DRAFT

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July 25, 2014

Port of Everett
P.O. Box 583
Everett, Washington 98206

Attention: Erik Gerking

Subject: Sediment Geochronology Study
Bay Wood Products Site
Everett, Washington
File No. 0676-021-01

INTRODUCTION

This report presents the results of sediment geochronology study completed at the Bay Wood Products Site (Site) located at 200 West Marine View Drive in Everett, Washington (Figure 1). The geochronology study was completed by the Port of Everett (Port) at the request of the Washington State Department of Ecology (Ecology) to estimate sedimentation rates at the Site. The results of this study will support evaluation of cleanup alternatives for the marine portion of the Site. The Site is subject to a formal cleanup under Ecology's Agreed Order No. DE 5490 and the Port is in the process of revising the Remedial Investigation/Feasibility Study (RI/FS).

SEDIMENT SAMPLING AND ANALYSES

Sediment sampling and analyses activities were completed in accordance with the Ecology-approved Geochronology Sampling and Analysis Plan (SAP; GeoEngineers, 2014). Sediment coring field activities were completed by GeoEngineers personnel on May 15, 2014. Ecology staff were in the field during the time of sampling to assist in the selection of sampling locations. Sediment cores were collected from two locations (BW-GC1 and BW-GC2) in the intertidal zone of the marine portion within and adjacent to the Site. Approximate sampling locations are shown on Figure 2 and the geographic coordinates are provided in Table 1. Three replicate cores were collected at each sampling location; however, the first series of replicates at BW-GC1 were rejected due to the presence of significant wood debris within the core sample. The revised sampling location was offset by approximately 20 feet to the northwest from the original location. Replicate cores BW-GC1-1 through BW-GC1-3 and BW-GC2-1 through BW-GC2-3 were collected from location BW-GC1 and BW-GC2, respectively for processing and sampling. Three replicate core tubes were positioned immediately adjacent to each other (approximately within 6 inches) at each

sampling location and driven 92 centimeters (cm) into the sediment. Decontaminated, five-foot long, transparent polycarbonate Lexan™ core tubes with approximately 3.7-inch outer diameter (OD) and 3.5-inch internal diameter (ID) were used to collect sediment cores. Core tubes were driven into the sediment by hand including direct pushing and/or by impacting with a hammer. Core tubes driven into the sediment were retrieved by excavating a trench adjacent to the embedded core tube and then twisting and pulling the tube from the sediment. Core catchers were not used so as to minimize disturbance to the sampled sediment.

Cores were logged and sediment samples were collected from each core. Core penetration depths and percent recoveries for these cores are documented in sediment core logs (Appendix A) and summarized in Table 1. Observed sediment lithology was classified in general accordance with Unified Soil Classification System (USCS) and documented in sediment core logs (Appendix A). The effect of percent recovery (based on ratio of core penetration to core recovery) was accounted for in determining sample intervals. Photographs of sediment cores are presented in Appendix B. Cores BW-GC1-3 and BW-GC2-3 were used to visually estimate percent wood debris content; estimates are documented in the associated logs. Sediment collected from location BW-GC1 generally consisted of fine to medium sand; at approximately 48 cm below mudline (bml) there was an approximately 34 to 36-cm thick layer of wood debris (content averaged 60%) mixed with sandy silt. Sediment collected from BW-GC2 generally consisted of silt with moderate wood debris (average content 21%) found in an approximately 14 to 16 cm thick layer at approximately 38 cm bml.

Cores were sectioned in approximately 2-cm increments for radioisotope (Cesium-137 [Cs-137] and Lead-210 [Pb-210]) and total volatile solids (TVS) analyses. Core processing, logging and sample collection was completed by GeoEngineers personnel on May 16, 2014 at GeoEngineers Redmond office. Samples representative of the same depth intervals were composited from two of the cores collected at each sampling location, collected into laboratory-provided containers and submitted to Teledyne Brown Engineering (TBE) of Knoxville, Tennessee for Cs-137 and Pb-210 analyses. The first two cores from each location were used for the radioisotope analyses. Samples collected from the third core at each sampling location were submitted to Analytical Resources, Inc. (ARI) for TVS analysis.

