DRAFT FINAL
SUMMARY OF THE DREDGED MATERIAL MANAGEMENT PROGRAM
INNOVATIVE REUSE COMMITTEE MEETING
August 25, 2020, 5:30 PM
Video Conference

Attendees:

Innovative Reuse Committee (IRC) Members:
Baltimore County Department of Environmental Protection and Sustainability (EPS): David Riter
Baltimore Development Corporation: Patrick Terranova
Chesapeake Bay Foundation (CBF): Doug Myers
Maryland Department of Commerce: Wade Haerle
Maryland Department of Transportation The Secretary's Office (MDOT TSO): Eddie Lukemire
Northeast Maryland Waste Disposal Authority: Andrew Kays
Stancills, Inc.: Chris Siciliano
Turner Station Conservation Teams (TSCT): Larry Bannerman

IRC Support Staff and Observers:
Facilitator: Steve Pattison
Anchor QEA: Walt Dinicola
Angie Ashley Consulting LLC: Angie Ashley
Council Fire LLC: George Chmael, Katie Smith
LafargeHolcim: Brendan Daly
Maryland Department of the Environment (MDE): Jenny Herman, Mark Mank
Maryland Department of Transportation Maryland Port Administration (MDOT MPA): Dave Blazer, Kristen Fidler, Katrina Jones, Kristen Keene
Maryland Environmental Service (MES): Jeff Halka, Dallas Henson
Northgate Environmental Management (NGEM): Deni Chambers, Dr. Sam Merrill
Patapsco/Back River Tributary Team: Stuart Stainman
South Baltimore Gateway Partnership: Brad Rogers
University of Maryland (UMD): Dr. Ahmet Aydilek, Dr. Allen Davis
University of Maryland Center for Environmental Science (UMCES): Elizabeth Price

Action Items:
No action items to report.

Welcome & Introductions **Steve Pattison, Facilitator**
Mr. Chmael convened the meeting and introduced the attendees. All meeting files are available electronically at the following link: August 25, 2020 IRC Meeting

Mr. Pattison requested comments on the February 25, 2020 Innovative Reuse Committee (IRC) meeting summary. Mr. Pattison requested a motion to approve the February 2020 IRC meeting summary, which was made by Mr. Haerle and seconded by Mr. Kays. With this, the February IRC summary was approved.

Innovative Reuse and Beneficial Use Program Updates **Kristen Keene, MDOT MPA**
Responses to the Research and Development Request for Proposals
Ms. Keene thanked the Committee for attending the virtual meeting. Ms. Keene reminded the Committee that the Maryland Department of Transportation Maryland Port Administration (MDOT MPA) advertised

the Innovative Reuse and Beneficial Use of Dredged Material: Research and Development for Dredged Material End Use Applications Request for Proposals (RFP) in November 2019. The purpose of the solicitation is for research and development of feasible reuse applications that can be applied to Baltimore Harbor dredged material, specifically material reclaimed from the Cox Creek Dredged Material Containment Facility (DMCF). To-date, MDOT MPA has received nine proposals in response to the RFP. Of these nine proposals, one was rejected, two are under contract development, and six are in various stages of the review process. While project specifics cannot be provided at this time, Ms. Keene shared that the proposals highlight private sector ingenuity and include manufactured building products, stormwater management solutions, coastal restoration and resiliency products, and agricultural applications.

2020 Innovative Reuse and Beneficial Use Strategy

Ms. Keene thanked the IRC members for their support in helping to craft the 2020 Innovative Reuse and Beneficial Use (IRBU) Strategy, particularly during the facilitated discussion at the February 2020 IRC meeting. Ms. Keene stated that the 2020 IRBU Strategy is pending formal approval by the Dredged Material Management Program (DMMP) Executive Committee.

MDOT MPA is currently developing a project management plan (PMP) for the 2020 IRBU Strategy, which will include specific actions that can be taken to achieve the various 2020 strategy items. MDOT MPA is also seeking to identify alternative funding sources through interagency collaboration and grant opportunities to support the 2020 IRBU Strategy initiatives.

