AVC

STATE OF COLORADO

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Larry Wolk, MD, MSPH
Executive Director and Chief Medical Officer

Dedicated to protecting and improving the health and environment of the people of Colorado

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Colorado Department
of Public Health
and Environment

December 9, 2013

M-1977-211

Mr. Mac Shafer
Vice President of Aggregates
Castle Concrete/Transit Mix
P.O. Box 2379
Colorado Springs, CO 80901

RECEIVED
DEC 13 2013
Division of Reclamation,
Mining & Safety

RE: Comments Regarding the Beneficial Use of Waste Concrete for Mine Reclamation at the Pikeview Quarry

SW/ELP/PVQ 7.1

Mr. Shafer,

The Hazardous Materials and Waste Management Division ("the Division") of the Colorado Department of Public Health and Environment ("the Department") appreciates the opportunity to review the beneficial use plan titled *Inert Material Repository, Pikeview Quarry* ("the BU Plan") submitted to the Division on November 4, 2013. The BU Plan proposes to use concrete generated during demolition of local houses and streets affected by the Waldo Canyon and Black Forest fires in order to reclaim a portion of Pikeview Quarry which is owned by Castle Concrete and Transit Mix Aggregates ("Transit Mix"). The Pikeview Quarry is located west of 7250 Allegheny Drive in Colorado Springs, CO. The Division requests the information below to determine if the beneficial use proposal meets the Divisions criteria for beneficial use.

In the past, the Division has determined that operators may beneficially use concrete for mine reclamation when concrete is screened to ensure that it is free of contaminants, when the local authority finds that the use meets local codes and ordinances, and when the reclamation occurs under the authority of the Colorado Division of Reclamation and Mining Safety ("DRMS"). The Pikeview Quarry has a reclamation permit with DRMS, but the BU Plan did not contain sufficient information to ensure that the local codes and ordinances are being met or that the materials will be properly screened prior to acceptance and placement in the quarry.

The Division requests that the BU Plan be amended to include the following information to determine if the placement of waste concrete in the Pikeview Quarry meets the Division's criteria for beneficial use of a solid waste:

1. Please submit written confirmation from the local governmental authority that the BU Plan meets local codes and ordinances and will not require a Certificate of Designation;
2. The "Inert Material Screening Plan" should include:
    a. Verification from a Certified Asbestos Building Inspector should be provided when building foundation concrete is accepted at the quarry. The documentation should be kept onsite for three (3) years;

b. Visual screening plan for concrete acceptance. Each load of concrete should be visually inspected for signs of contamination and the screening plan should identify the irregularities (staining, odor, discoloration) the operator will be looking for; and
c. The screening plan should include a contingency plan defining the procedures that will be followed in the event of unacceptable material being deposited at the quarry. The contingency plan should include the field sampling procedures, analytical thresholds for acceptance, and alternative disposal options in the event the concrete exceeds the analytical thresholds for acceptance.

3. The BU Plan calls the area where concrete will be accepted a "landfill" or "repository." Pikeview Quarry will be subject to Sections 2 and 3 of the Solid Waste Regulations and the beneficial use regulations will not apply if the quarry is considered a landfill or repository. Please consider a different name for the operations; and
4. The BU Plan provides a list of constituents in *Table 1: Groundwater Sampling Constituents* that will be sampled for in downgradient springs when they are present. Table 1 should be amended to include the Inorganics, VOC's, and SVOC's on the Colorado Soil Evaluation Values ("CSEV's) which are attached to this letter.

The BU Plan should identify the proper steps to ensure the concrete entering the quarry is free of contaminants including petroleum contamination and asbestos. The Division must review an implementable screening plan that will prevent the acceptance of contaminated concrete in order to consider the BU Plan a beneficial use project.

The Division is authorized to bill for its review of technical submittals at $125 per hour, pursuant to section 1.7 of the Solid Waste Regulations. An invoice for the Division's review of the above referenced document will be sent under separate cover.

The Division looks forward to working with Transit Mix on this beneficial use project.