In accordance with the SAP, every other core interval (i.e., 0 to 2 cm, 4 to 6 cm, etc.) was analyzed for Cs-137 and every third sample (i.e., 0 to 2 cm, 6 to 8 cm, etc.) was analyzed for Pb-210 for each location. Each sample analyzed for Cs-137 and/or Pb-210, was also analyzed for TVS with one exception; analysis of TVS could not be performed on sample GC-2-33 collected from BW-GC2 due to insufficient sample volume. Twenty-three samples were analyzed for Cs-137 and 16 samples were analyzed for Pb-210 analysis from each location. Thirty-one samples obtained from sampling location BW-GC1 and 30 samples obtained from sampling location BW-GC2 were analyzed for TVS analysis.

Results of Cs-137, Pb-210 and TVS analyses are summarized in Table 2 and 3 for BW-GC1 and BW-GC2 respectively. In samples collected from BW-GC1, Cs-137 activity was not detected in any of the intervals analyzed and Pb-210 activity was detected in 9 of 16 samples analyzed. At BW-GC2, Cs-137 and Pb-210 activities were detected in each of the sample intervals that were analyzed. At BW-GC1, TVS ranged from 0.29% to 50.02%; the highest TVS was reported for samples between 48 and 80 cm bml. At BW-GC2, TVS ranged from 6.78% to 28.57%; the highest TVS was reported for samples between 40 and 68 cm bml. The higher TVS percentages generally correlated with the samples containing the highest concentrations of wood debris.

Laboratory results for Cs-137 and Pb-210 are presented in Appendix C and laboratory results for TVS are presented in Appendix D. Laboratory data were validated in accordance with the data quality objectives defined in the SAP. Based on the data quality review, the data were of acceptable quality for the intended use. The data validation report is presented in Appendix E. The result of Cs-137, Pb-210 and TVS analyses will be uploaded to Ecology's EIM database.

SEDIMENTATION RATES

Sedimentation rates were calculated based on Cs-137 and Pb-210 activity measured at BW-GC2. Sampling location BW-GC1 was determined unsuitable for calculating sedimentation rates due to the following reasons:

- Cs-137 activity was not detected in any of the samples analyzed.
- Pb-210 activity was detected in too few samples (56%); thereby, the activity profile over depth was insufficient for making interpretations.

Calculated sedimentation rates at BW-GC2 were adjusted to eliminate effects of significant wood deposits at the site. Adjustments were made based on the layer of relatively higher wood debris content observed in the cores. Although generally correlated with the percentage of wood debris observed, TVS was not used to adjust sedimentation rates since the wood debris observations were identified to have a greater and/or equivalent depth range within the activity measurements that used for calculating sedimentation rates.

Sedimentation Rates based on Cs-137 Activity

Cs-137 is not a naturally occurring radioisotope; rather it is produced during nuclear fission. The primary source of Cs-137 to sediment is the atmospheric fallout from historical testing of nuclear weapons. Typically, dates of two horizons (1954 and 1963) can be identified in Puget Sound sediment. The first appearance of detectable Cs-137 activity in sediment generally marks the year 1954 and the maximum Cs-137 activity marks the year 1963 (Jeter, 2000).

Measured Cs-137 activity was plotted against depth in Figure 3. The deepest sample analyzed had detectable Cs-137 activity and therefore, the 1954 horizon could not be definitively identified. The 1963 peak in Cs-137 activity occurred in sample GC-2-23 collected at a depth interval of 44-46 cm (mean depth: 45 cm) below mudline. Sedimentation rate was estimated using the peak Cs-137 activity; calculations and method used to derive sedimentation rates are detailed on Figure 3. Sedimentation rates are summarized below:

- Calculated Sedimentation Rate: 0.88 cm/year
- Adjusted Sedimentation Rate[1]: 0.85 cm/year

[1] Calculated sedimentation rate was adjusted to eliminate effects of significant wood deposits as detailed on Figure 3.

