From: Walker, Crystal
To: Clugston, Patricia L
Subject: FW: Sunnyside Pipeline Release - Background Analytical Report
Date: Tuesday, July 14, 2015 2:32:51 PM
Attachments: Hall Analytical Report 1506925.pdf
Hall Analytical Report 1505585.pdf

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From: Emilee Skyles [mailto:eskyles@animasenvironmental.com]
Sent: Thursday, July 09, 2015 3:06 PM
To: Walker, Crystal
Subject: [EXTERNAL]Sunnyside Pipeline Release - Background Analytical Report

Hi Crystal,
They are finally in. I have attached the final laboratory analytical reports and included a table with both sample S-1 (taken from the immediate vicinity of the release within the impacted area) and the background. Please let me know if there is anything else we can do.

Soil Laboratory Analytical Results
Sunnyside Pipeline D5L-1 Release Assessment, May 2015

Analytical Parameter	***S-1***	***Background***	***SUIT (COGCC) Standard****
Benzene (mg/kg)	<0.052	NA	0.17
Toluene (mg/kg)	0.0092	NA	85
Ethylbenzene (mg/kg)	<0.051	NA	100
Total Xylenes (mg/kg)	0.016	NA	175
GRO (mg/kg)	<1.5	NA	500
MRO (mg/kg)	<49	NA	
DRO (mg/kg)	<5.5	NA	
Acenaphthene (mg/kg)	<0.020	NA	1,000
Anthracene (mg/kg)	<0.020	NA	1,000
Benzo(A)anthracene (mg/kg)	<0.020	NA	0.22

Benzo(B)fluoranthene (mg/kg)	<0.020	NA	0.22
Benzo(K)fluoranthene (mg/kg)	<0.020	NA	2.2
Benzo(A)pyrene (mg/kg)	<0.020	NA	0.022
Chrysene (mg/kg)	<0.020	NA	22
Dibenz(A,H)anthracene(mg/kg)	<0.020	NA	0.022
Fluoranthene (mg/kg)	<0.020	NA	1,000
Fluorene (mg/kg)	<0.020	NA	1,000
Indeno(1,2,3,C,D)pyrene (mg/kg)	<0.020	NA	0.22
Naphthalene (mg/kg)	<0.020	NA	23
Pyrene (mg/kg)	<0.020	NA	1,000
Electrical Conductivity (µmhos/cm)	**4,720**	375	750 (<4,000)**
Sodium Adsorption Ratio	0.15	0.069	<12
pH	**9.69**	8.09	6-9
Arsenic (mg/kg)	**1.5**	**1.9**	0.39
Barium (mg/kg)	360	NA	15,000
Cadmium (mg/kg)	<0.028	NA	70
Chromium (III) (mg/kg)	2.9	NA	120,000
Chromium (VI) (mg/kg)	<2.0	NA	23
Copper (mg/kg)	16	NA	3,100
Lead (mg/kg)	6.9	NA	400
Mercury (mg/kg)	0.014	NA	23
Nickel (mg/kg)	5.0	NA	1,600
Selenium (mg/kg)	<1.6	NA	390
Silver (mg/kg)	<0.030	NA	390
Zinc (mg/kg)	32	NA	23,000

*Per Colorado Oil and Gas Conservation Commission (COGCC) Table 910-1
**Concentration levels for EC per the Table 910-1 need to be below 4,000 µmhos/cm or 2 times the background.

(Section 910.b.3.E. Soil impacted by produced water)

Thanks!

Emilee Skyles
Geologist

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