Sustainable Materials Management Maryland

Ms. Keene stated that Sustainable Materials Management Maryland (SM3) met on August 6, 2020 to develop key activities for the remainder of 2020 through 2021. SM3 established an ombudsman and appointed Mr. Wade Haerle of the Maryland Department of Commerce to this role. The ombudsman is charged with creating a “one-stop shop” to identify resources available within the state government to support sustainable materials activities and opportunities. Additionally, a Department of Commerce SM3 Subcabinet Team was established to help further activities associated with SM3. In response to the COVID-19 emergency, SM3 began identifying and addressing traditional and new-normal/future regulatory issues and opportunities to support the private sector and materials management. As a preliminary approach to develop a strategic plan, SM3 began working to establish a grant or other funding opportunity for the creation of a Sustainable Materials Partnership to develop a collaborative research center/incubator through the University of Maryland System for specific waste streams such as sediments, contaminated plastics, and food waste.

Mr. Haerle stated that his goal as ombudsman is to identify potential SM3 projects and present these projects to the SM3 Department of Commerce Subcabinet Team and other interested stakeholders. These groups/agencies will identify and analyze opportunities, usability strategies, and potential future results for each project. This process will be conducted on a project by project basis and will include bringing experts to the table and determining what synergies can be developed between organizations and/or waste materials. As background, Mr. Haerle added that the Department of Commerce SM3 Subcabinet Team is internal to the State of Maryland and includes members from the Maryland Department of Agriculture, MDOT MPA, Maryland Department of Commerce, Maryland Department of the Environment (MDE), and Department of Natural Resources. Mr. Haerle informed the Committee that Mr. Steve Hellem (co-leader of the SM3) created a subgroup which includes companies representing the waste management sectors and private sectors working with potential waste and recyclable materials.

MDE Confirmation of Suitability Forms **Jenny Herman, MDE**
Mark Mank, MDE

Ms. Herman and Mr. Mank provided an overview of the MDE Confirmation of Suitability (COS) forms and the reuse of dredged material.

Overview and Definitions

The COS forms were developed by MDE as a tracking mechanism for the recycling and reuse of fill material or dredged material. The COS forms track the process from the material supplier, through the transporter or interim receiving facility, and to the end user. There are two forms, the COS Fill Material Supplier form and the COS End User/Interim Receiving Site form. These forms are available electronically and can be completed digitally and submitted via email. The MDE Land Restoration Program (LRP) assigns a tracking number to the generated material and documents the approved land use classification category. The COS process is voluntary and MDE LRP will seek cost recovery for time spent on project oversight, with projects tracked through the Controlled Hazardous Substance (CHS) cost recovery process.

Ms. Herman provided definitions of the terms used on the COS forms. IRBU material is defined as soil or dewatered dredged material which is characterized and repurposed at a secondary site. A material supplier is the site where the IRBU material was originally excavated or dredged. The interim receiving facility is a facility that can stage the IRBU material for processing or store material prior to transport. The end user is the site which uses the IRBU material. Material management plans are detailed plans noting how the material will be staged, processed/amended and sampled, and includes documentation of all applicable permits. Processed material is defined as dredged material or fill material that requires some degree of drying or other processing, amending, or blending to be suitable for innovative reuse and/or beneficial use. Unprocessed material is defined as fill material that can be used directly from a site without processing or alteration if it meets applicable testing and criteria for a specific end use. Ms. Herman stated that additional information regarding IRBU material can be found in the MDE IRBU Dredged Material Guidance Document and MDE Fill Material and Soil Management fact sheet.

Ms. Herman stated that MDOT MPA will be utilizing the COS forms for any material sourced from their DMCFs to provide certainty to all parties that the fill material was evaluated and approved by MDE staff. Sampling and risk assessment data will be used to drive decisions on reuse of material at appropriate end use sites.

COS Material Supplier Form

Ms. Herman provided guidance for completing the COS Material Supplier form. Part A includes general site source information about the entity supplying the material, such as contractor, trucking company, or site owner; the supplying facility's physical address of where the fill material was excavated or dredged; and the tracking number assigned and documented by MDE LRP staff. Part B of the form covers the fill material characterization and sampling information, including a proposed fill reuse category that is based on an evaluation of laboratory analytical data. Attachments under Part B should include material management plan or sampling and analysis plan, sampling data collected, and any additional site characterization data from the supplier site. Part C of the form is completed by MDE LRP after review of the data submitted in Part A and B and confirms the appropriate land use category. Ms. Herman added that material from one supplier site may be approved for multiple reuse categories, assuming proper field screening and segregation per the material management plan. Once both parties agree to the reuse category (supplier and MDE), the form can be signed electronically, which is included in Part D. Copies of the signed form should be provided to the transporter of the material.

