exceedances except those related to smoking; slight detection of B in crawlspace and no other detections	no further action
538	106 South N Street	residence	mobile home	within PCE plume	PCE	One	No	NA	Yes	All ND	Yes	No	No	No IA exceedances; consistent with most mobile home analyses	no further action
539	104 South Street	residence	mobile home	within PCE plume	PCE	One	No	NA	Yes	All ND	Yes	No	No	No IA exceedances; consistent with most mobile home analyses	no further action
541	101 South M Street	residence	mobile home	within PCE plume	PCE	Two	No	NA	Yes	yes - 1st round ND - 2nd round	Yes	No	No	No IA exceedances; slight PCE detection in 1st round crawlspace - ND in 2nd; consistent with most mobile home analyses	no further action
542A	103 South M Street	residence	crawlspace w/dirt floor	within PCE plume	PCE	One	No	NA	Yes	Yes	B&E - no PCE - yes	No	No	No IA exceedances; PCE in subsurface; home with dirt crawlspace differs from nearby mobile homes	resample to verify VI or support no further action
542B	105 South M Street	residence	mobile home	within PCE plume	PCE	Two	No	NA	Yes	Yes	Yes	No	No	No IA exceedances; consistent with most mobile home analyses	no further action
543	109 South M Street	residence	slab on grade	within PCE plume	PCE	One	E - yes Others - no	NA	Yes	PCE - yes Others - ND	Yes	No	E - yes (remodeling)	No other IA exceedances; PCE beneath slab	resample to verify VI or support no further action
549A	1119 East Lewis Street	residence	crawlspace w/dirt floor	near PCE plume	PCE	Two	No	NA	Yes	All ND	Yes	No	No	No IA exceedances; all ND in subsurface	no further action
549B	1121 East Lewis Street	residence	mobile home	near PCE plume	PCE	One	No	NA	Yes	All ND	B&E - no PCE - yes	No	No	No IA exceedances; all ND in subsurface; consistent with most mobile home analyses	no further action
552	114 South M Street	residence	mobile home	within PCE plume	PCE	One	No	NA	Yes	All ND	Yes	No	No	No IA exceedances; all ND in subsurface; consistent with most mobile home analyses	no further action
554	106 South M Street	residence	slab on grade	within PCE plume	PCE	One partial	B&E - yes PCE - no	NA	Yes	NA	NA	No	B&E - yes (smoking)	No IA exceedances except those related to smoking; no way to sample subsurface	no further action
555	1114 East Callender Street	residence	basement w/concrete floor crawlspace w/dirt floor	within PCE plume	PCE and B	One	No	PCE - yes Others - no	Yes	Yes	Yes	E - yes Others - no	No	PCE & B in subsurface	resample to verify VI or support no further action

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556	113 South L Street	residence	crawlspace w/dirt floor basement w/concrete floor	within PCE plume	PCE	One partial	No	NA	Yes	NA	NA	No	No	No IA exceedances; very low IA concentrations	no further action
557	111 South L Street	residence	basement w/concrete floor	within PCE plume	PCE and B	One	No	No	Yes	Yes	Yes	No	No	PCE in subsurface	resample to verify VI or support no further action
582	118 South K Street	residence	crawlspace w/dirt floor	outside plumes	PCE and B	One	No	NA	Yes	Yes	Yes	No	No	high PCE in subsurface	resample to verify VI or support no further action
583	110 South K Street	residence	basement w/concrete floor	outside plumes	PCE	One	No	No	Yes	Yes	Yes	No	No	No IA exceedances; basement slightly lower levels than upstairs; almost nothing detected in subslab and not within plumes	no further action
584	914 East Callender Street	residence	crawlspace w/dirt floor	outside plumes	PCE	One	No	No	Yes	All ND	Yes	No	No	No IA exceedances; basement slightly lower levels than upstairs; all subsurface ND and not within plumes	no further action
585	918 East Callender Street	residence	basement w/concrete floor 1 dirt wall & crawlspace	outside plumes	PCE	One	Yes	NA	Yes	B&E - no PCE - yes	Yes	No	B&E - yes (smoking)	PCE IA exceedance in addition to IA exceedances related to smoking	resample to determine if mitigation is needed
588	109 South I Street	residence	basement w/concrete floor crawlspace w/dirt floor	outside plumes	PCE, B&E	One	No	NA	Yes	Yes	Yes	No	No	PCE in subsurface; not a mobile home	resample to verify VI or support no further action
589	111 South I Street	residence	mobile home	outside plumes	PCE	One	No	NA	Yes	Yes	Yes	No	No	No IA exceedances; some PCE in crawlspace; consistent with most mobile home analyses	no further action
591	117 South I Street	residence	mobile home	outside plumes	PCE	One	No	NA	Yes	All ND	Yes	No	No	No IA exceedances; all ND in crawlspace; consistent with most mobile home analyses	no further action
68	111 Miles Avenue	residence	basement/crawlspace w/dirt floor	within PCE plume	PCE	Two	Yes	Yes	Yes	Yes	Yes	No	No	1st round of samples collected with roof of structure was extremely incompetent; very high PCE in subsurface and IA exceeds cleanup levels	mitigate
68B	413 Bennett Street	Schwartz Woodworking	basement w/concrete floor	within PCE plume	PCE	One	B&E - yes PCE - no	No	Yes	All ND	B&E - no PCE - yes	No	B&E - yes (woodworking)	VI apparently not occurring; however, the lack of PCE detection in the subslab is inconsistent with nearby data and location within the plume	resample to verify VI or support no further action
69	411 Bennett Street	Bresnan office	slab on grade w/radiant heat	within PCE plume	PCE	One partial	B&E - yes PCE - no	NA	Yes	NA	NA	No	B&E - yes (vehicle parking)	Similar to 68B but w/vehicle parking; however, floor is radiant heat; unable to sample below surface and may help prevent VI	resample to verify VI or support no further action
701	102 South I Street	residence	basement w/concrete floor crawlspace w/dirt floor	outside plumes	PCE	One	B&E - yes PCE - no	NA	Yes	B&E - no PCE - yes	Yes	No	B&E - yes (attached garage)	Only B&E IA exceedance with attached garage; less B & no E in subslab; PCE barely above DL and outside the plumes	no further action
702	106 South I Street	residence	basement/crawlspace w/dirt floor	outside plumes	PCE and B	One	B - yes Others - no	NA	Yes	B - yes Others - no	Yes	No	No	Slight B exceedance in IA w/slight B values in subslab; well outside plumes	no further action
705	118 South I Street #3	residence	crawlspace w/dirt floor	outside plumes	PCE, B&E	One	B&E - yes PCE - no	NA	Yes	B & PCE - yes E - no	Yes	No	B&E - yes (smoking)	High B&E in IA; B higher but E lower & PCE barely above detection in crawlspace; well outside plumes	no further action
708	802 East Callender Street	residence	basement w/concrete floor	outside plumes	PCE	One	No	NA	Yes	All ND	Yes	Yes	No	No IA exceedance; all ND in subsurface; well outside plumes	no further action
709	806 East Callender Street	residence	basement w/concrete floor	outside plumes	PCE, B&E	One	No	NA	Yes	B&E - yes PCE - no	Yes	No	No	No IA exceedance; B&E higher in subsurface but PCE ND; well outside plumes	no further action
710	810 East Callender Street	residence	basement w/concrete floor crawlspace w/dirt floor	outside plumes	PCE and E	One	E - yes Others - no	NA	Yes	All ND	Yes	No	E - probable	Either indoor source of E or anomolous hit since all subsurface ND; well outside plumes	no further action
712	115 South H Street	residence	basement w/concrete floor crawlspace w/dirt floor	outside plumes	PCE, B & E	One	No	NA	Yes	Yes	Yes	B&E - yes PCE - no	No	No IA exceedances; low levels of PCE and E in subsurface; B detected in subsurface but not resulting in VI; B&E outdoors also high; well outside the plumes	no further action
713	119 South H Street	residence	basement w/concrete floor	outside plumes	PCE	One	PCE - yes Others - no	No	Yes	Yes	Yes	No	No	PCE higher upstairs; low level of PCE below slab; outside plumes	no further action
715	801 East Lewis Street	residence	basement w/concrete floor	outside plumes	PCE and B	One	No	No	Yes	B - yes Others - no	Yes	Yes	No	No IA exceedances; B higher in subsurface; well outside plumes	no further action
721-1	118 South H Street	residence	basement w/concrete floor crawlspace w/dirt floor	outside plumes	PCE	One partial	No	No	Yes	All ND	Yes	No	No	No IA exceedances; well outside plumes	no further action
721-2	118 South H Street	residence	slab on grade	outside plumes	PCE	One	No	NA	Yes	All ND	Yes	No	No	No IA exceedances; well outside plumes	no further action