Sedimentation Rates based on Pb-210 Activity

Pb-210 is a natural isotope that is produced in the decay series of Uranium-238. Sediments contain a background level of Pb-210 that is "supported" by the decay of Radium-226 from sediments and rocks. Recently deposited sediments also include an excess of "unsupported" Pb-210 that is produced by decay of Radon-222 gas and incorporated into sediment by atmospheric fallout (Maureen et al., 2006). It is the excess ("unsupported") activity that is used to estimate the age sequence in undisturbed sediment.

Measured Pb-210 activity was plotted against depth in Figure 4. The background ("supported") Pb-210 activity was determined by averaging four deepest measurements where Pb-210 activity did not change appreciably between samples over depth. The excess ("unsupported") Pb-210 activity was determined by subtracting background Pb-210 activity from measured Pb-210 activity. The profile of Pb-210 activity versus depth shown on Figure 4 shows a decreasing trend which is caused by radioactive decay of excess Pb-210 over time. Deeper levels in a core correspond to earlier times, so that radioactive decay is manifested as decreasing activity measurements with depth. The correlation between core depth and radioactive decay is the basis for determining sedimentation rates using Pb-210 (Jeter, 2000). Sedimentation rates were calculated based on a method described in Jeter, 2000 using slope of depth versus excess activity (on a logarithmic basis [base 10]). Sedimentation rates were also calculated based on a method described in Battelle, 1995 and RETEC, 2006 using slope of depth versus natural logarithm of excess Pb-210 activity. Calculations and method used to derive sedimentation rates are detailed on Figure 4. Similar sedimentation rates were derived using these two methods and are summarized below:

- Calculated Sedimentation Rate: 0.89 cm/year
- Adjusted Sedimentation Rate[2]: 0.84 cm/year

Sedimentation Rates at the Site

Similar sedimentation rates were estimated using Cs-137 and Pb-210 dating techniques as described above therefore, providing multiple lines of evidence that sediment at the Site are stable, net depositional and will continue to isolate deeper sediment over-time. The adjusted sedimentation rates estimated using these techniques were averaged to derive a 0.845 cm/year sedimentation rate for the Site.

REFERENCES

Battelle, 1995, "Historical Trends in the Accumulation of Chemicals in Puget Sound," Battelle/Marine Sciences Laboratory, Sequim, Washington, January 1995.

GeoEngineers, 2014, "Geochronology Sampling and Analysis Plan Memorandum, Bay Wood Products Site," GEI File No. 0676-021-01, prepared for the Port of Everett, April 18, 2014.

[2] Calculated sedimentation rate was adjusted to eliminate effects of significant wood deposits as detailed on Figure 4.

Jeter, 2000, "Determining the Ages of Recent Sediments Using Measurements of Trace Radioactivity," by Hewitt W. Jeter, Teledyne, New Jersey, March 2000.

Maureen K. Corcoran and Julie R. Kelly, "Sediment-Tracing Technology: An Overview", September 2006

RETEC, 2006, "Supplemental Remedial Investigation & Feasibility Study, Whatcom Waterway Site, Bellingham, Washington." prepared by The RETEC Group, Inc., October 10, 2006.

Please feel free to contact us if you have any questions.

Sincerely,
GeoEngineers, Inc.

Abhijit R. Joshi, PE
Project Engineer

John Herzog, LG, PhD
Principal

AJ:NAM:JMH:BT

Attachments:

Table 1. Summary of Sampling Location Coordinates and Core Recovery Data

Table 2. Summary of Radioisotope (Cs-137 and Pb-210) and TVS Analyses Results, Sampling Location BW-GC1

Table 3. Summary of Radioisotope (Cs-137 and Pb-210) and TVS Analyses Results, Sampling Location BW-GC2

Figure 1. Vicinity Map

Figure 2. Site Plan

Figure 3. Sedimentation Rate based on Cs-137 Activity at Sampling Location BW-GC2

Figure 4. Sedimentation Rate based on Pb-210 Activity at Sampling Location BW-GC2