Sincerely,

David Snapp
Environmental Protection Specialist
Solid Waste and Materials Management Program
Materials and Waste Management Division

Charles G. Johnson, Manager
Solid Waste and Materials Management Program
Hazardous Materials and Waste Management Hazardous

CC: Mark Gephart, El Paso County
Tony Waldron, Colorado Division of Reclamation and Mining Safety
Larry Bruskin, CDPHE
Jeremy Pritchett, Norwest Corporation

Attachment:
Colorado Soil Evaluation Values
Wildfire Recovery Guidance

Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division

Table 1. Colorado Soil Evaluation Values (CSEV Table) – July 2011

Class	Analyte (CDPHE Preferred Name)	CAS No.	Residential		Worker [4]		Groundwater Protection Level		Leachate Reference Concentration		Water Standard	
			[mg/kg]	Notes	[mg/kg]	Notes	[mg/kg]	Notes	[mg/L]	Notes	[mg/L]	Notes
Inorganics	Aluminum	7429-90-5	77000	nc	910000	nc	NA		110		5	1,3
	Antimony	7440-36-0	31	nc	410	nc	NA		0.13		0.006	1
	Arsenic	7440-38-2	0.39	10,c	1.6	10,c	NA		0.22		0.01	1
	Barium	7440-39-3	15000	nc	160000	nc	NA		44		2	1
	Beryllium	7440-41-7	160	nc	1300	c	NA		0.088		0.004	1
	Cadmium and compounds	7440-43-9	70	nc	770	nc	NA		0.11		0.005	1
	Chromium(III)	16065-83-1	120000	nc	1500000	nc	NA		2.2	6	0.1	1,6
	Chromium(VI) particulates	18540-29-9	1.2	12,c	5	12,c	NA		0.015		0.0007	2
	Cobalt	7440-48-4	23	12,nc	300	12,nc	NA		1.1		0.05	1
	Copper and compounds	7440-50-8	3100	nc	41000	nc	NA		4.4		0.2	1,3
	Iron	7439-89-6	55000	12,nc	720000	12,nc	NA		6.6		0.3	1
	Lead (inorganic)	7439-92-1	400	11,nc	800	11,nc	NA		1.1		0.05	1
	Lead (tetraethyl)	78-00-2	0.0061	nc	0.062	nc	NA		0.000015		7E-07	2
	Manganese	7439-96-5	9200	12,nc	51000	12,nc	NA		1.1		0.05	1
	Mercury (elemental)	7439-97-6	13	8,nc	160	8,nc			0.025		0.0011	2
	Mercury compounds (i.e., HgCl)	7487-94-7	23	nc	300	nc	NA		0.044		0.002	1
	Nickel (soluble salts)	7440-02-0	1500	nc	12000	c	NA		2.2		0.1	1
	Selenium	7782-49-2	390	nc	5100	nc	NA		0.44		0.02	1,3
	Silver	7440-22-4	390	nc	5100	nc	NA		1.1		0.05	1
	Thallium (sulfate etc.)	7440-28-0	Pending		Pending		NA		0.044		0.002	1
	Vanadium	7440-62-2	390	12,nc	5100	12,nc	NA		2.2		0.1	1,3
	Zinc	7440-66-6	23000	nc	310000	nc	NA		44		2	1,3
VOCs	1,1,1,2-Tetrachloroethane	630-20-6	2.3	9,c	2.9	9,c	0.16		NA		0.013	2
	1,1,1-Trichloroethane	71-55-6	9000	12,nc	13000	12,nc	62		NA		0.2	1
	1,1,2,2-Tetrachloroethane	79-34-5	0.66	9,12,c	0.79	9,12,c	0.0024		NA		0.00018	1
	1,1,2-Trichloroethane	79-00-5	1.1	9,c	1.5	9,c	0.038		NA		0.0028	1
	1,1-Dichloroethane	75-34-3	4	12,c	4.9	12,c	1.8		NA		0.061	2
	1,1-Dichloroethylene	75-35-4	7.1	8,nc	10	8,nc	12		NA		0.007	1
	1,2,3-Trichloropropane	96-18-4	0.019	9,12,c	0.08	9,12,c	27		NA		0.028	2
	1,2,4-Trichlorobenzene	120-82-1	20	9,c	82	9,c	13		NA		0.07	1
	1,2,4-Trimethylbenzene	95-63-6	71	9,13,nc	100	9,13,nc	71		NA		NA	
	1,2-Dibromo-3-chloropropane	96-12-8	0.2	7,12,c	3.6	7,12,c	0.002		NA		0.0002	1