**Next Steps For Vapor Intrusion Investigation/Mitigation (February 2010)**

**Burlington Northern Livingston Shop Complex Facility  
Livingston, Montana**

Location ID	Property Address	Building Usage	Building Construction	Proximity to Groundwater Plumes*	Primary COCs Contributing to Decision-Making*	Number of Rounds of Sampling Conducted on Structure*	Indoor Air > Site-Specific Cleanup Levels*	Lower Level Indoor Air > Upper Level	Indoor Air Detection Limits Appropriate for Evaluation	Substructure > Indoor Air	Subsurface Detection Limits Appropriate for Evaluation	Potential Outdoor Source Influence Above Cleanup Levels*	Identified Potential Indoor Source Influence Above Cleanup Levels	Other Notes Regarding Lines of Evidence	Final Recommendation
722	114 South H Street	residence	crawlspace w/dirt floor	outside plumes	PCE	One	No	NA	Yes	E - yes Others - no	Yes	No	No	No IA exceedances; E only in subsurface & only in DEQ split others ND; no apparent VI; well outside plumes	no further action
724	106 South H Street	residence	basement w/concrete floor	outside plumes	PCE	One	No	NA	Yes	PCE - yes Others - ND	Yes	No	No	outside plumes but PCE in subsurface	resample to verify VI or support no further action
733	109 South G Street	residence	crawlspace w/dirt floor	outside plumes	PCE	One	B&E - yes PCE - no	NA	Yes	PCE & B - yes	Yes	No	B&E - probable	outside plumes but PCE in subsurface	resample to verify VI or support no further action
734	107 South G Street	residence	basement w/concrete floor	outside plumes	PCE, B&E	Two complete One partial	E - yes Others - no	Yes	Yes	Yes	Yes	PCE & E - yes Others - no	No	Apparent indoor source of odor and E; PCE in subsurface but apparently no VI; well outside plumes	no further action
735	714 East Callender Street	residence	basement w/concrete floor	outside plumes	PCE, B&E	One	B&E - yes PCE - no	No	Yes	All ND	Yes	No	B&E - probable	Apparent indoor source of B&E; ND in subsurface; well outside plumes	no further action
75A	1404 East Park Street	coffee shop	slab on grade	within PCE plume/on edge of free product plume	PCE	One	PCE & E - yes PCE - yes Others - no	NA	Yes	Yes	B&E - no PCE - yes	No	No	PCE in subslab and IA above cleanup levels	resample to determine if mitigation is needed
75B	1500 East Park Street	antique store	slab on grade	within PCE plume	PCE	One	PCE - yes Others - no	NA	Yes	Yes	B&E - no PCE - yes	No	No	PCE in subslab and IA above cleanup levels	resample to determine if mitigation is needed
75C	1490 East Park Street	firework stand	slab on grade	within PCE plume	PCE	One	Yes	NA	Yes	All ND	Yes	No	No	very high IA but subslab all ND; within plume; subslab ND not consistent	resample to verify VI or support no further action
76A	1500 East Callender Street	residence	basement w/concrete floor crawlspace w/dirt floor	within PCE plume	PCE	One	PCE - yes Others - no	NA	Yes	Yes	B&E - no PCE - yes	No	No	PCE in subslab and IA above cleanup levels	resample to determine if mitigation is needed
76B	1495 East Callender Street	residence	slab on grade	within PCE plume	PCE	One	PCE & E - yes	NA	Yes	Yes	B&E - no PCE - yes	No	No	PCE in subslab and IA above cleanup levels	resample to determine if mitigation is needed
76C	1490 East Callender Street	residence	mobile home	within PCE plume	PCE, B&E	One	Yes	NA	Yes	All ND	Yes	No	PCE, B & E possible	high levels in IA; mobile home crawlspace vented for several hours before sampling	resample to verify VI or support no further action
78	330 Bennett Street	WWTP	basement w/concrete floor	within PCE plume	PCE	Four partial	Most recent no	No	Yes	Yes	B&E - no PCE - yes	No	No	IA samples indicate VI apparently not occurring	no further action
78M	330 Bennett Street	City Shop	basement w/concrete floor	within PCE plume	PCE, TCE, B&E	Two	Most recent B&E - yes Others - no PCE - yes Others - no	NA Shop > office	Yes	PCE - yes TCE - ND Others - no	Yes	No	TCE, B&E - yes (shop)	2 rounds sampling indicate that PCE VI apparently not occurring; apparent indoor source of TCE, B&E is shop but improved with 2nd round; suggest the need for City to take additional measures to improve IA	no further action
80 (SE-29)	5574 US Highway 89	Rainbow Hotel	crawlspace w/dirt floor	within PCE plume	PCE	One	PCE - yes Others - no	NA	Yes	Yes	B&E - no PCE - yes	No	No	DEMOLISHED	DEQ will likely require ICs
80-2	5574 US Highway 89 #2	residence	mobile home	within PCE plume	PCE	One	No	NA	Yes	Yes	B&E - no PCE - yes	No	No	VI apparently not occurring consistent with most other mobile homes; BNSF owns	no further action
80-4	5574 US Highway 89 #4	residence	mobile home	within PCE plume	PCE	One	B - yes Others - no	NA	Yes	PCE - yes Others - no	B&E - no PCE - yes	No	B - yes (smoking)	VI apparently not occurring consistent with most other mobile homes; smoking is likely indoor B source; BNSF owns	no further action
80-5	5574 US Highway 89 #5	residence	mobile home	within PCE plume	PCE	One partial	No	NA	Yes	NA	NA	No	No	VI apparently not occurring consistent with other mobile homes nearby; BNSF owns	no further action
80-8	5574 US Highway 89 #8	residence	mobile home	within PCE plume	PCE	One	B&E - yes PCE - no	NA	Yes	All ND	B&E - no PCE - yes	No	B&E - yes (smoking)	All ND in crawlspace; indoor source of B&E is smoking; no apparent VI; BNSF owns	no further action
83	2 Harris Place	residence	crawlspace w/dirt floor	within PCE plume	PCE and E	One partial	Yes	NA	Yes	NA	NA	No	No	Need to resample with narrow crawlspace sample	resample with crawlspace sample to determine if mitigation is needed
84	5576 US Highway 89 S	KPRK office	basement w/concrete floor	within PCE plume	PCE and E	Two	E only in 2nd round	NA	Yes	PCE - yes Others - no in 2nd round	Yes	No	E - probable	VI apparently not occurring; apparently E source indoors; business has changed hands	no further action
89-1	116 South Q Street	residence	crawlspace w/dirt floor	within PCE plume	PCE	One	No	NA	Yes	All ND	Yes	No	No	No IA exceedances; all ND in subsurface	no further action
89-2	115 South P Street	residence	basement w/concrete floor crawlspace w/dirt floor	within PCE plume	PCE, B&E	One	B&E - yes PCE - no	NA	Yes	PCE & B - yes	Yes	No	B&E - possible	PCE in subslab; PCE < cleanup level in IA; apparently indoor source of B&E but B in subslab	resample to verify VI or support no further action
89-3	101 South I Street	residence	crawlspace w/dirt floor	outside plumes	PCE	One	No	NA	Yes	All ND	Yes	No	No	No IA exceedances; all ND in subsurface	no further action
89-4	910 East Callender Street	residence	basement w/concrete floor	outside plumes	PCE	One	No	No	Yes	All ND	Yes	No	No	No IA exceedances; all ND in subsurface	no further action
91	1305 East Park Street	Guy's Glass	slab on grade	within PCE plume/on edge of free product plume	PCE, B&E	One	Yes	NA	Yes	Yes	B&E - no PCE - yes	No	B&E - possible	Very high PCE in subslab and shop; possible indoor source of B&E; BNSF owns property and leases	resample to determine if mitigation is needed
92	1122 East Park Street	John Deer Office	slab on grade	within PCE and free product plumes	PCE, B&E	One partial	B&E - yes PCE - no	NA	Yes	NA	NA	No	B&E - yes (tractors)	Likely indoor source of B&E; over free product plume; resample w/subslab/soil gas	resample with subslab or soil vapor sampling