Appendix A: Sediment Core Logs

Appendix B: Sediment Core Photographs

Appendix C: Laboratory Reports of Radioisotope (Cs-137 and Pb-210) Analyses

Appendix D: Laboratory Reports of TVS Analyses

Appendix E: Data Validation Report

TABLE 1

Summary of Sampling Location Coordinates and Core Recovery Data

Bay Wood Products Site
Everett, Washington

Sampling Location[1] Identification	Approximate Coordinates[2]	Core Identification	Core Penetration Depth (cm)	Recovery (cm)	Percent Recovery
BW-GC1	E=1304319.9443 N=374225.9002	BW-GC1-1	92	84	91%
		BW-GC1-2	92	92	100%
		BW-GC1-3	92	92	100%
BW-GC2	E=1303905.0928 N=374135.3985	BW-GC2-1	92	80	87%
		BW-GC2-2	92	88	95.6%
		BW-GC2-3	92	85	92.4%

Notes:

[1] Approximate sampling locations are shown on Figure 2.

[2] Coordinates are referenced to North American Datum 83 (NAD 83) Washington State Plane North.

cm = centimeter

TABLE 2

Summary of Radioisotope (Cs-137 and Pb-210) and TVS Analytical Results

Sampling Location BW-GC1[1]

Bay Wood Products Site

Everett, Washington

Sample Identification	Depth Interval (cm)	Cs-137 Activity (pCi/g)	Pb-210 Activity (pCi/g)	TVS (percent)
GC1-1	0 -- 2	0.06 U	**0.23 ± 0.07**	2.54
GC1-2	2 -- 4	--	--	--
GC1-3	4 -- 6	0.02 U	--	2.82
GC1-4	6 -- 8	--	**0.16 ± 0.05**	2.33
GC1-5	8 -- 10	0.0013 U	--	1.85
GC1-6	10 -- 12	--	--	--
GC1-7	12 -- 14	-0.02 U	**0.14 ± 0.05**	1.45
GC1-8	14 -- 16	--	--	--
GC1-9	16 -- 18	0.02 U	--	0.29
GC1-10	18 -- 20	--	0.09 U	0.83
GC1-11	20 -- 22	0.01 U	--	0.99
GC1-12	22 -- 24	--	--	--
GC1-13	24 -- 26	-0.001 U	**0.11 ± 0.05**	1.27
GC1-14	26 -- 28	--	--	--
GC1-15	28 -- 30	0.01 U	--	1.1
GC1-16	30 -- 32	--	0.02 U	1.2
GC1-17	32 -- 34	-0.001 U	--	1.28
GC1-18	34 -- 36	--	--	--
GC1-19	36 -- 38	-0.01 U	**0.24 ± 0.05**	1.31
GC1-20	38 -- 40	--	--	--
GC1-21	40 -- 42	0.001 U	--	1.43
GC1-22	42 -- 44	--	**0.12 ± 0.04**	2.47
GC1-23	44 -- 46	0.004 U	--	3.34
GC1-24	46 -- 48	--	--	--
GC1-25	48 -- 50	-0.01 U	**0.11 ± 0.06**	10.45
GC1-26	50 -- 52	--	--	--
GC1-27	52 -- 54	0.02 U	--	50.02
GC1-28	54 -- 56	--	**0.19 ± 0.03**	33.63
GC1-29	56 -- 58	-0.01 U	--	34.84
GC1-30	58 -- 60	--	--	--
GC1-31	60 -- 62	-0.04 U	0.04 U	17.39
GC1-32	62 -- 64	--	--	--
GC1-33	64 -- 66	-0.004 U	--	19.45
GC1-34	66 -- 68	--	**0.07 ± 0.03**	8.7
GC1-35	68 -- 70	-0.04 U	--	8.18
GC1-36	70 -- 72	--	--	--
GC1-37	72 -- 74	-0.003 U	0.03 U	6.26
GC1-38	74 -- 76	--	--	--
GC1-39	76 -- 78	-0.01 U	--	11.25
GC1-40	78 -- 80	--	0.06 U	11.95
GC1-41	80 -- 82	0.01 U	--	7.29
GC1-42	82 -- 84	--	--	--
GC1-43	84 -- 86	0.01 U	0.01 U	1.76
GC1-44	86 -- 88	--	--	--
GC1-45	88 -- 90	-0.02 U	--	1.28
GC1-46	90 -- 92	--	0.03 U	2.29

Notes:

[1] Approximate location of BW-GC1 is shown on Figure 2.