	1,2-Dibromoethane	106-93-4	0.05	9,c	0.068	9,c	0.00018		NA		0.00002	1
	1,2-Dichlorobenzene	95-50-1	2000	9,nc	3700	9,nc	57		NA		0.6	1
	1,2-Dichloroethane	107-06-2	0.45	9,c	0.56	9,c	0.0036		NA		0.00038	1
	1,2-Dichloropropane	78-87-5	1	9,12,c	1.3	9,12,c	0.0087		NA		0.00052	1
	1,3,5-Trimethylbenzene	108-67-8	720	9,12,nc	8500	9,12,nc	23		NA		0.07	2
	1,3-Dichlorobenzene	541-73-1	Pending		Pending		8.5		NA		0.094	1
	1,3-Dichloropropene	542-75-6	2	9,c	3.1	9,c	0.084		NA		0.0035	2
	1,4-Dichlorobenzene	106-46-7	2.6	9,12,c	3.1	9,12,c	7.8		NA		0.075	1
	1-Methylnaphthalene	90-12-0	20	12,c	82	12,c	0.81		NA		0.012	2
	2-Butanone	78-93-3	28000	9,nc	91000	9,nc	18		NA		4.2	2
	2-Chlorophenol	95-57-8	360	9,nc	4300	9,nc	1.2		NA		0.035	1
	2-Hexanone	591-78-6	330	nc	2600	nc	0.21		NA		0.035	2
	2-Methylnaphthalene	91-57-6	290	9,nc	3400	9,nc	7.4		NA		0.028	2
	4-Methyl-2-pentanone	108-10-1	5000	9,nc	29000	9,nc	3.3		NA		0.56	2
	Acenaphthene	83-32-9	4300	9,nc	51000	9,nc	1000	5	NA		0.42	1
	Acetone	67-64-1	61000	nc	380000	nc	32		NA		6.3	2
	Acetophenone	98-86-2	7800	nc	100000	nc	5.2		NA		0.7	2
	Anthracene	120-12-7	22000	9,nc	260000	9,nc	1000	5	NA		2.1	1
	Benzene	71-43-2	1.2	c	1.6	c	0.17		NA		0.005	1
	beta-Chloronaphthalene	91-58-7	5800	9,nc	68000	9,nc	1000		NA		0.56	1
	Bis(2-chloroisopropyl)ether	108-60-1	8.3	9,c	34	9,c	0.037		NA		0.005	2
	Bromobenzene	108-86-1	540	9,12,nc	4500	9,12,nc	3		NA		0.056	2
	Bromodichloromethane	75-27-4	0.42	9,c	0.52	9,c	0.007		NA		0.00056	1
	Bromomethane	74-83-9	10	nc	15	nc	0.16		NA		0.01	2
	Carbon disulfide	75-15-0	740	nc	1100	nc	1000	5	NA		0.7	2
	Carbon tetrachloride	56-23-5	0.24	c	0.3	c	0.92		NA		0.00027	1
	Chlorobenzene	108-90-7	330	nc	580	nc	5.3		NA		0.1	1
	Chloroethane	75-00-3	2.8	13,c	3.4	13,c	520		NA		NA	
	Chloroform	67-66-3	0.29	c	0.35	c	0.085		NA		0.0035	1
	Chloromethane	74-87-3	120	13,nc	180	13,nc	20		NA		NA	
	cis-1,2-Dichloroethene	156-59-2	780	nc	10000	nc	1.3		NA		0.07	1
	Cumene	98-82-8	2200	9,nc	4300	9,nc	700		NA		0.7	2
	Dibenzofuran	132-64-9	72	9,12,nc	850	9,12,nc	4.1		NA		0.007	2
	Dibromochloromethane	124-48-1	1	9,c	1.4	9,c	0.11		NA		0.014	1
	Dichlorodifluoromethane	75-71-8	250	nc	350	nc	390		NA		1.4	2
	Ethyl ether	60-29-7	16000	nc	200000	nc	11		NA		1.4	2
	Ethyl methacrylate	97-63-2	6500	9,nc	77000	9,nc	1000		NA		0.63	2
	Ethylacetate	141-78-6	65000	9,nc	770000	9,nc	35		NA		6.3	2
	Ethylbenzene	100-41-4	6	9,12,c	7.8	9,12,c	100		NA		0.7	1
	Fluorene	86-73-7	2900	9,nc	34000	9,nc	1000	5	NA		0.28	1
	Hexane	110-54-3	Pending		Pending		100	sat	NA		0.42	2
	Methylene chloride	75-09-2	12	c	16	c	0.06		NA		0.0047	1
	Naphthalene	91-20-3	1400	9,nc	17000	9,nc	23		NA		0.14	1
	n-Butylbenzene	104-51-8	2700	13,nc	17000	13,nc	240		NA		NA	
	Nitrobenzene	98-95-3	4.6	9,12,c	5.6	9,12,c	0.061		NA		0.0035	1
	n-Propylbenzene	103-65-1	7400	12,nc	69000	12,nc	77		NA		0.7	2
	sec-Butylbenzene	135-98-8	2700	13,nc	17000	13,nc	230		NA		NA	
	Styrene	100-42-5	6700	9,nc	16000	9,nc	14		NA		0.1	1

Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division
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			[mg/kg]	Notes	[mg/kg]	Notes	[mg/kg]	Notes	[mg/L]	Notes	[mg/L]	Notes
VOCs cont.	tert-Butylbenzene	98-06-6	2700	13,nc	17000	13,nc	230		NA		NA	
	Tetrachloroethylene	127-18-4	0.52	8,c	0.95	8,c	1.9		NA		0.005	1
	Toluene	108-88-3	4700	9,nc	24000	9,nc	50		NA		0.56	1
	Total 1,2-dichloroethene	540-59-0	Pending		Pending		1.9		NA		0.063	2
	Xylenes (total)	1330-20-7	710	9,nc	1000	9,nc	75		NA		1.4	1
	trans-1,2-Dichloroethene	156-60-5	140	nc	210	nc	5.4		NA		0.1	1
	Trichloroethylene	79-01-6	0.052	8,c	0.064	8,c	0.68		NA		0.005	1
	Trichlorofluoromethane	75-69-4	760	nc	1100	nc	1000	5	NA		2.1	2
	Trichlorotrifluoroethane	76-13-1	54000	nc	78000	nc	1000	5	NA		210	2
	Vinyl acetate	108-05-4	1100	9,nc	1500	9,nc	51		NA		7	2
	Vinyl chloride	75-01-4	0.09	7,12,c	4	7,12,c	0.11		NA		0.000023	1
SVOCs	1,2-Dinitrobenzene	528-29-0	6.1	nc	62	nc	0.014		NA		0.0007	2
	1,4-Dinitrobenzene	100-25-4	6.1	nc	62	nc	0.005		NA		0.0007	2
	1,4-Dioxane	123-91-1	7.5	c	10	c	0.031		NA		0.0061	1
	2,4,5-Trichlorophenol	95-95-4	6100	nc	62000	nc	88		NA		0.7	1
	2,4,6-Trichlorophenol	88-06-2	44	c	160	c	0.28		NA		0.0032	1
	2,4-Dichlorophenol	120-83-2	180	nc	1800	nc	0.33		NA		0.021	1
	2,4-Dimethylphenol	105-67-9	1200	nc	12000	nc	2.7		NA		0.14	1
	2,4-Dinitrophenol	51-28-5	120	nc	1200	nc	0.4		NA		0.014	1
	2-Methylphenol	95-48-7	3100	nc	31000	nc	1.2		NA		0.35	2
	3,3'-Dichlorobenzidine	91-94-1	1.1	c	3.8	c	0.041		NA		0.000078	1
	3-Methylphenol	108-39-4	3100	nc	31000	nc	1.2		NA		0.35	2
	4-Methylphenol	106-44-5	310	nc	3100	nc	0.27		NA		0.035	2
	4-Nitrophenol	100-02-7	Pending		Pending		2.1		NA		0.056	1
	a,a-Dimethylphenethylamine	122-09-8	61	13,nc	620	13,nc	Pending		NA		NA	
	Benz[a]anthracene	56-55-3	0.22	7,12,c	3.9	7,12,c	1000	5	NA		4.8E-06	1
	Benzo[a]pyrene	50-32-8	0.022	7,12,c	0.39	7,12,c	1000	5	NA		4.8E-06	1
	Benzo[b]fluoranthene	205-99-2	0.22	7,12,c	3.9	7,12,c	1000	5	NA		4.8E-06	1
	Benzo[g,h,i]perylene	191-24-2	Pending		Pending		Pending		NA		NA	
	Benzo[k]fluoranthene	207-08-9	2.2	7,12,c	39	7,12,c	1000	5	NA		4.8E-06	1
	Benzoic acid at pH 6.8	65-85-0	240000	nc	2500000	nc	110		NA		28	2
	Benzyl alcohol	100-51-6	Pending		Pending		3.9		NA		0.7	2
	Bis-2-ethylhexyl phthalate	117-81-7	35	c	120	c	1000	5	NA		0.0025	1
	Bromoform	75-25-2	25	c	40	c	0.048		NA		0.004	1
	Butylbenzylphthalate	85-68-7	260	12,c	910	12,c	1000	5	NA		1.4	1
	Carbazole	86-74-8	24	13,c	86	13,c	14		NA		NA	
	Chlordane	12789-03-6	1.6	c	6.5	c	1000	5	NA		0.0001	1
	Chrysene	218-01-9	22	7,12,c	390	7,12,c	1000	5	NA		4.8E-06	1
	Cyclohexanone	108-94-1	310000	nc	3100000	nc	200		NA		35	2
	Dibenzo[a,h]anthracene	53-70-3	0.022	7,12,c	0.39	7,12,c	1000	5	NA		4.8E-06	1
	Diethylphthalate	84-66-2	49000	nc	490000	nc	140		NA		5.6	1
	Dimethylphthalate	131-11-3	610000	13,nc	6200000	13,nc	760		NA		NA	
	di-n-Butyl phthalate	84-74-2	6100	nc	62000	nc	1000	5	NA		0.7	1
	di-n-Octyl phthalate	117-84-0	2400	13,nc	25000	13,nc	1000		NA		NA	
	diphenylamine	122-39-4	1500	nc	15000	nc	32		NA		0.18	2
	Ethylene glycol	107-21-1	41000	nc	81000	nc	70		NA		14	2
	Fluoranthene	206-44-0	2400	nc	25000	nc	1000	5	NA		0.28	1
	Hexachlorobenzene	118-74-1	0.3	c	1.1	c	0.009		NA		0.000022	1
	Hexachlorobutadiene	87-68-3	6.2	c	22	c	0.17		NA		0.00045	1
	Hexachlorocyclopentadiene	77-47-4	370	nc	3700	nc	1000		NA		0.042	1
	Hexachloroethane	67-72-1	13	c	22	c	0.015		NA		0.0007	1
	Indeno[1,2,3-cd]pyrene	193-39-5	0.22	7,12,c	3.9	7,12,c	1000	5	NA		4.8E-06	1
	N-nitrosodimethylamine	62-75-9	0.003	7,12,c	0.056	7,12,c	0.000005		NA		6.9E-07	1
	N-Nitrosodinpropylamine	621-64-7	0.069	c	0.25	c	2.8E-07		NA		0.000005	1
	N-Nitrosodiphenylamine	86-30-6	100	c	350	c	0.67		NA		0.0071	1
	Pentachlorophenol	87-86-5	3	c	9	c	0.07		NA		0.00029	1
	Phenol	108-95-2	18000	nc	180000	nc	47		NA		2.1	1
	Pyrene	129-00-0	1800	nc	18000	nc	1000	5	NA		0.21	1
	Pyridine	110-86-1	61	nc	620	nc	0.38		NA		0.007	2
PCBs	Aroclor 1016	12674-11-2	3.9	nc	21	c	1000	5	NA		0.000017	1
	Aroclor 1254	11097-69-1	0.22	c	0.74	c	1000	5	NA		0.000017	1
	Aroclor 1260	11096-82-5	0.22	c	0.74	c	1000	5	NA		0.000017	1
	PCBs	1336-36-3	0.22	c	0.74	c	1000	5	NA		0.000017	1
Pesticides	2,4,5-T	93-76-5	610	nc	6200	nc	0.54		NA		0.07	2
	2,4,5-TP	93-72-1	490	nc	4900	nc	0.48		NA		0.05	1
	2,4-D	94-75-7	690	nc	7700	nc	2.5		NA		0.07	1
	2,4-DB	94-82-6	490	nc	4900	nc	2.1		NA		0.056	2
	4,4'-DDD	72-54-8	2	c	7.2	c	1000	5	NA		0.00015	1
	4,4'-DDE	72-55-9	1.4	c	5.1	c	1000	5	NA		0.0001	1
	4,4'-DDT	50-29-3	1.7	c	7	c	1000	5	NA		0.0001	1
	Aldicarb sulfone	1646-88-4	61	nc	620	nc	0.035		NA		0.007	1
	Aldrin	309-00-2	0.029	c	0.1	c	1000	5	NA		2.1E-06	1
	alpha-BHC	319-84-6	0.077	c	0.27	c	0.0017		NA		5.6E-06	1
	beta-BHC	319-85-7	0.27	c	1	c	0.046		NA		0.00019	2
	Dalapon	75-99-0	1800	nc	18000	nc	1.1		NA		0.2	1
	Dieldrin	60-57-1	0.03	c	0.11	c	1000	5	NA		0.000002	1
	Dinoseb	88-85-7	61	nc	620	nc	0.62		NA		0.007	1
	Endosulfan I	115-29-7	370	nc	3700	nc	1000	5	NA		0.042	1
	Endosulfan II	33213-65-9	Pending		Pending		1000	5	NA		0.042	1
	Endosulfan Sulfate	1031-07-8	Pending		Pending		1000	5	NA		0.042	1

Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division
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Class	Analyte (CDPHE Preferred Name)	CAS No.	Residential		Worker [4]		Groundwater Protection Level		Leachate Reference Concentration		Water Standard	
			[mg/kg]	Notes	[mg/kg]	Notes	[mg/kg]	Notes	[mg/L]	Notes	[mg/L]	Notes
Pesticides cont.	Endrin	72-20-8	18	nc	180	nc	1000	5	NA		0.002	1
	Endrin aldehyde	7421-93-4	Pending		Pending		4.9		NA		0.0021	1
	Endrin ketone	53494-70-5	Pending		Pending		Pending		NA		NA	
	gamma-BHC	58-89-9	0.52	12,c	2.1	12,c	0.017		NA		0.0002	1
	Heptachlor	76-44-8	0.11	c	0.38	c	1000	5	NA		0.000008	1
	Heptachlor epoxide	1024-57-3	0.053	c	0.19	c	1000	5	NA		0.000004	1
	Isophorone	78-59-1	510	c	1800	c	1.3		NA		0.14	1
	MCPA	94-74-6	31	nc	310	nc	0.028		NA		0.0035	2
	MCPP	93-65-2	61	nc	620	nc	0.054		NA		0.007	2
	Methoxychlor	72-43-5	310	nc	3100	nc	1000		NA		0.035	1
	Phorate	298-02-2	12	nc	120	nc	0.15		NA		0.0014	2
	Terbufos	13071-79-9	1.5	nc	15	nc	0.031		NA		0.000 8	2
	Toxaphene	8001-35-2	0.44	c	1.6	c	1000	5	NA		0.000032	1
Explosives	2,4,6-Trinitrotoluene	118-96-7	19	c	79	c	1.7		NA		0.012	2
	2,4/2,6-Dinitrotoluene mix	25321-14-6	0.71	c	2.5	c	0.015		NA		0.00051	2
	2,4-Dinitrotoluene	121-14-2	1.6	12,c	5.5	12,c	0.0032		NA		0.00011	1
	2,6-Dinitrotoluene	606-20-2	61	nc	620	nc	0.2		NA		0.007	2
	2-Amino-4,6-dinitrotoluene	35572-78-2	150	12,nc	2000	12,nc	0.16		NA		0.014	2
	4-Amino-2,6-dinitrotoluene	19406-51-0	150	12,nc	1900	12,nc	0.16		NA		0.014	2
	4-Nitrotoluene	99-99-0	30	12,c	110	12,c	0.59		NA		0.022	2
	HMX	2691-41-0	3800	nc	49000	nc	1000		NA		0.35	2
	PETN	78-11-5	Pending		Pending		Pending		NA		NA	
	RDX	121-82-4	5.5	c	24	c	0.027		NA		0.0032	2
	Tetryl	479-45-8	Pending		Pending		0.6		NA		0.028	2
Anions	Cyanide (free)	57-12-5	1600	nc	20000	nc	NA		4.4		0.2	1
	Cyanide (hydrogen)	74-90-8	1600	nc	20000	nc	NA		3.1		0.14	2
	Nitrate	14797-55-8	130000	nc	1600000	nc	NA		220		10	1
	Nitrite	14797-65-0	7800	nc	100000	nc	NA		22		1	1

