1262096

(Oct 25 - Nov 1, 10 Trip Reports dates of sampling)

CONFIDENTIAL
HRS PRELIMINARY SCORE
for the
Upper Animas River Site (Cement Creek)
San Juan County, Colorado

Site Reassessment (SR)

The Upper Animas River Site (Cement Creek) site has been evaluated by Quickscore using the Hazard Ranking System scoring strategy based on data gathered during the October 2010 ~~SI~~ field sampling event.

put dates in — thought this ran into November 2010 too

add to source & SW description

Sources

Cement Creek site was evaluated based on the presence of ~~many~~ documented sources ~~a~~ mine waste piles and ~~an~~ adit discharges. Since Level I contamination was documented in the wetlands of Cement Creek down stream of the sources, the default value of 100 for source waste quantity was used for scoring purposes. Analytical data from the samples documents the presence of arsenic, barium, cadmium, manganese, silver, and zinc in the sources. Toxicity for which metal used to get WC FCV? Add to source section

how many waste piles and how many discharges

Groundwater Pathway

Background or target groundwater samples were not collected as a part of the October 2010 ~~SI~~ SR and November — field effort. A lack of documented groundwater wells and groundwater users in the area preclude the effective sampling and evaluation of this pathway.

Soil Exposure and Air Pathway

Residential soil samples were not collected as a part of the October 2010 ~~SI~~ SR and November — field effort. The upper reaches of Cement Creek is sparsely populated and there is insufficient evidence to indicate that further evaluation of this pathway would contribute to the overall site score.

Air Pathway

Air samples were not collected as a part of the October 2010 ~~SI~~ SR and November — field effort. The area is covered with snow much of the year, and was covered by approximately 12-24 inches of snow in October and November 2010.

Surface Water Pathway · Observed Release by Direct Observation — pix needed

The background surface water and sediment sample was located in the Lower Ross Basin Drainage, upstream of the Grand Mogul Mine (UASW030 & UASE030). Surface water samples collected below the background location documented observed releases of Level I concentrations of arsenic, cadmium, and manganese in both the stream course and the small isolated wetlands along Cement Creek. Approximately 0.15 mile of stream side wetland was documented to be impacted by the Level I concentrations of manganese which extended almost to the Animas River. Level I concentrations of cadmium were also present in the upper reaches of Cement Creek coexistent with the elevated manganese detections. The level I detections of manganese with a high toxicity result in a surface water pathway score of 81.33 and an overall site score of 40.67.

believe peat bogs present - data gap to possibly fill that could help footage on Cement Creek

Sediment samples contained documented Level II concentrations of arsenic, barium, silver, and zinc. Silver dominated the upper reach of Cement Creek, zinc and arsenic the middle reach, and barium the lower reach of the stream. The low toxicities of arsenic, barium, silver, and zinc precluded a significant contribution to the site score by the sediment samples.

A second scenario can be developed if the consumption of a fish caught in the downstream segment of the Animas River can be documented. With this additional information the Surface Water Pathway score can be maximized at 100 and the site score reaches 50.00.

The site Quickscore developed for two scenarios is as follows:

Wetlands Contamination alone – from existing data		**Wetlands Contamination plus 1 consumed fish – from existing data plus documentation of at least one fish from the Animas River being consumed**	
Groundwater Pathway:	0.00	Groundwater Pathway:	0.00
Surface Water Pathway	81.33	Surface Water Pathway	100.00
Soil Exposure	0.00	Soil Exposure	0.00
Air Pathway	0.00	Air Pathway	0.00
Site Score:	**40.67**	**Site Score:**	**50.00**

****** CONFIDENTIAL ******
******PRE-DECISIONAL DOCUMENT ******
****** SUMMARY SCORESHEET ******
****** FOR COMPUTING PROJECTED HRS SCORE ******

****** Do Not Cite or Quote ******

Site Name: Cement Creek

Region: 8

City, County, State: Silverton, San Juan County CO

Evaluator: START

EPA ID#:

Date: 5/4/2011

Lat/Long:

T/R/S:

Congressional District:

This Scoresheet is for: SI

Scenario Name: October 2010 Samples

Description: Main Trunk Stream, not including or excluding specific side streams.

?

Wetlands Contamination only	S pathway	S^2 pathway
Ground Water Migration Pathway Score (S_{gw})		
Surface Water Migration Pathway Score (S_{sw})	81.33	6614.5689
Soil Exposure Pathway Score (S_s)	0	0
Air Migration Score (S_a)		
$S^2_{gw} + S^2_{sw} + S^2_s + S^2_a$		6614.5689
$(S^2_{gw} + S^2_{sw} + S^2_s + S^2_a)/4$		1653.642225
$\sqrt{(S^2_{gw} + S^2_{sw} + S^2_s + S^2_a)/4}$		40.67

* Pathways not assigned a score (explain):