Cs = cesium; Pb = lead; TVS = total volatile solids

cm = centimeter

pCi/g = pico Curies/gram

"--" = not analyzed

U = not detected

Radioisotope (Cs-137 and Pb-210) analysis performed by Teledyne Brown Engineering Laboratory of Knoxville, Tennessee.

TVS analysis performed by Analytical Resources, Inc. of Tukwila, Washington.

TABLE 3

Summary of Radioisotope (Cs-137 and Pb-210) and TVS Analytical Results

Sampling Location BW-GC2[1]

Bay Wood Products Site
Everett, Washington

Sample Identification	Depth Interval (cm)	Cesium-137 Activity (pCi/g)	Lead-210 Activity (pCi/g)	TVS (percent)
GC2-1	0 -- 2	0.16 ± 0.09	0.57 ± 0.06	8.03
GC2-2	2 -- 4	--	--	--
GC2-3	4 -- 6	0.18 ± 0.07	--	6.78
GC2-4	6 -- 8	--	0.58 ± 0.05	6.93
GC2-5	8 -- 10	0.14 ± 0.09	--	6.93
GC2-6	10 -- 12	--	--	--
GC2-7	12 -- 14	0.17 ± 0.13	0.52 ± 0.05	7.41
GC2-8	14 -- 16	--	--	--
GC2-9	16 -- 18	0.21 ± 0.10	--	7.96
GC2-10	18 -- 20	--	0.47 ± 0.04	11.76
GC2-11	20 -- 22	0.18 ± 0.09	--	12.64
GC2-12	22 -- 24	--	--	--
GC2-13	24 -- 26	0.15 ± 0.10	0.33 ± 0.04	7.93
GC2-14	26 -- 28	--	--	--
GC2-15	28 -- 30	0.16 ± 0.07	--	8.54
GC2-16	30 -- 32	--	0.32 ± 0.05	9.65
GC2-17	32 -- 34	0.21 ± 0.05	--	8.41
GC2-18	34 -- 36	--	--	--
GC2-19	36 -- 38	0.24 ± 0.09	0.33 ± 0.06	11.61
GC2-20	38 -- 40	--	--	--
GC2-21	40 -- 42	0.21 ± 0.06	--	20.83
GC2-22	42 -- 44	--	0.45 ± 0.06	24.30
GC2-23	44 -- 46	0.33 ± 0.08	--	18.81
GC2-24	46 -- 48	--	--	--
GC2-25	48 -- 50	0.23 ± 0.17	0.26 ± 0.03	19.82
GC2-26	50 -- 52	--	--	--
GC2-27	52 -- 54	0.25 ± 0.05	--	15.64
GC2-28	54 -- 56	--	0.23 ± 0.04	28.57
GC2-29	56 -- 58	0.17 ± 0.06	--	18.53
GC2-30	58 -- 60	--	--	--
GC2-31	60 -- 62	0.21 ± 0.09	0.46 ± 0.04	17.89
GC2-32	62 -- 64	--	--	--
GC2-33	64 -- 66	0.20 ± 0.04	--	--[2]
GC2-34	66 -- 68	--	0.34 ± 0.04	22.84
GC2-35	68 -- 70	0.24 ± 0.04	--	12.81
GC2-36	70 -- 72	--	--	--
GC2-37	72 -- 74	0.16 ± 0.08	0.10 ± 0.02	10.94
GC2-38	74 -- 76	--	--	--
GC2-39	76 -- 78	0.21 ± 0.04	--	11.24
GC2-40	78 -- 80	--	0.20 ± 0.03	10.85
GC2-41	80 -- 82	0.15 ± 0.04	--	10.32
GC2-42	82 -- 84	--	--	--
GC2-43	84 -- 86	0.24 ± 0.08	0.11 ± 0.02	10.09
GC2-44	86 -- 88	--	--	--
GC2-45	88 -- 90	0.14 ± 0.03	--	9.24
GC2-46	90 -- 92	--	0.18 ± 0.04	10.83

Notes:

[1] Approximate location of BW-GC2 is shown on Figure 2.

[2] Due to insufficient sample volume analysis could not be performed.