GENERAL NOTES:

The 2011 version of the CSEV table values incorporates methodology from EPA 2009 RAGS Part F, Supplemental Guidance for Inhalation Risk Assessment. EPA's Office of Research and Development (ORD) continues to investigate issues important to inhalation risk assessment methodology, such as modifications to address children's susceptibility. RAGS F may be updated periodically as the science of human inhalation progresses. Postings on pending changes may be found at: http://www.epa.gov/oswer/riskassessment/superfund_hh_exposure.htm

It should be noted that the screening levels in these tables are based on human health risk from direct ingestion of soil, dermal contact with soil, plus inhalation from associated particulate or vapors. Other pathways not considered in the CSEV risk methodology (e.g. vapor intrusion/indoor air pathway, food chain pathway) may also need to be considered on a site-specific basis. Users should also be aware that some sites in sensitive ecological settings may need to be evaluated for potential ecological risk.

c – Standard based on carcinogenic risk corresponding to a lifetime risk of 1 E-06.
nc – Standard based on non-carcinogenic risk corresponding to a hazard quotient (HQ) of 1. For facilities where multiple non-carcinogenic chemicals are present, HQ values should be divided by a factor of 10 to account for additivity. If adjusted table values are exceeded, consultation with a toxicologist is recommended to assess likely impact on specific target organs.