The material management plan sampling requirements for soil reuse vary on a site-specific basis, which is based upon site history, known recognized environmental conditions (RECs), and available past sampling data. In addition to laboratory data, MDE LRP strongly recommends field screening and field assay sampling such as use of a photoionization detector (PID). For processed material, sampling is recommended after the final blend or amendment is conducted as this can change the category of the material and therefore a new COS form. If needed, MDE LRP staff can schedule virtual meetings to discuss sampling plans for new projects. The sampling requirements for dredged material projects with MDOT MPA should be conducted per Appendix A-2 of the MDE IRBU Guidance Document. Table A-2 of the Guidance Document lists sampling parameters based upon the use of the dredged material in aquatic restorations or as landfill cover or fill material.

Mr. Mank stated that the MDE LRP has utilized the framework outlined in the COS forms internally for all dredged material reuse projects to date. Based on this framework and past experiences, the MDE LRP consider fill material and dredged material as one and the same. The development of the COS forms was conducted collaboratively with MDOT MPA. In addition, the category process included on the COS forms was originally established as a part of the MDE Fill Material and Soil Management. The COS forms provide a consistent documented process which can evolve as new end use options and procedures are developed.

Mr. Mank provided the Committee a review of the category system for material reuse established by MDE and incorporated into the COS forms. Based upon field and analytical data, IRBU material may be approved for reuse based on a category system ranging from Category 1 to 4. Materials classified as Category 1 (unrestricted use) are considered clean material. Category 2 (non-residential use) materials are moderately impacted with contaminants and can be reused in commercial and industrial areas. Category 3 (restricted use) materials must be placed beneath an engineered cap. Category 4 (ineligible for reuse) materials are heavily impacted by contaminants and are unacceptable for reuse. Mr. Mank reiterated that blending or amending material can change the category of the material and therefore will require testing and a new COS form. Mr. Mank stated that the engineered and institutional land use controls stipulated by the material's category are specifically for the end user and are not required for all sites. Engineering land use controls include capping, vapor barriers, and mitigation systems while institutional controls include deed restrictions, land use restrictions, restrictions on the use of groundwater, and future excavation requirements. Mr. Mank added that Category 2 and 3 material can only be used at commercial or industrial sites with comparable pre-existing environmental contamination.

<u>COS End User/Interim Receiving Site Form</u>

Ms. Herman stated that, in some instances, approved fill or dredged material may be transported to an interim receiving facility for holding or processing. Ms. Herman noted that material may not be held at an interim facility for more than three years due to existing solid waste regulations. Additionally, as mentioned previously, if material is amended, the material must be resampled, and a new COS Fill Material Supplier form should be completed and submitted to the MDE LRP.

For guidance completing the COS End User/Interim Receiving Site form, Part A of the form contains end use/interim receiving site information, such as information about potential groundwater use areas, which will require additional material restrictions, the volume (cubic yards) of material listed by category, and a description of the fill material end use and/or project. Part B of the form is completed by MDE LRP after review of the data submitted in Part A and confirms the appropriate land use category and volume of material for end use/interim site. Part C is signed by the end user and the MDE LRP to confirm categorization of the material.

COS Forms Flowchart

Ms. Herman provided a flowchart, which was developed in coordination with MDOT MPA to help explain the approval process. The flowchart clarifies who signs which forms at what stage in the process and defines the process for an interim receiving site versus the end user of the material. Ms. Herman stated that the use of the COS forms is best suited for larger earthmoving or dredging projects and may not be useful for small fill demands. Ms. Herman reiterated that the process and use of the COS forms is voluntary and not a regulatory requirement, however, entities such as MDOT MPA may elect to use the forms on all future projects. The COS forms are available on the MDE website under Land Restoration Program News and Resources, on the MDOT MPA website under Greenport News and Resources.