**Next Steps For Vapor Intrusion Investigation/Mitigation (February 2010)**

**Burlington Northern Livingston Shop Complex Facility  
Livingston, Montana**

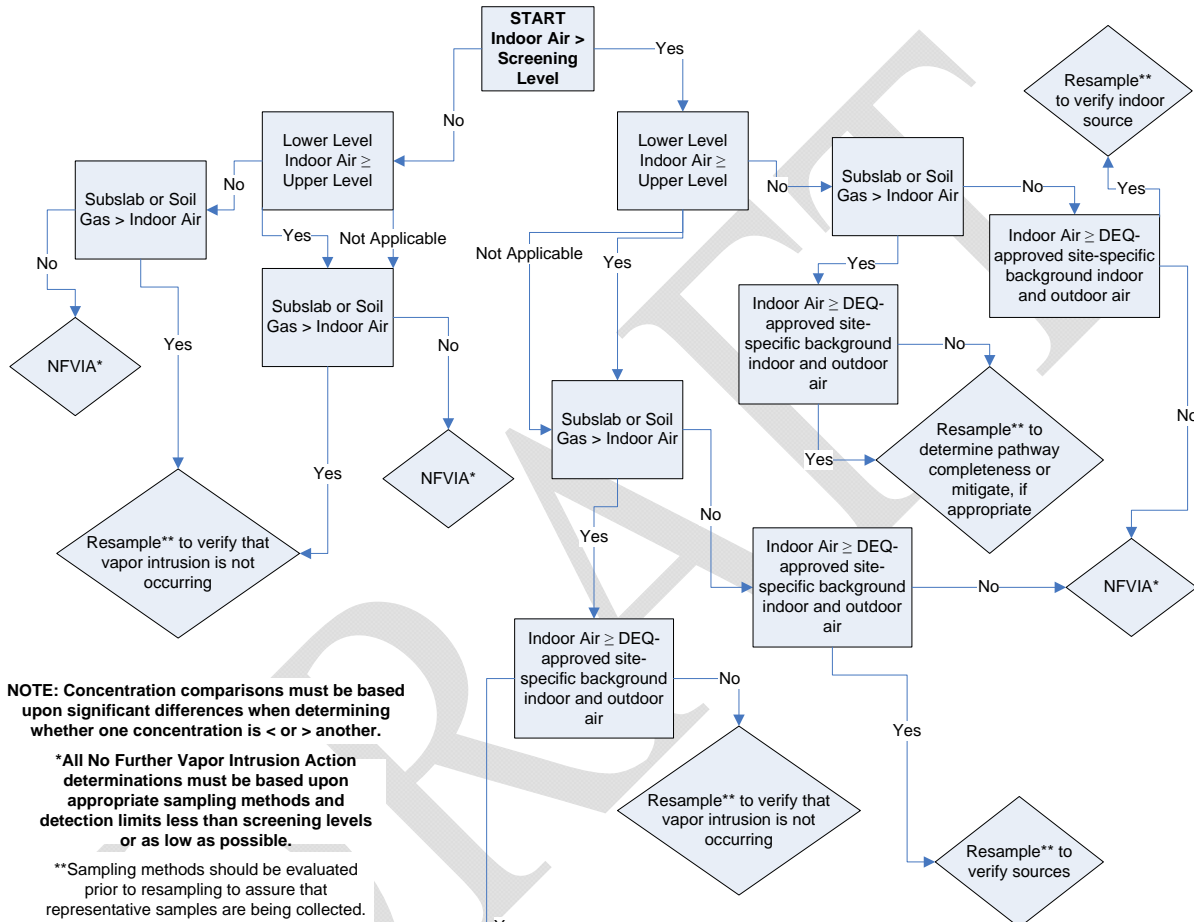
Location ID	Property Address	Building Usage	Building Construction	Proximity to Groundwater Plumes*	Primary COCs Contributing to Decision-Making*	Number of Rounds of Sampling Conducted on Structure*	Indoor Air > Site-Specific Cleanup Levels*	Lower Level Indoor Air > Upper Level	Indoor Air Detection Limits Appropriate for Evaluation	Substructure > Indoor Air	Subsurface Detection Limits Appropriate for Evaluation	Potential Outdoor Source Influence Above Cleanup Levels*	Identified Potential Indoor Source Influence Above Cleanup Levels	Other Notes Regarding Lines of Evidence	Final Recommendation
93	1415 East Callender Street	residence	crawlspace w/dirt floor	within PCE plume	PCE and B	Two	B - yes Others - no	NA	Yes	PCE & B - yes	Yes	No	B - probable	No exceedance of PCE cleanup levels in 2 rounds; likely B source indoors	no further action
99	1403 East Callender Street	residence	slab on grade	within PCE plume	PCE, B&E	Two partial One complete	Yes	NA	Yes	PCE & TCE - yes	w/DEQ split yes	No	B&E - possible	1st and 2nd rounds inconsistent; TCE very high in subslab; PCE/TCE VI possible	resample to determine if mitigation is needed
E	809 East Gallatin Street	residence	crawlspace w/dirt floor	on edge of PCE plume	PCE	One partial	No	NA	Yes	NA	NA	No	No	Approach consistent with other homes in area	resample with crawlspace sample to verify VI or support no further action
H	513 North I Street	residence	basement w/concrete floor	near PCE plume	PCE and E	One	Yes	NA	Yes	PCE - yes Others - ND	Yes	No	E - probable	indoor PCE samples inconsistent	resample to determine if mitigation is needed
IIA	503 North L Street	residence	basement w/dirt floor	near PCE plume	PCE and B	One	B - yes Others - no	NA	Yes	B&E - yes PCE - no	Yes	B&E - yes PCE - no	No	PCE in subslab at IIB; approach consistent with other homes in area	resample to verify VI or support no further action
IIB	1005 East Gallatin Street	residence	mobile home	on edge of PCE plume	PCE	One	No	NA	Yes	PCE - yes Others - ND	Yes	B&E - yes PCE - no	No	PCE in subslab; approach consistent with other homes in area	resample to verify VI or support no further action
NE-1	408 North K Street	residence	basement w/concrete & dirt floor	within PCE plume	PCE	One	Yes	Not significantly	Yes	NA	NA	No	No	DEMOLISHED	DEQ will likely require ICs
NE-14	403 North L Street	residence	mobile home	within PCE plume	PCE	One	No	NA	Yes	All ND	B&E - no PCE - yes	No	No	No IA exceedances; all ND in crawlspace; consistent with most other mobile homes	no further action
NE-16	1104 East Gallatin Street	residence	basement w/concrete floor	within PCE plume	PCE, B&E	Two	Yes	Not significantly	Yes	Yes	Yes	No	No	Subsurface higher than indoor air for both rounds; nearby SGP provides further evidence; PCE exceedance indoors; previous PCE IA data very high; BNSF has approved mitigation plan for property in place	mitigate
NE-17	1123 East Gallatin Street	residence	basement w/concrete floor	on edge of PCE plume	PCE	Two	No	No	Yes	PCE & B - yes	Yes	E - yes Others - no	No	2 rounds sampling indicate that PCE VI apparently not occurring	no further action
NE-2	405 North L Street	residence	basement w/concrete floor	within PCE plume	PCE	One	Yes	Yes	Yes	PCE & TCE - yes	Yes	No	No	PCE levels below slab extremely high; DEMOLISHED	DEQ has required ICs; BNSF has not complied
NE-3	920 East Gallatin Street	residence	basement w/concrete floor crawlspace w/dirt floor	within PCE plume	PCE	One partial One complete	No	No	Yes	PCE, TCE, & E - yes	B&E - no PCE - yes	No	No	2 rounds sampling indicate that PCE VI apparently not occurring	no further action