Pending – Table values shown as pending are under review. Users should contact the Division if they have an urgent need for a table value for a constituent currently shown as pending.

NA – Not applicable; use of this table to select soil evaluation values under Tier 2 does not allow for the calculation of a soil concentration under this column.

FOOTNOTES:

1. Water standard based on current state or federal MCL.
2. Water standard based on MCL-equivalent calculation.
3. Water standard based on state agricultural standard.
4. Worker values are considered protective for indoor office workers with occasional contact with outdoor soil, and for outdoor workers engaged in light to moderate activity. Values are NOT APPLICABLE to outdoor workers routinely engaged in contact-intensive activity. For facilities where contact intensive use is anticipated, additional analysis and consultation with a toxicologist will be required to determine appropriate site-specific inputs to the risk equations.
5. Table value is capped at an upper concentration limit of 1,000 mg/kg. The Division believes it is necessary to cap the chronic risk scenario and soil-to-groundwater modeling concentration outputs, because the two modeling approaches can result in the calculation of soil concentrations that are very high in an absolute sense, possibly leading to acute health impacts, the presence of free-phase contaminant in soil, or leaving behind constituent levels in soil that might constitute a hazardous waste. Users may contact the Division if they have a need for specific risk-based values, or modeled groundwater concentrations.
6. Based on total chromium.
7. Value based on current EPA-recommended methodology for assessment of chemicals causing cancer through a specific mutagenic mode of action (MOA).
8. Value based on current CDPHE policy for this chemical. Contact the Division if additional information is needed.
9. Table value assumes 3% dermal absorption. Vapor pressure VOC is less than that for benzene, indicating additional potential for dermal absorption. Table values for VOCs with a vapor pressure greater than that of benzene are calculated based on dermal absoption of 0%.
10. For many locations in Colorado, naturally occurring concentrations of arsenic in soil are expected to be higher than the risk-based value listed in Table 1. If adequate background sampling is available that confirms the naturally occurring background concentration of arsenic adjacent to a facility is higher than the table value, the background concentration may be used for site screening and remediation purposes. Users should also reference the document 'Risk Management Guidance for Evaluating Arsenic Concentrations in Soil' (CDPHE, June 2011) under the "Cleanup/Remediation" tab at http://www.colorado.gov/cs/Satellite/CDPHE-HM/CBON/1251615961696 .
11. Screening levels for lead are based on chemical-specific models, which are different than methods and risk algorithms used to derive other table values. The residential value is based on default inputs to EPA's IEUBK model for lead in children. The worker value is based on EPA's adult lead model (ALM), using default values recommended in EPA's 2002 review of CDC's NHANES III report. Consideration of site-specific inputs to the IEUBK or ALM lead models and consultation with a toxicologist is strongly recommended for facilities with lead levels in soil that exceed the residential or worker table values. Contact the Division for additional information about details of the lead models and site-specific considerations.
12. Table value is based on route-to route toxicity value. This value has been retained for screening purposes. If constituent is a risk driver at a facility, consultation with a toxicologist is recommended.
13. Table value is based on a toxicity value that has been withdrawn and is currently under review by EPA. This value has been retained for screening purposes. If constituent is a risk driver at a facility, consultation with a toxicologist is recommended.

STATE OF COLORADO

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Colorado Department of Public Health and Environment

Wildfire Recovery Guidance for Cleanup of Damaged or Destroyed Buildings

Debris and Ash – Handling and Disposal

The ash deposited by forest fires is relatively nontoxic and similar to ash that might be found in your fireplace. However, any ash may contain unknown substances, including chemicals. In particular, ash and debris from burned structures may contain more toxic substances than forest fire ash, because of the many synthetic and other materials present in homes and buildings. For example, car batteries or mercury light bulbs may have been present in the buildings. In addition, older buildings have a greater potential to contain asbestos and lead.

People should take care when handling any materials from buildings that either are partially damaged by the fire (i.e., salvageable building materials remaining) or completely destroyed by the fire (i.e., only ash and debris remain). They should wear protective clothing and equipment to avoid skin contact and inhalation of ash and other disturbed material.