Mr. Rogers asked if in-water placement of dredged material is an allowable end use. Ms. Keene responded that in-water placement of dredged material is included in the Code of Maryland Regulations (COMAR) definition for beneficial use: "Any of the following uses of dredged material from the Chesapeake Bay and its tributaries placed into waters or onto bottomland of the Chesapeake Bay or its tidal tributaries, including Baltimore Harbor: (i) the restoration of underwater grasses; (ii) the restoration of islands; (iii) the stabilization of eroding shorelines; (iv) the creation or restoration of wetlands; and (v) the creation, restoration, or enhancement of fish or shellfish habitats [Environment Article, §5-1101(a) (3)]." Mr. Stainman asked if dredged material can be utilized at a site within a floodplain. Ms. Keene responded that if the in-water use of dredged material qualifies under the COMAR definition of beneficial use and receives regulatory approval, then the material can be used. Mr. Myers asked if the MDE land use classification categories are based on specific numeric contaminant levels. Ms. Herman responded that the categories are based on the Environmental Protection Agency (EPA) Regional Screening Levels (RSLs) tables and risk assessment equivalent factors. Mr. Mank added that the risk assessment equivalent factors include the material's characteristics and site-specific factors and stated that the numeric values that define the four categories can be found in the MDE IRBU Guidance Document. Mr. Kays inquired about the order of magnitude for MDE's costs to support the COS tracking system. Ms. Herman responded that the reimbursement for staff hours is approximately \$40 - \$50 per hour. Ms. Herman added that additional information pertaining to the cost recovery process can be found on the MDE CHS website.

University of Maryland Dredged Material Blending Studies **Dr. Allan Davis, UMD**
Dr. Ahmet Aydilek, UMD

Innovative Reuse of Dredged Material Blended with Quarry Fines as Highway Embankment Materials

Dr. Aydilek introduced himself as a faculty member and geotechnical engineer in the Department of Civil and Environmental Engineering at the University of Maryland (UMD) for over 20 years. The Innovative Reuse of Dredged Material Blended with Quarry Fines as Highway Embankment Materials study was conducted to analyze quarry byproducts to stabilize dredged material for use in highway embankment construction. Dr. Aydilek defined quarry byproducts as the fine materials remaining from quarry material aggregate sources. Quarry byproducts are considered a waste material as MDOT State Highway Administration (SHA) specifications stipulate a maximum of 8% fines for material used in highway systems. To find a solution for both dredged material and quarry byproducts, UMD researched blends of both materials. The research approach used in the study included a series of geotechnical tests, batch and column leach tests, and a modeling study to determine potential surface and groundwater contamination. The materials used in the blend included dried dredged material from the Cox Creek DMCF, washed and unwashed quarry fines, and pond fines.

Dr. Aydilek stated that MDOT SHA specifications require material used in embankments to have a compaction capacity of approximately 100 pounds per cubic feet (pcf). Dredged material alone does not meet this requirement but does meet this requirement once blended with quarry fines. Index and strength properties of dredged material were also determined for the study and the dredged material was classified as high plastic silt, which is a poor construction material. Once blended with quarry fines, the plasticity and the frictional properties changed; more specifically, the cohesion remained the same and the maximum unit weight, which is the main criteria in MDOT SHA specifications, increased.

The batch leach tests, a sequential column leach test (SCLT), surface water contamination modeling (UMDSurf), and groundwater contamination modeling (WiscLEACH) were conducted on the dredged material and the blends to analyze potential water contamination. The batch leach test included a pHstat leaching test (EPA Method 1313), the toxicity characteristic leaching procedure (TCLP) (EPA Method 1311), and geotechnical modeling (VisualMINTEQ). The pHstat leaching test and TCLP were conducted for 22 metals and pH ranges from 2 to 13. The pHstat leaching test results indicated that concentrations of inorganic metals are mostly below the EPA maximum contaminant levels (MCLs) between pH units 6.5 to 9. The pHstat leaching results also indicated that the use of quarry byproducts in the dredged material blends assisted with immobilizing the 22 metals in the collected leachate. The TCLP results indicated that the dredged material and blends were below the TCLP regulatory limit and the detection limit of 1 part per million (ppm) for all 22 metals.

