



DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, DETROIT DISTRICT
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01-April-2021

SUBJECT: USACE sediment sampling and characterization of navigation channel material in Duluth-Superior Harbor for sediments placed in 2020 as beach nourishment on Northern Minnesota Point

Bottom Line Up Front: Recent reports presenting total quantities (total mass) of trace chemicals based on the entire volume of dredge sediments placed on the beach are not relevant to risk assessment and are not used by scientists to evaluate sediments. Dredge sediments placed on Minnesota Point in 2020 were evaluated using the appropriate units and measurements (concentrations) by the U.S. Army Corps of Engineers (USACE) Detroit District and reviewed by the Minnesota Pollution Control Agency (MPCA) and found to pose **no risk**. USACE obtained a Clean Water Act Section 401 Water Quality Certificate for beach nourishment and all appropriate policies and procedures were adhered to throughout the process.

To whom it may concern:

The U.S. Army Corps of Engineers (USACE), Detroit District is responsible for the operation and maintenance of the Duluth-Superior Harbor Federal Navigation Project, including the dredging of the Federal Navigation Channel to ensure navigation of Duluth-Superior Harbor. Material removed from the federal navigation channel is placed in a separate location, often termed beneficial use, disposal, placement, or nourishment. In order to determine where the dredge material can be placed, USACE conducts an evaluation of the material in the proposed dredge locations on an annual, or project, basis.

There have been recent reports by independent sources suggesting that these sediments pose a risk to human health through calculations presenting the total mass of individual constituents or elements. The purpose of this letter is to reiterate that there is no risk to human health from the dredge material placed on Minnesota Point in 2020. An example showing the proper scientific methods and measurements will provide the necessary context for interpreting the results of USACE sediment laboratory analyses for the 2020 Minnesota Point Beach Nourishment project.

Risk assessment is a process for determining whether or not the dose, or exposure to a potential contaminant, exceeds thresholds for that contaminant established by regulatory agencies such as the U.S. Environmental Protection Agency and/or Minnesota Pollution Control Agency (MPCA). If the dose/exposure is more than the threshold level, people are at risk. If the dose/exposure is less than the threshold level, the exposure is acceptable (e.g., there is no risk), and therefore no cause for alarm. For the 2020 Minnesota Point project, USACE compared measured concentrations from harbor sediment samples to the State of Minnesota Soil Reference Values (SRVs; Table 1). These values are intended for residential and recreational areas and are

intended to be conservative values to protect human health (<https://www.pca.state.mn.us/sites/default/files/c-r1-12.pdf>). In all cases, the measured concentrations were below SRVs, and therefore no risk to human health.

All values are in units of mg/kg-dry weight	Soil Reference Value	All Areas Average	Areas 5E & 5F Average
Arsenic	9	3.14	3.21
Cadmium	25	0.19	0.19
Copper	100	16.75	18.00
Lead	300	11.92	11.79
Mercury	0.5	0.41	0.06
Nickel	560	14.69	16.29
Selenium	160	1.48	1.24
Zinc	8,700	51.65	54.71
Barium	1,100	51.91	58.14
Cyanide	60	0.09	0.00
Manganese	3,600	526.55	601.43
PCBs (Total)	1.2	0.01	0.01
Aldrin	1	0.008	0.013
Chlordane	13	0.002	0.001
Endrin	8	0.020	0.026
Dieldrin	0.8	0.002	0.001
Heptachlor	2	0.002	0.001
Lindane (Gamma BHC)	9	0.002	0.001
DDT	15	0.001	0.001
DDD	56	0.001	0.001
DDE	40	0.002	0.002
Toxaphene	13	0.002	0.003
Polycyclic Aromatic Hydrocarbons (PAHs)			
Naphthalene	10	0.04	0.05
Pyrene	890	0.46	0.30
Fluorene	850	0.04	0.03
Acenaphthene	1,200	0.03	0.02
Anthracene	7,800	0.08	0.07
Fluoranthene	1,080	0.43	0.33
Benzo (a) pyrene (BAP)/BAP equivalent	2	0.33	0.26

Table 1: 2020 dredge material constituents from applicable sediment samples using all samples (All Areas dredged in 2020) and only samples in Areas 5E & 5F where a majority of the dredge material came from. Values were compared to the MPCA Level I SRVs (<https://www.pca.state.mn.us/sites/default/files/wq-gen2-01.pdf>). **Bold** values represent measurements that were below the laboratory detection limit.

This risk assessment process is standard for USACE coordination of operations that involve dredging and material placement in Duluth-Superior Harbor. Part of this process also involves review by the MPCA and/or Wisconsin Department of Natural Resources (WDNR). USACE follows the procedures and guidelines outlined within the Great Lakes Dredged Material Testing and Evaluation Manual (USEPA/USACE 1998; <https://greatlakesdredging.net/wp-content/uploads/sites/38/2016/12/1998-usace-dredged-material-testing-manual-all.pdf>). In coordination with state agencies, the USACE sediment material testing plan also meets the sampling and testing requirements in accordance with the St. Louis River Area of Concern Quality Assurance Program Plan for Minnesota Based Projects (MPCA, 2015; <https://www.pca.state.mn.us/sites/default/files/p-eao2-20.pdf>), and with the WDNR Consensus Based Sediment Quality Guidelines, Wisconsin Water Quality Standards in Chapters NR 102, 103, 104 and 105, Wis. Admin. Code, and soil direct contact levels in ch. NR 720, Wis. Adm. Code.

Recent calculations presenting the total mass of trace chemicals present in all dredged sediments placed on the beach are not relevant as those quantities do not represent the actual exposure to beachgoers. No one is eating ALL of the sediment placed on the beach so USACE scientists, in collaboration with MPCA scientists developed realistic, but still conservative, exposure scenarios for Minnesota Point. USACE engineers and scientists compared measured concentrations of constituents in dredge sediments against Federal and State screening levels for risk to human health and have not identified any risk from exposure to sediments placed on Minnesota Point.

USACE scientists are willing to provide more in-depth explanations of all risk calculations and also encourage concerned citizens to contact the MPCA for discussion of Soil Reference Values and other regulatory standards for potential contaminants. Any questions may be directed to Kevin Meyer, Ph.D. at (313) 226-6748 and Kevin.A.Meyer@usace.army.mil, or me at (313) 226-2476 and Charles.A.Uhlarik@usace.army.mil.

Sincerely,

Charles A. Uhlarik

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