NE-4	416 North K Street	residence	basement/crawlspace w/dirt floor	within PCE plume	PCE and B	One partial One complete	Yes	PCE - yes B - no	Yes	PCE, TCE, B&E - yes	Yes	No	No	PCE VI apparently occurring; TCE and PCE in subsurface are high; BNSF has submitted mitigation plan	resample to determine if mitigation is needed
NE-5	430 North K Street	residence	basement w/concrete floor crawlspace w/dirt floor	within PCE plume	PCE	One partial	No	PCE & VC - yes TCE - no	Yes	NA	NA	No	No	Based on the location within the plume and other structures nearby resample unless BNSF has demolished it	resample with subslab or soil vapor to verify VI or support no further action
NE-7	1003 East Gallatin Street	residence	basement w/concrete floor crawlspace w/dirt floor	on edge of PCE plume	PCE and E	Two	No	B&E - yes Others - no	Yes	PCE & B - yes	Yes	B&E - yes PCE - no	No	2 rounds sampling indicate that PCE VI apparently not occurring	no further action
SE-1	108 North L Street	residence	basement/crawlspace w/dirt floor	within PCE plume/near free product plume	PCE and B	One partial Two complete	B - yes Others - no	No	Yes	Yes	Yes	No	B - yes (smoking)	2 rounds sampling indicate that PCE VI apparently not occurring; occasional smoking is likely B source	no further action
SE-10	124 North H Street	residence	basement w/concrete floor crawlspace w/dirt floor	on edge of PCE plume	PCE and B	Two	B - yes Others - no	B - no Others - slightly	Yes	Yes	Yes	No	B - yes (smoking)	2 rounds sampling indicate that PCE VI apparently not occurring; B source likely smoking	no further action
SE-11	116 North H Street	residence	basement w/concrete floor	near PCE plume	PCE, B&E	Two	No	No	Yes	Yes	Yes	No	1st round - B&E 2nd round - no	2 rounds sampling indicate PCE VI apparently not occurring; 2nd round B&E IA < cleanup levels	no further action
SE-12A	116 North K Street	residence	basement w/concrete floor	within PCE plume and on edge of free product plume	PCE and B	One	No	B - no Others - yes	Yes	PCE & B - yes	Yes	No	No	No IA exceedances; low levels beneath slabs	no further action
SE-12B	118 North K Street	residence	basement w/concrete floor	within PCE and free product plumes	PCE and B	One	No	NA	Yes	B - yes Others - no	Yes	No	No	No IA exceedances; low levels beneath slabs	no further action
SE-12C	116 1/2 North K Street	auto detailing	slab on grade	within PCE plume and on edge of free product plume	PCE, B&E	One	No	NA	Yes	B&E - yes PCE - no	Yes	No	No	No IA exceedances; low levels beneath slabs	no further action
SE-14	116 North L Street	residence	basement w/concrete floor crawlspace w/dirt floor	within PCE and free product plumes	PCE, TCE, & E	Two	No	1st round TCE - yes Others - no	Yes	PCE - yes Others - no	Yes	No	1st round - TCE&E 2nd round - no	2 rounds sampling indicate PCE VI apparently not occurring; 2nd round TCE&E IA < cleanup levels	no further action
SE-16	113 South M Street	residence	crawlspace w/dirt floor	within PCE plume	PCE	One	No	NA	Yes	All ND	Yes	No	No	No IA exceedances; all ND in subsurface	no further action
SE-18	120 South N Street	residence	crawlspace w/dirt floor	within PCE plume	PCE	One	No	NA	Yes	All ND	Yes	No	No	No IA exceedances; all ND in subsurface	no further action
SE-19	108 South O Street	residence	crawlspace w/dirt floor	within PCE plume	PCE	One	No	NA	Yes	All ND	Yes	No	No	No IA exceedances; all ND in subsurface	no further action
SE-2	823 East Callender Street	residence	basement w/concrete floor	outside plumes	PCE and E	Two	E - yes Others - no	No	Yes	1st round PCE - yes 2nd round - all ND	B&E - no PCE - yes	No	E - probable	PCE < cleanup levels in 2nd round; apparent upstairs E source	no further action
SE-20	1401 East Callender Street	residence	crawlspace w/dirt floor	within PCE plume	PCE	One partial	No	NA	Yes	NA	NA	No	No	Based on location within the plumes, lack of subslab data, and other structures nearby	resample with subslab or soil vapor to verify VI or support no further action