A diagram showing dredged material blend applied as highway embankment material was shared with the Committee and Dr. Aydilek explained that MDOT SHA requires a layer of embankment soil below any recycled material being used in highway construction. To determine if dredged material and blends have the potential to leach contaminants when used in a highway embankment, leachate collected from surface water and groundwater needs to be analyzed. The SCLT was used to simulate groundwater leachability and consists of an influent solution being pumped through a column of dredged material or blend and a column of embankment soil, and the leachate from the first and second columns was then analyzed. To determine the potential surface water contamination, two types of natural formations were used - a low plastic clay material and a low plastic clay and silt material. The leachate was collected from the two natural formations and analyzed to develop a numerical model. The SCLT results indicate that aqueous concentrations for dredged material and blends remained below the EPA MCLs and the first-flush pattern was observed for most metals analyzed, except for iron. The surface water and groundwater contamination results indicate that concentrations of all metals remained below the EPA MCLs upon passing through a natural formation and concentrations were below detection limits at approximately 140 meters away from the point of contact in surface waters.

Dr. Aydilek provided UMD's recommendations for future studies based on the results. Mechanical and environmental testing should be conducted regularly if the dredged material will be stored for long periods of time, and to generalize the behavior of contaminants, a series of tests should be conducted with materials of varying pH, geotechnical parameters, organic matter percentages, and sulfate and carbonate contents. Dr. Aydilek acknowledged the effort and funding provided by MDOT MPA, feedback and in-kind support from MDOT SHA, project management from Maryland Environmental Service (MES), and use of Dr. Davis's Environmental Engineering Laboratory at UMD.

Mr. Daly asked if the embankment was given a structural number for pavement design and if the embankment was a base or sub-base. Dr. Aydilek responded that the dredged material embankment would be a part of the base and stated that the embankment was not given a structural number. Dr. Aydilek added that based on the degree of compaction and the unit weight value for the blends, the embankment would meet the structural requirements stipulated by MDOT SHA specifications.

Innovative Reuse of Dredged Material as Topsoil on Highway Slopes

Dr. Davis introduced himself as one of the primary investigators for the Innovative Reuse of Dredged Material as Topsoil on Highway Slopes study along with Dr. Aydilek, and the work being conducted by Ms. Michelle Huffert, a UMD graduate student. The objective of the study was to analyze physiochemical characteristics of dredged material to enable the material to be used on highway slopes in place of topsoil. To achieve this objective, three tasks were developed: Task 1 was to create a blend that met the MDOT SHA specification for topsoil by determining the particle size distribution, pH, organic matter, and soluble salts for dredged material and amending the dredged material if needed to meet the specifications; Task 2 was to perform column leaching tests to evaluate the metal leaching behavior for 10 metals by monitoring the pH and electrical conductivity; and Task 3 was to conduct direct shear strength testing to define shear parameters for the blends compared to topsoil.

Task 1: Blend Creation

Dr. Davis stated that the dredged material for the topsoil blend was collected from a stockpile at the Cox Creek DMCF in December 2017 and stored in airtight buckets at room temperature. The dredged material was then characterized and compared to the MDOT SHA specifications for topsoil. The dredged material met the specification limits for organic matter, pH, and particle size, but did not meet the 500 ppm limit for soluble salts. Acid volatile sulfides (AVS) were also analyzed for the dredged material due to suspected pH instability based on varying pH ranges in the collected material. Upon analysis of the AVS, it was determined that the material is stable from a pH perspective. To meet the MDOT SHA specification for soluble salts, UMD conducted a sediment washing procedure to reduce the soluble salts content to within topsoil specification limits. The procedure involved washing the dredged material with synthetic rainwater at a rate of one inch per hour. The result of the procedure indicated that 32 inches of rainwater were needed to meet the topsoil specification. Upon large-scale sediment washing to produce material for Task 2, approximately 48 inches of rainwater was needed.

Task 2: Column Leach Testing

Dr. Davis stated that three types of media were used in the column leach testing: MDOT SHA approved topsoil as the control, unwashed dredged material, and dredged material washed with 48 inches of synthetic rainwater. The column leach test was run in triplicate at a rate of one inch per hour for six hours, three times per week, over 15 weeks. After each laboratory simulated storm event, the effluent was collected and analyzed for metals, pH, and electrical conductivity. Dr. Davis noted as a general observation for the column leach testing that partial clogging of singular columns occurred throughout the testing that resulted in higher metal concentrations for those columns.