All debris and ash should be handled in a manner that will minimize potential exposure to any unknown hazardous materials that could potentially be present in the debris. Soil under the area where the ash/debris was deposited should be scraped to ensure all ash and building debris has been removed from the site.

Materials may be disposed of at a landfill or onsite (as described below) or they may be recycled (in accordance with the asbestos section below and the Solid Waste Regulations and). Materials disposed of at a landfill must be thoroughly wetted before handling to minimize dust, and then packaged inside a 6-mil plastic sheeting liner and placed in an end-dump roll-off with the top of the roll-off sealed with the plastic sheeting to secure the contents during transport once the roll-off is loaded.

The department is providing a list of landfills (http://goo.gl/maps/l3ksY) that will accept debris and ash from burned structures affected by these wildfires. Roll-offs can be taken to any one of the landfills on the list. Please call the landfill contact before transporting loads to alert the landfill that the material is coming and confirm it will accept the waste.

If you wish to bring debris and ash from structures burned during these wildfires to a different landfill, please contact that landfill to ensure they can accept the material.

The landfill should be informed the debris and ash has come from a structure burned in a wildfire area. Contractors should consult with the Occupational Safety and Health Administration at 303-844-5285 (Denver area office) or 303-843-4500 (Englewood area office) to determine required training and personal protective equipment that will be required for those handling this material.

A state-issued demolition permit is not required to remove the ash and debris from buildings that have been partially or completely destroyed. However, the ash and debris must be thoroughly wetted prior to handling to minimize dust.

The Solid Waste Act and Regulations allow any person, other than governmental entities, to dispose of their own waste on their own property provided the Department approves an engineering and operations plan that complies with the landfill: 1) location restrictions and standards, 2) design requirements and 3) operating criteria. The landfill design and operating requirements vary depending on the site setting and type of material being disposed. We typically encounter three major types of wildfire debris including: 1) inert (non-leachable and/or non-reactive) materials, 2) vegetation, and 3) non-inert (leachable and/or reactive) materials. All of these materials, if managed appropriately, should not cause an unsafe impact to people, wildlife, groundwater, surface water or air. The inert materials are the easiest to manage because they are not mobile and will not present a significant risk to human health or the environment. Inert materials include earthen materials, hardened concrete, cured asphalt, masonry, some metals and other approved materials. Inert materials may be disposed of on property with the following provisions:

1) The disposal of inert waste on the property must be approved by the local government agency,
2) The inert waste may be disposed of in a basement if present or in a hole in the ground (the base of the hole should be at least 5 feet above groundwater),
3) The materials need to be covered with at least two feet of clean fill;
4) The cover needs to be sloped to achieve positive drainage and prevent ponding;
5) The cover should be revegetated to prevent erosion of the cover and surrounding materials,
6) A notice of the fill location should be placed in the property deed.

Non-inert materials may include household chemicals, sheetrock/wallboard, that when wet, may release hydrogen sulfide gas, or other materials that may leach or react and release gas or liquids into the environment or impact human health.

Vegetation should be managed in accordance with the Wildfire – Vegetation Debris and Ash Handling Guidance at: www.colorado.gov/cs/Satellite/CDPHE-Main/CBON/1251627134922.

Non-inert materials may be disposed of on one's own property, but will require an engineering design and operation plan that is submitted to the Department for review and approval prior to implementation. Disposal of non-inert materials or materials that present a risk to human health (including asbestos) will also require a post-closure care plan, financial assurance and an environmental covenant.

Asbestos

If asbestos-containing materials are known to be present in ash or debris in amounts greater than the trigger levels, they must be removed in accordance with Colorado Regulation No. 8, Part B. Trigger levels for single family residential dwellings are 50 linear feet on pipes, 32 square feet on other surfaces or the volume equivalent of a 55-gallon drum. If this is not known, the material may handled and disposed of using the procedures outlined above.

Metal debris must be washed clean of ash/debris prior to recycling. Concrete debris (foundations) must be disposed of at an approved landfill. If you wish to recycle this material, it must be inspected by a certified asbestos building inspector and found to be free of asbestos-containing materials prior to recycling.

Lists of and contact information for landfills that will accept asbestos-containing debris from the various wildfires can be found on the Air Pollution Control Division's Asbestos Program website: www.colorado.gov/cdphe/asbestos.

If you need additional information, please contact Charles Johnson at the department's Solid Waste Unit at 303-692-3348 or charlesg.johnson@state.co.us, or the Asbestos Unit at 303-692-3100 or cdphe.asbestos@state.co.us.