**Next Steps For Vapor Intrusion Investigation/Mitigation (February 2010)**  
**Burlington Northern Livingston Shop Complex Facility**  
**Livingston, Montana**

Location ID	Property Address	Building Usage	Building Construction	Proximity to Groundwater Plumes*	Primary COCs Contributing to Decision-Making*	Number of Rounds of Sampling Conducted on Structure*	Indoor Air > Site-Specific Cleanup Levels*	Lower Level Indoor Air > Upper Level	Indoor Air Detection Limits Appropriate for Evaluation	Substructure > Indoor Air	Subsurface Detection Limits Appropriate for Evaluation	Potential Outdoor Source Influence Above Cleanup Levels*	Identified Potential Indoor Source Influence Above Cleanup Levels	Other Notes Regarding Lines of Evidence	Final Recommendation
SE-23	103 South P Street	residence	crawlspace w/dirt floor	within PCE plume	PCE	One	PCE - yes Others - no	NA	Yes	All ND	Yes	No	No	PCE IA exceedance; subslab all ND; within plume	resample to verify VI or support no further action
SE-25	112 South Q Street	residence	crawlspace w/dirt floor	within PCE plume	PCE	One	No	NA	Yes	All ND	Yes	No	No	No IA exceedances; all ND in subsurface	no further action
SE-3	119 North I Street	residence	basement w/concrete floor	on edge of PCE plume	PCE and E	One	E - yes Others - no	No	Yes	PCE & B - yes	w/DEQ split yes	No	E - probable	No PCE IA exceedances; likely indoor source of E; located on edge of plumes	resample to verify VI or support no further action
SE-5	110 North O Street	residence	basement/crawlspace w/dirt floor	within PCE plume/near free product plume	PCE, B&E	One partial One complete	Yes	NA	Yes	PCE - yes	B&E - no PCE - yes	No	B - probable	Home has a mitigation system; 1st round system running until sampling; 2nd round system shut down prior; data indicate need to continue running system	continue to mitigate
SE-7	108 South M Street	residence	basement w/concrete floor	within PCE plume	PCE	One	No	No	Yes	All ND	Yes	No	No	No IA exceedances; all ND in subsurface	no further action
SE-8	1605 East Lewis Street	residence	basement/crawlspace w/dirt floor	within PCE plume	PCE and E	Two	E - yes Others - no	NA	Yes	PCE & B - yes	Yes	No	E - probable	2 rounds indicate PCE VI apparently not occurring; slight hit of E in 1st round subslab lower than IA conc in 2nd round	no further action
SE-8-2	3 Harris Place	residence	crawlspace w/dirt floor	within PCE plume	PCE	One	No	NA	Yes	PCE - yes	Yes	No	No	Based upon 2 rounds at SE-8 VI apparently not occurring	no further action
SE-9	117 South N Street	residence	basement w/concrete floor	within PCE plume	PCE	Two	No	PCE - yes E - yes	Yes	Yes	PCE, B&E - yes	No	No	2 rounds sampling indicate that VI apparently not occurring	no further action
TT	1103 East Gallatin Street	residence	basement w/concrete floor	near PCE plume	PCE and B	One	B - yes Others - no	E - yes Others - no	Yes	PCE, B&E - yes	Yes	No	B&E yes (smoking)	Based upon location and IIA and IIB	resample to verify VI or support no further action
U	903 East Gallatin Street	residence	basement w/concrete floor	on edge of PCE plume	PCE and B	Two	No	No	Yes	Yes	Yes	No	1st round yes remodeling	No remodeling during 2nd round; no exceedances in IA in 2nd round	no further action