TABLE 4-1 --SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned	
Watershed Evaluated: Cement Creek-main stream			
Drinking Water Threat			
Likelihood of Release:			
1. Observed Release	550	550	
2. Potential to Release by Overland Flow:			
2a. Containment	10	10	
2b. Runoff	10	1	
2c. Distance to Surface Water	5	25	
2d. Potential to Release by Overland Flow [lines 2a(2b + 2c)]	35	260	
3.Potential to Release by Flood:			
3a. Containment (Flood)	10	10	
3b. Flood Frequency	50	0	
3c. Potential to Release by Flood (lines 3a x 3b)	500	0	
4. Potential to Release (lines 2d + 3c, subject to a maximum of 500)	500	260	
5. Likelihood of Release (higher of lines 1 and 4)	550		550
Waste Characteristics:			
6. Toxicity/Persistence	(a)	10000	
7. Hazardous Waste Quantity	(a)	100	
8. Waste Characteristics	100		32
Targets:			
9. Nearest Intake	50	0	
10. Population:			
10a. Level I Concentrations	(b)		
10b. Level II Concentrations	(b)		
10c. Potential Contamination	(b)		
10d. Population (lines 10a + 10b + 10c)	(b)	0	
11. Resources	5		
12. Targets (lines 9 + 10d + 11)	(b)		0
Drinking Water Threat Score:			
13. Drinking Water Threat Score [(lines 5x8x12)/82,500, subject to a max of 100]	100		0
Human Food Chain Threat			
Likelihood of Release:			
14. Likelihood of Release (same value as line 5)	550		550
Waste Characteristics:			
15. Toxicity/Persistence/Bioaccumulation	(a)	500000000	
16. Hazardous Waste Quantity	(a)	100	
17. Waste Characteristics	1000		320
Targets:			
18. Food Chain Individual	50	0	
19. Population			
19a. Level I Concentration	(b)		
19b. Level II Concentration	(b)		
19c. Potential Human Food Chain Contamination	(b)	10	
19d. Population (lines 19a + 19b + 19c)	(b)	10	
20. Targets (lines 18 + 19d)	(b)		10
Human Food Chain Threat Score:			
21. Human Food Chain Threat Score [(lines 14x17x20)/82500, subject to max of 100]	100		21.33
Environmental Threat			
Likelihood of Release:			
22. Likelihood of Release (same value as line 5)	550		550
Waste Characteristics:			

23. Ecosystem Toxicity/Persistence/Bioaccumulation	(a)	500000	
24. Hazardous Waste Quantity	(a)	100	
25. Waste Characteristics	1000		56
Targets:			
26. Sensitive Environments			
26a. Level I Concentrations	(b)	250	
26b. Level II Concentrations	(b)	25	
26c. Potential Contamination	(b)	1	
26d. Sensitive Environments (lines 26a + 26b + 26c)	(b)	276	
27. Targets (value from line 26d)	(b)		276
Environmental Threat Score:			
28. Environmental Threat Score [(lines 22x25x27)/82,500 subject to a max of 60]	60		60
Surface Water Overland/Flood Migration Component Score for a Watershed			
29. Watershed Score[c] (lines 13+21+28, subject to a max of 100}	100		81.33
Surface Water Overland/Flood Migration Component Score			
30. Component Score (S_{sw})[c] (highest score from line 29 for all watersheds evaluated)	100		81.33

[a] Maximum value applies to waste characteristics category
[b] Maximum value not applicable
[c] Do not round to nearest integer

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Scenario Name: October 2010 Samples

Description: Main Trunk Stream, not including or excluding specific side streams.

Wetlands Contamination plus 1 consumed fish

	S pathway	S^2 pathway
Ground Water Migration Pathway Score (S_{gw})		
Surface Water Migration Pathway Score (S_{sw})	100	10000
Soil Exposure Pathway Score (S_s)	0	0
Air Migration Score (S_a)		
$S^2_{gw} + S^2_{sw} + S^2_s + S^2_a$		10000
$(S^2_{gw} + S^2_{sw} + S^2_s + S^2_a)/4$		2500
$\sqrt{(S^2_{gw} + S^2_{sw} + S^2_s + S^2_a)/4}$		50

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13. Drinking Water Threat Score [(lines 5x8x12)/82,500, subject to a max of 100]	100		0
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Likelihood of Release:			
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15. Toxicity/Persistence/Bioaccumulation	(a)	500000000	
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Surface Water Overland/Flood Migration Component Score			
30. Component Score (S_{sw})[c] (highest score from line 29 for all watersheds evaluated)	100		100

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Upper Animas River/Surface water samples

Level I concentrations

UASW030 – BACKGROUND

As	2.5 U
Cd	3.09 D
Mn	120
Zn	24,900

UASW059

As	26.9 D
Cd	105 D
Mn	8,740 D

UASW018

Cd	19.2 D

UASW014

Cd	25.8 D
Mn	14,900

UASW013

Cd	22.0 D
Mn	12,800

UASW009

Cd	29.1 D
Mn	14,800

UASW008

Cd	28.7 D
Mn	14,800

UASW006

Cd	30.3 D
Mn	18,500

UASW058

Mn	9,150

UASW056

Mn	8,750

UASW050

Mn	6,240

UASW056

Mn	8,749

UASW047

Mn	5,860

UASW046

Mn	5,780

UASW042

Mn	5,900

UASW041

Mn	5,710

UASW039

Mn	5,610

UASW037

Mn	5,280