Cs = cesium; Pb = lead; TVS = total volatile solids; TS = total solids

cm = centimeter

pCi/g = pico Curies/gram

"--" = not analyzed

Radioisotope (Cs-137 and Pb-210) analysis performed by Teledyne Brown Engineering Laboratory of Knoxville, Tennessee.

TVS analysis performed by Analytical Resources, Inc. of Tukwila, Washington.

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Feet

Notes:
1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. can not guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.
3. It is unlawful to copy or reproduce all or any part thereof, whether for personal use or resale, without permission.

Data Sources: ESRI Data & Maps

Projection: NAD 1983 UTM Zone 10N

Vicinity Map

Bay Wood Products Site
Everett, Washington

GeoEngineers

Figure 1

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Legend

- Property Boundary
- MHHW Line (el. 11.09)
- MHHW — Mean Higher High Water
- BW-GC1 — Sediment Sampling Location

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300 0 300
FEET

Notes

1. Horizontal Datum: NAD83 WA SP N.
2. Vertical Datum: Mean Lower Low Water (MLLW).
3. The locations of all features shown are approximate.
4. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Reference: Base aerial photo from Aerials Express, 2009. Base Survey by Metron and Associated Inc. dated June 2012.

Site Plan

Bay Wood Products Site
Everett, Washington

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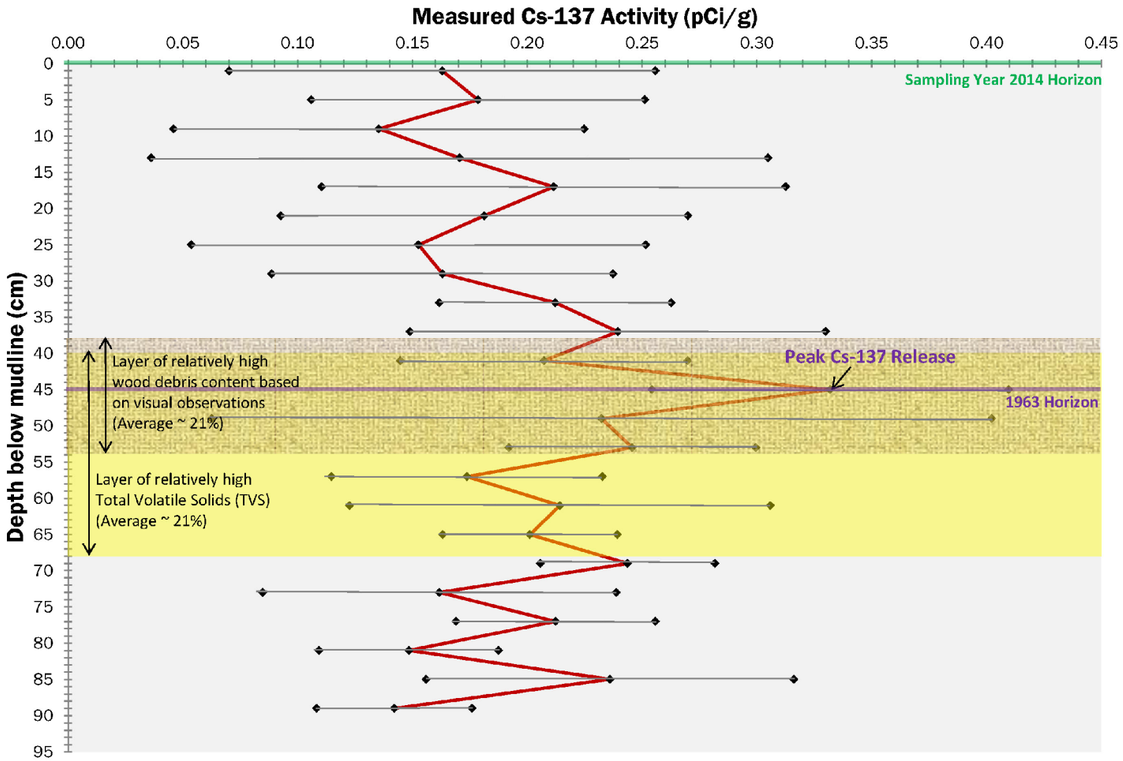
Figure 2