Dr. Davis discussed the results of the column leach testing, which showed that the maximum silver, cadmium, and selenium concentrations for all three media were below the method detection limit and the MCL, and the maximum barium, copper, and zinc concentrations were above the method detection limit but below the MCL. The maximum arsenic concentrations for the washed and unwashed dredged material was below the MCL while the topsoil exceeded the MCL. The maximum chromium concentration for unwashed dredged material exceeded the MCL. The maximum mercury concentration for washed dredged material exceeded the MCL. Dr. Davis stated that all three media exceed the MCL for lead due to analytical challenges surrounding the salinity (soluble salts) of the effluent.

Using flow weighted average concentrations from the column leach testing, the topsoil had the highest concentrations for copper and zinc, washed dredged material had the highest concentration of lead, and unwashed dredged material had a moderately high concentration of zinc. The results of a measure of total metals using an acid digestion (EPA Method 3050B) showed little difference between the three media for most metals, with the exception that topsoil had higher concentrations for barium and zinc.

Dr. Davis summarized the Task 2 findings. The initial dredged material properties of pH, organic matter, and particle size distribution were within the MDOT SHA topsoil specification, while soluble salts did not meet the specifications. Washing the dredged material with synthetic rainwater reduced the salt content to meet the MDOT SHA topsoil specifications. The column leach test showed that dredged material met the MCLs for approximately 95% of the test parameters, and dredged material had a higher total concentration of arsenic, chromium, and lead than topsoil, though these metals do not appear to be bioavailable. Dr. Davis added that dredged material passed the TCLP and should also have similar geotechnical performances as topsoil. Dr. Davis acknowledged MDOT MPA, MDOT SHA, MES, and Anchor QEA for supporting the study.

Mr. Stainman asked if dredged material would respond differently from regular soil regarding roadway salts deposition. Dr. Davis stated that roadway salt deposition was not previously considered for this study and added that it is his understanding that road salt is generally comprised of approximately 99% sodium chloride. While the soluble salt standards within the MDOT SHA topsoil specification focuses on vegetative growth, additional salts could have an effect. Mr. Mank asked if UMD would attribute the elevated lead data to analytical methodology or actual mass at the instrument. Dr. Davis responded that the elevated lead concentrations could be attributed to both analytical methodology and actual mass at the instrument as UMD developed a detection limit on the order of 40 parts per billion to determine lead concentrations within the three media, and this value is well above the MCL. Dr. Davis added that he believes there were actual elevated lead concentrations within the media.

The full Innovative Reuse of Dredged Material Blended with Quarry Fines as Highway Embankment Materials and Innovative Reuse of Dredged Material as Topsoil on Highway Slopes reports are available upon request.

Harbor Development Updates **Kristen Fidler, MDOT MPA**

MDOT MPA Update

Ms. Fidler informed the Committee that the new Executive Director of MDOT MPA, Bill Doyle, started on July 22, 2020. Mr. Doyle served as a member of the Federal Maritime Commission, and was most recently with the Dredging Contractors of America Association and therefore understands the importance of dredging, the value of opportunities for dredged material reuse, and the uniqueness of the Dredged Material Management Program (DMMP) advisory committee structure. Ms. Fidler thanked the Committee for participating in the IRC meeting and providing instructive questions and feedback.

State of the Port

Ms. Fidler stated that the Port of Baltimore (POB) has remained open for business through the ongoing COVID-19 pandemic. Ms. Fidler added that the Port's cargo volumes are improving month after month and a new record was set at the POB when 5,536 container moves were conducted for the Maersk Edinburgh vessel. Ms. Fidler expressed her gratitude for the front-line longshore workers at the terminals for keeping the economic engine turning. Ms. Fidler thanked the MDOT MPA outreach team for quickly developing new innovative ways to continue providing outreach to the community and stakeholders.

Dredging Projects

Ms. Fidler stated that United States Army Corps of Engineers (USACE) maintenance and private sector dredging projects have continued on schedule.

Tronox Acquisition

Ms. Fidler stated that MDOT MPA is still actively pursuing acquisition of the Tronox property adjacent to the Cox Creek DMCF, with ongoing negotiations among both parties. MDOT MPA will continue to brief the Committee throughout the process, including opportunities for the future of the Innovative Reuse program.

Roundtable Discussion **Meeting Attendees**

Ms. Chambers informed the Committee that Northgate Environmental has been certified as a Disadvantaged Business Enterprise (DBE) with the State of Maryland.

Upcoming Meetings

DMMP Annual Meeting: November 6, 2020
IRC Meeting: December 1, 2020

Meeting adjourned at 7:00pm