

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

Division of Environmental Remediation, Remedial Bureau C

625 Broadway, 11th Floor, Albany, NY 12233-7014

P: (518) 402-9662 | F: (518) 402-9679

www.dec.ny.gov

October 17, 2016

Mr. William Canavan
HydroEnvironmental Solutions
One Deans Bridge Road
Somers, NY 10589

Re: Radiation Screening
Former Marble Quarry Landfill
Site ID No. C360143
Tuckahoe, Westchester County

Dear Mr. Canavan,

A Department Radiation Specialist was present on the subject site on October 5, 2016 to perform screening of soil samples for radiation. This letter will serve to transmit the results of that screening effort and to summarize the findings.

Samples from multiple intervals from the five recently completed deep borings (DB-1 through DB-5) representing the full depth of the quarry and covering a substantial portion of the quarry aerially were scanned. In addition, soil samples from shallow overburden wells OW-1 and OW-2 were available and were also scanned. Results of each scanned sample are included as an attachment to this letter.

The survey meter/probes used were a Thermo FH-40 with 1x1 NaI and G-M probes. The meter was calibrated on 10-14-2015.

The measured radiological background in the sample scan area was:

- G-M ~ 40-50 cpm
- 1x1 ~ 8-9 uR/hr

All bagged materials were scanned with both the 1x1 NaI probe for potential gamma emitting radionuclides and the G-M probe which has the ability to detect Alpha, Beta and Gamma emissions. Due to the moisture content of the materials, the Alpha scintillator probe was not utilized as Alpha particles are easily attenuated by excess moisture in materials.

G-M probe readings inside the bagged samples (in near contact to materials) were indistinguishable from readings obtained from the outside the bag. Beta emissions from most commonly encountered isotopes can easily penetrate the thin plastic used in the bags.

Select comparisons were made of several of the highest results. Below are examples of typically expected readings:

FM 40 internal background 13.3 uR/hr
G-M probe 35 cpm ground and ambient
Sr-90 source 22,000 cpm
1x1 NaI 7.5 uR/hr
Co-60 source 395uR/hr

Survey Results:

No samples scanned exhibited any readings distinguishable from ambient area background.

Prior to the screening, the Department's Radiation Sites Section evaluated the information regarding local industries which may have handled radiological materials. The Department concluded that the nature of the specific radiological materials likely or reportedly handled by these industries would no longer be considered radiologically active due to their short half-lives and that even if disposed at the quarry would no longer be of concern radiologically.

The conclusion of the field screening of site soil samples confirmed the Department's initial assessment of the site radiological conditions. Based upon the evaluation, sample screening, experience and knowledge, the Department has concluded that unless new information becomes available with regard to specific disposal of radiological materials, there is no technical justification for further radiological screening in conjunction with this brownfield cleanup project.

Please feel free to contact me at (518) 402-9799 or Kevin.carpenter@dec.ny.gov if you have any questions.

Sincerely,



Kevin Carpenter, P.E.
Project Manager, Remedial Bureau C
Division of Environmental Remediation

ec: A. Omerogbe
G. Heitzman
M. Schuck (NYSDOH)
S. Karpinski (NYSDOH)
R. Ockerby (NYSDOH)
B. Weinberg
L. Shaw
M. Musso (HDR)
P. Ciminello (Ecosystems Strategies)
DecDocs

Attachments

Attachment 1
Sample Scanning Results

Sample Location	Depth (Ft)	1x 1 NaI (uR/hr)	G-M Probe (cpm)
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DB1

0-2	9.3	40
2-4	9.1	45
5-9	9.3	32
10-12	8.8	33
15-17	9.4	32
17-19	9.0	28
20-22	9.4	29
22-24	9.2	32
25-27	8.5	44
27-29	8.6	45
30-32	9.2	35
32-34	8.9	37
40-42	9.6	46
45-47	9.3	48
47-49	9.0	53
50-52	8.3	47
52-54	8.5	46
55-57	8.7	46
57-59	9.8	28
60-62	7.8	33
62-64	8.6	35

DB2

22-24	8.9	54
24-26	9.0	40
26-28	8.8	38
28-30	8.5	27
30-32	9.1	27
32-34	8.8	29
34-36	9.3	30
36-38	8.5	34
38-40	8.8	55
42-44	8.3	48
47-49	8.7	47
50-52	9.2	43

52-54	8.4	46
55-57	9.8	40
57-59	8.9	39
60-62	8.9	49
62-64	8.4	46
65-67	8.4	37
67-69	9.6	42
72-74	8.6	44
75-77	9.3	45
77-79	9.1	41
80-82	8.3	44
82-84	8.2	43
85-87	8.3	45

DB3

0-2	8.7	30
2-4	8.6	40
4-6	9.0	48
8-10	9.0	52
10-12	8.8	58
12-14	8.5	60
14-16	8.8	47
16-18	9.0	40
18-20	8.9	46
20-22	8.9	51
22-24	8.9	38
25-27	8.7	47
27-29	9.2	55
30-32	9.0	48
32-34	9.3	46
35-37	9.7	51
37-39	9.1	43
40-42	8.6	55
42-44	8.6	43
45-47	8.3	43
47-49	8.9	41
50-52	8.7	42
52-54	9.1	40
55-57	8.8	38
60-62	9.2	38
62-64	9.3	38
65-67	9.0	42

67-69	8.9	41
70-72	8.0	39
72-74	8.7	34
75-77	8.5	33

DB4

0-2	9.0	35
2-4	9.0	37
4-6	8.8	42
10-12	8.7	44
14-15	9.6	43

DB5

0-2	8.9	55
2-4	9.0	50
6-8	9.3	42
8-10	9.3	41
10-12	8.7	35
12-14	9.5	34
14-15	8.7	33
16-18	7.7	34
18-20	8.6	36
20-21	9.0	47
22-22	9.0	43

OW1

25-27	8.4	34
27-29	9.2	35

OW2

25-27	8.5	42
27-29	8.8	41
30-32	8.7	39
32-34	8.7	40

Attachment 2

Photos

Sample Scanning Area



Sample Scanned Using 1x1 NaI Probe