P:\0\067602\1\01\CAD\067602I-01 Fig 2 Site Plan-June 2014.dwg\TAB:LANDSCAPE modified by tmichaud on Jul 25, 2014 - 12:19



Sedimentation Rate based on Peak Cs-137 Release (1963 Horizon)

Sedimentation Time = 2014-1963 = 51 years
Observed Depth at 1963 Horizon = 45 cm

Calculated Sedimentation Rate = 0.88 cm/year

Adjusted Sedimentation Rate[4] = 0.85 cm/year

Notes:
1. Cs = Cesium
2. pCi/g = picoCuries/gram
3. ⟷ radioisotope activity range
4. Calculated sedimentation rate was adjusted to eliminate effects of deposition of significant wood deposits. Adjusted sedimentation rate was calculated to be 96.73 percent of the calculated sedimentation rate based on the ratio of corrected depth to observed depth. Observed depth of measurements within the layer of relatively high wood debris content was reduced by 21% (i.e., average wood debris content observed) to determine corrected depth.

Sedimentation Rate Based on Cs-137 Activity at Sampling Location BW-GC2

Bay Wood Products Site
Everett, Washington

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Figure 3

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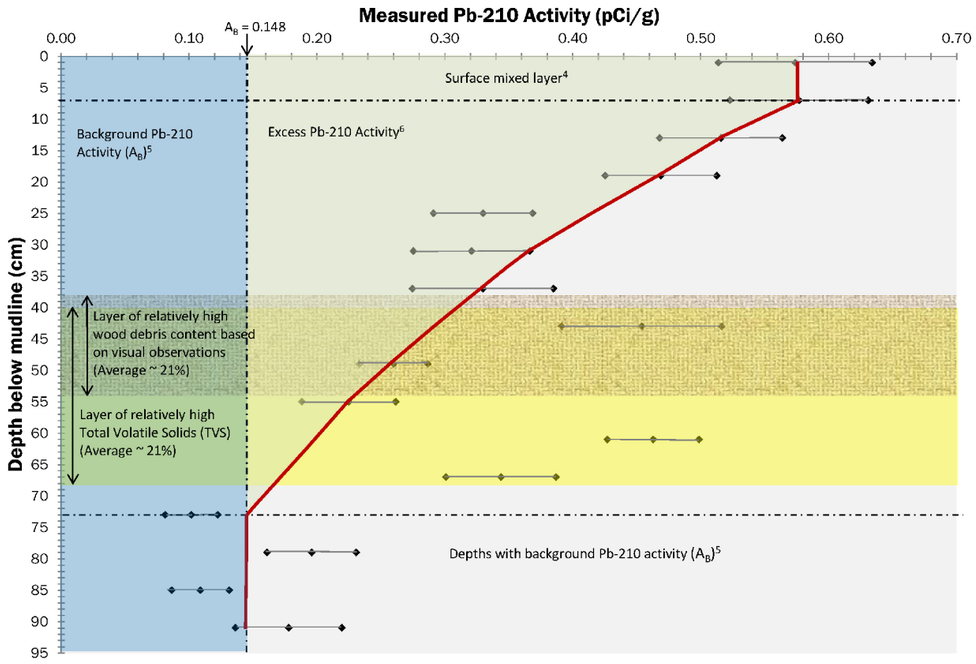