*Notes:															
PCE was identified as the primary basis of DEQ's decision-making in all cases. However, if other COCs were also present in indoor air above cleanup levels or in the subsurface, these COCs were also part of DEQ's decision-making.															
DEQ developed site-specific cleanup levels for the Burlington Northern Livingston Shop Complex in consideration of "background" or typical indoor air concentrations in Livingston (DEQ, January 2010)															
For the purposes of defining proximity to the groundwater plumes, DEQ has used the detection limit isopleth for PCE and the free product boundary as denoted on the attached Task I Indoor Air Sample Locations 2005 - 2009 Figure. Please note these boundary definitions are based upon DEQ's interpretation of the monitoring well data and should not be considered exact. In addition, some lateral movement of vapors outside the estimated groundwater plume is expected.															
Partial rounds of sampling include either subsurface or indoor air but not both. Complete rounds include both.															
Because of the variability of concentrations in outdoor air, particularly for B&E, answers regarding outdoor air are based upon nearby outdoor air sample data.															
For the purposes of this analysis crawlspace samples are treated as soil gas unless subslab or true soil gas were also available.															
Answers consider significance of difference regardless of whether this is specifically noted.															
For multiple rounds of samples, most answers related to the most current round unless specified otherwise. In the case of evaluating whether subsurface detection limits were appropriate, DEQ considered whether any rounds had appropriate detection limits when answering yes or no.															
COC = contaminant of concern															
B = Benzene															
E = Ethylbenzene															
PCE = Tetrachloroethene															
TCE = Trichloroethene															
VC = Vinyl Chloride															
DEQ = Montana Department of Environmental Quality															
DL = detection limit															
IA = indoor air															
ICs = institutional controls such as deed restrictions or restricted covenants, etc.															
NA = not analyzed or not applicable															
SGP = soil gas probe															
VI = vapor intrusion															

# First Round of Samples DEQ Vapor Intrusion General Decision-Making Process

12/8/09



**NOTE: Concentration comparisons must be based upon significant differences when determining whether one concentration is < or > another.**

**\*All No Further Vapor Intrusion Action determinations must be based upon appropriate sampling methods and detection limits less than screening levels or as low as possible.**

**\*\*Sampling methods should be evaluated prior to resampling to assure that representative samples are being collected.**

### Multiple Lines of Evidence:

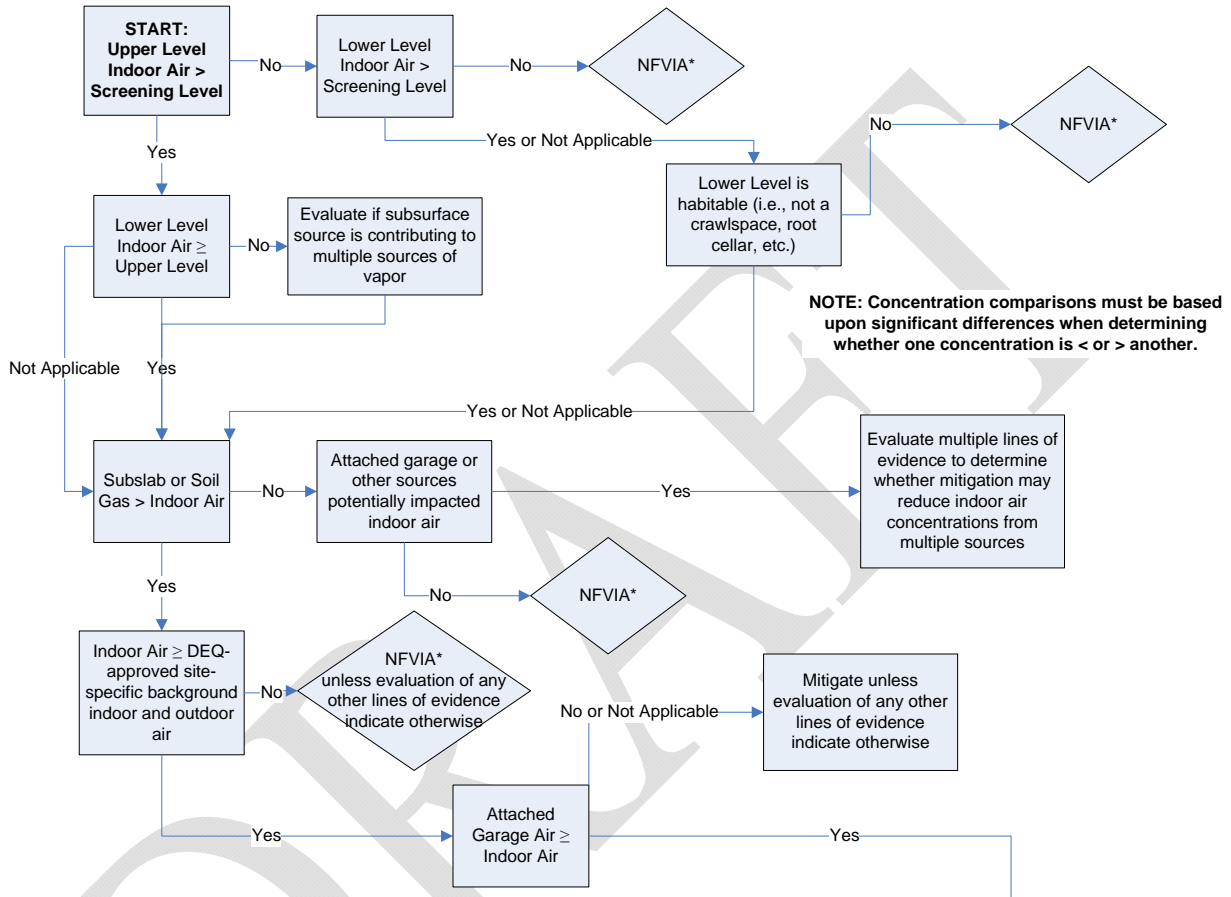
At all times during the process, DEQ will consider multiple lines of evidence, including the following:

- Soil, groundwater, and soil gas concentrations with vertical profiling, if appropriate
- Proximity of structure to contaminated media
- Ratios of indoor air to substructure soil gas concentrations
- Whether samples were collected during worst case conditions
- The time required to remediate the Facility
- Whether the data suggests a significant source exists directly below the structure
- Building construction and current conditions
- The potential contribution of indoor sources
- The potential contribution of outdoor sources
- Building owner surveys
- Detection limit comparison to screening levels
- Constituent ratios in various media (e.g., indoor air, soil gas, groundwater, etc.)
- Temporal variability
- Professional judgment
- Sampling results from nearby buildings

**Note: Uncertainty will lead to conservative risk management decisions.**

# Second Round of Samples DEQ Vapor Intrusion General Decision-Making Process

12/8/09



**NOTE: Concentration comparisons must be based upon significant differences when determining whether one concentration is < or > another.**

**Multiple Lines of Evidence:**  
At all times during the process, DEQ will consider multiple lines of evidence, including the following:

- Soil, groundwater, and soil gas concentrations with vertical profiling, if appropriate
- Proximity of structure to contaminated media
- Ratio of indoor air to substructure soil gas concentrations
- Whether samples were collected during worst case conditions
- The time required to remediate the Facility
- Whether the data suggests a significant source exists directly below the structure
- Building construction and current conditions
- The potential contribution of indoor sources
- The potential contribution of outdoor sources
- Building owner surveys
- Detection limit comparison to screening levels
- Constituent ratios in media
- Temporal variability
- Professional judgment
- Sampling results from nearby buildings

**Note: Uncertainty will lead to conservative risk management decisions.**

**\*All No Further Vapor Intrusion Action determinations must be based upon appropriate sampling methods and detection limits less than screening levels or as low as possible.**

**INSERT TO ADDENDUM No. 2 to FINAL TASK I SUPPLEMENTAL  
INVESTIGATION  
WORK PLAN FOR INDOOR AIR**

**Burlington Northern Livingston Shop Complex  
Livingston, Montana**

**February 2010**

**Montana Department of Environmental Quality**

## INTRODUCTION

The specifications in this Insert clarify or supersede any conflicting specifications provided in the previously approved Final Task I Supplemental Investigation Work Plan for Indoor Air and Addendums No. 1 and 2 to it. Each section of this Insert describes a topic requiring a change or clarification. DEQ has made the following determinations based on its scientific and technical expertise and the information currently available for the Facility and vapor intrusion. However, DEQ reserves the right to require additional changes in the future if necessary to be protective, and in compliance with the Comprehensive Environmental Cleanup and Responsibility Act (CECRA), the 2001 Record and Decision and the August 2005 Statement of Work for Spring 2005 Activities (SOW).

### SITE-SPECIFIC CLEANUP LEVELS

All screening levels provided in the previous work plan and addenda as well as those included in the SOW have now been replaced with the site-specific cleanup levels provided in the January 2010 Final Task I Risk Assessment Amendment and Montana Department of Environmental Quality Approved Remedy For Newly Identified Contaminants of Concern in Indoor Air (Risk Assessment Amendment). These cleanup levels are provided below. As outlined in the Risk Assessment Amendment, these cleanup levels consider and incorporate Livingston-specific background levels of these contaminants, as appropriate.

<b>Residential COCs</b>	<b>Cleanup Levels (<math>\mu\text{g}/\text{m}^3</math>)</b>
Tetrachloroethene	1.46
Trichloroethene	4.3
Vinyl Chloride	0.77
Benzene	2.2
Ethylbenzene	2.3
<b>Commercial/Industrial COCs<sup>1</sup></b>	<b>Cleanup Levels (<math>\mu\text{g}/\text{m}^3</math>)</b>
Tetrachloroethene	3.1
Trichloroethene	9.1
Vinyl Chloride	4.2
Benzene	2.3
Ethylbenzene	7.3

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<sup>1</sup> The SOW requires BNSF to use residential cleanup levels on non-rail yard structures. (SOW, Attachment 2, Section B). BNSF will only be allowed to employ commercial/industrial cleanup levels for railyard structures if BNSF places DEQ-approved institutional controls on the rail yard that limit future use to industrial/commercial. (SOW, Attachment 2, Section B). If BNSF does not place institutional controls on the railyard, BNSF will be required to meet residential cleanup levels for all indoor air contaminants found in the railyard structures. (SOW, Attachment 2, Section B).

Chloroform	0.80
1,3,5-Trimethylbenzene	26
1,2,4-Trimethylbenzene	10

As provided in the SOW that BNSF agreed to follow, the residential site-specific cleanup levels apply uniformly to all residential and commercial/industrial structures with screening level exceedances due to subsurface vapor intrusion not located on the railyard. DEQ and BNSF agreed in the SOW that the commercial/industrial site-specific cleanup levels apply only to commercial/industrial structures located on the railyard.

### **FLUX CHAMBER SAMPLING**

DEQ has determined that flux chamber sampling is a screening tool with limited utility. DEQ will no longer allow flux chamber sampling for future investigation at this Facility.

### **SUBSLAB OR SOIL GAS SAMPLING**

DEQ has determined that the level of a COC in the subslab or soil gas underneath a structure provides a useful line of evidence in determining whether subsurface vapor intrusion is occurring at a structure. DEQ requires that subslab or soil gas samples be collected wherever possible, regardless of whether a crawlspace sample is collected. Examples of situations where it may not be possible to collect these samples include extremely narrow crawlspaces with limited access, slabs with radiant heat, or where access for this type of sampling is denied.

### **BASEMENT OR CRAWLSPACE SAMPLING**

DEQ has determined that a comparison of the levels of a COC in the various levels of a structure provides a useful line of evidence in determining whether subsurface vapor intrusion is occurring at a structure. In order to conduct vapor intrusion pathway analysis, DEQ requires that the lowest level of all inhabitable structures be sampled, regardless of whether the lowest level is currently inhabited.