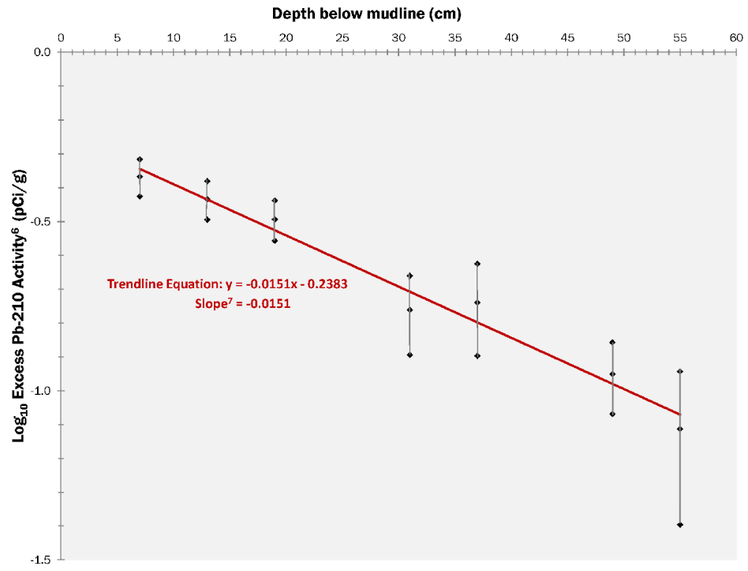

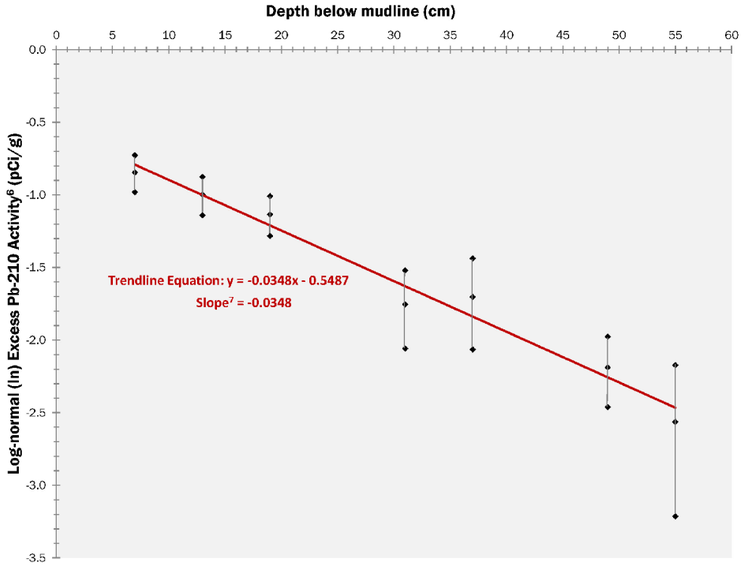

Notes:

1. Pb = Lead
2. pCi/g = picoCuries/gram
3. ⟷ radioisotope activity range
4. The depth at which surface measurements did not fluctuate significantly was used to identify the surface mixed layer. Mixing can be a result of human activities and/or can occur naturally from bioturbation and currents.
5. Background Pb-210 activity (A_B) was determined by averaging the four deepest measured Pb-210 activities.
6. Excess Pb-210 activity was determined by subtracting background Pb-210 activity from each measured Pb-210 activities.
7. Slope was statistically determined by a linear regression technique using measurements below the surface mixed layer and above the layer indicating background levels of Pb-210 activity. Anomalous measurements observed in sample intervals 24-26 cm, 42-44 cm, 60-62 cm & 66-68 cm below mudline were ignored.
8. Calculated sedimentation rate was adjusted to eliminate effects of significant wood deposits. Adjusted sedimentation rate was calculated to be 93.89 percent of the calculated sedimentation rate based on the ratio of corrected depth to observed depth. Observed depth of measurements within the layer of relatively high wood debris content was reduced by 21% (i.e., average wood debris content observed) to determine corrected depth.
9. λ = Radioactive decay constant of Pb-210 = 0.0311

Sedimentation Rate based on Jeter, 2000.

Calculated Sedimentation Rate = $\frac{-0.01352}{\text{Slope}}$

$= \frac{-0.01352}{-0.0151}$

= 0.89 cm/year

Adjusted Sedimentation Rate[8] = 0.84 cm/year

Sedimentation Rate based on Battelle, 1995 and RETEC, 2006

Calculated Sedimentation Rate = $\frac{-\lambda}{\text{Slope}}$

$= \frac{-0.0311}{-0.0348}$

= 0.89 cm/year

Adjusted Sedimentation Rate[8] = 0.84 cm/year

Sedimentation Rate Based on Pb-210 Activity at Sampling Location BW-GC2

Bay Wood Products Site
Everett, Washington

GeoEngineers

Figure 4

Map Revised: 25 July 2014 maugust

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