BNSF's contractors and DEQ developed a crawlspace sampling protocol during the Task I investigations conducted in 2007, 2008 and 2009. The following is a brief description of this protocol. The crawlspace is vented as little as possible. A small opening is found and the probe with adequate tubing attached is placed in an 8-foot-long hollow three-sided metal rod. The probe is extended as far as possible toward the middle of the structure. The sample is then collected in the same manner as subslab or soil gas samples.

If both a crawlspace and a basement are present, a subslab or soil gas sample and a basement indoor air sample are preferred. If a subslab or soil gas sample cannot be obtained, a basement indoor air sample and a crawlspace sample may be collected.

## RADON-222 SAMPLING

Based on the available information, DEQ has determined that it will not allow the use of radon attenuation factors to determine whether vapor intrusion of contaminants of concern is occurring in structures at this Facility. As DEQ has previously stated, it has determined that radon attenuation data do not provide reliable, useful information in Livingston to predict how much tetrachloroethene (PCE), the primary contaminant of concern, would be expected to be present in indoor air from vapor intrusion. Upon review of BNSF's May 9, 2006 Technical Memorandum conveying the Analytical Results for Soil Gas, Flux Chamber, and Indoor Air Samples Collected 5 April 2006 to 8 April 2006, DEQ noted that the radon concentrations found in samples collected in 2006 were extremely variable. In order to predict vapor intrusion, radon concentrations should be uniformly distributed. Uniform production of radon is not what exists in Livingston. The radon attenuation factors BNSF calculated for Livingston in this Technical Memorandum and in BNSF's Draft Task I Supplemental Investigation Report range over three orders of magnitude. DEQ also determined that in order to use radon as a tracer, a spatial analysis, paired with lithological analysis of the soil type, including porosity and moisture content, must be conducted. BNSF has not done this analysis. For these reasons, DEQ determined that the use of radon as a tracer is not appropriate and DEQ did not include this analysis in the approved 2007 Addendum No. 2 to Final Task I Supplemental Investigation Work Plan for Indoor Air.

In addition, DEQ questions the utility of radon for this purpose at any facility. ITRC Vapor Intrusion Guidance from January 2007 states that "naturally occurring compounds (e.g., Rn-222) can be used **in some cases**" (emphasis added) but cautions that "the method assumes that the tracer and subsurface contaminants move into the building at the same rate." Analyses conducted by DEQ show that no such correlation exists. References previously provided by BNSF provide significant reasons for not applying radon data in the manner suggested by BNSF.

One study referenced by BNSF contains conclusions that are seriously flawed in that they are based upon average radon attenuation factors when the ranges for the 6 buildings sampled were incredibly variable. (McHugh, TE., Hammond, D.E., Nickels, T and Hartman, B. 2008. "Use of Radon Measurements for Evaluation of Volatile Organic Compound (VOC) Vapor Intrusion." Environmental Forensics (The Association for Environmental Health and Sciences, AEHS, and International Society of Environmental Forensics, ISEF.) 9:1, 107-114). One home sampled is represented as having a range of radon concentrations in the subslab of 14 to 122 pCi/L, with a range indoors of 0.4 to 0.8 pCi/L. Another building had a range of concentrations in the subslab from 261 to 1,143 pCi/L with a range indoors of 0.7 to 0.9 pCi/L. These data show that subslab radon concentrations varied as much as 82% between samples within a particular structure. The range of attenuation factors for these two structures would be 0.0006 to 0.06. It would not even be possible to predict the radon concentration in one area of these buildings using the attenuation factor from another area, much less any VOC concentration, and any prediction one might make could be incorrect by orders of magnitude and therefore significantly unprotective.

BNSF has also previously referenced the Assessment of Vapor Intrusion in Homes Near the Raymark Superfund Site Using Basement and Sub-Slab Air Samples by the US Environmental Protection Agency. (U.S. Environmental Protection Agency (U.S. EPA). 2006a. Assessment of

Vapor Intrusion Near the Raymark Superfund Site Using Basement and Sub-Slab Air Samples, EPA/66/R-05/147 (March 2006)). This document states, "...when basement/sub-slab air concentration ratios were compared for radon and indicator VOCs, a statistical non-equivalency occurred at three out of four locations evaluated." Statistical tests and even visual dissimilarity between the two sets of data were noted in the study. The study concluded that "Further research is needed at other sites containing indicator VOCs to determine the usefulness of radon in assessing vapor intrusion." No such indicator compounds exist in Livingston.

This Insert is meant to clearly state that radon analyses will NOT be used in DEQ's decision-making at this Facility. If BNSF continues to conduct this unnecessary sampling, DEQ requires that any Summa canisters used to collect samples for both VOCs and radon be analyzed for VOCs first before any radon analysis to ensure the integrity of the VOCs samples.

### **MULTIPLE LINES OF EVIDENCE IN LIEU OF ATTENUATION FACTOR**

DEQ has determined that the use of empirical data is a better approach than relying upon a generic attenuation factor that has not been shown to be supported by the site-specific data at the Facility. DEQ does not approve of the use of generic attenuation factors applied to subslab or soil gas samples for vapor intrusion decision-making at the Facility. Generic attenuation factor may be a useful tool for screening in some situations. However, empirical data must be considered. Empirical data from Livingston indicates that using this attenuation factor for final decision-making is not appropriate. (Kennedy/Jenks Consultants. 2009. Data provided via Livshare website, the website that Kennedy/Jenks has established to provide data to DEQ and provided. 2009). One important fact, in particular, is that DEQ has found that most of the homes in Livingston do not have complete slabs. This attenuation factor, if applicable at all, would only apply to structures with full slabs. Therefore, DEQ does not approve of the use of the previously-approved 0.02 attenuation factor for any analysis at this Facility. Instead DEQ uses a multiple lines of evidence approach in vapor intrusion decision-making. This process is generally depicted in the attached December 2009 Draft Flowchart of DEQ Vapor Intrusion General Decision-Making Process.

### **ADDITIONAL SAMPLING REQUIREMENTS**

DEQ has determined that fixed gas concentrations in subsurface samples are a useful line of evidence in determining subsurface vapor intrusion. DEQ requires that subsurface samples be analyzed for fixed gases. This data may be collected using field instruments and must be reported along with the other data for the investigation.