



Consulting Engineers P.A.

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1. In the context of your recent physical examinations of the tug Edna G, what are your findings so far and will there be more examinations of the tug?
  - a. See AMI Progress Report – 2/8/19
2. How do the recent findings compare to the last examination of the tug?
  - a. See AMI Progress Report – 2/8/19
3. Do you recommend any hull work before any other final disposition of the tug? A general characterization of this work may be different, according to whether the tug is left in the water or hauled out. We should know what those differences might be.
  - a. TBD. The result of the Finite Element Analysis (FEA) described in AMI's Progress Report (Dated 2/8/19) will help determine if any additional work will be necessary.
4. What is the difference between the hull examination AMI is doing, and a Coast Guard marine survey of a vessel?
  - a. Since the vessel is a dead ship, the inspection performed by AMI and an inspection performed by the Coast Guard would be identical.
5. How would you characterize the general condition of the hull?
  - a. See AMI Progress Report – 2/8/19
6. Can you give a timeline estimate of when the engineering study is completed and available for tug commission review?
  - a. AMI has updated the original schedule to reflect the progress which was been completed. AMI will present the results of the feasibility study mid to late April. A general schedule of task to be completed has been attached for reference.
7. Do you believe that the hull will survive a tow to the Fraser Shipyard under optimal towing conditions? This concern includes any torque developed by the tug screw, transmitted to the engine and/or jacking gear, as the tug is pulled through the water.
  - a. See AMI Progress Report – 2/8/19
8. Is any hull reinforcement work needed in order for the tug to be taken out of the water?
  - a. TBD. The result of the Finite Element Analysis (FEA) described in AMI's Progress Report (Dated 2/8/19) will help determine if any additional work will be necessary.
9. What hull work will be needed if the tug is to stay in the water?
  - a. Additional work on the hull will likely be necessary if the tug remains in the water. The amount and extent of the work required will depend on the desired remaining service life.

10. There will be lifetime costs on a recurring basis, whether the tug is hauled out of the water or the tug stays in the water. We need to be informed on the nature of these expenses and a comparison of those costs. The comparison will include the initial costs plus the ongoing costs in each case; in the water and out of the water. The cost considerations will include the requisite skill sets for work on the tug. Our presumption is that the work involved may be different when the tug is in the water, versus the tug being out of the water. We are assuming a life cycle of 30 years and a tug life span of a century or more, beyond present time.
  - a. A Life Cycle Analysis could be performed to determine the total costs of several different options. Currently, AMI will be focusing on determining the feasibility of removing the tug from the water.

# Edna G Feasibility Study Schedule



	1/7/2019	1/14/2019	1/21/2019	1/28/2019	2/4/2019	2/11/2019	2/18/2019	2/25/2019	3/4/2019	3/11/2019	3/18/2019	3/25/2019	4/1/2019	4/8/2019	4/15/2019	4/22/2019	# of Weeks
Site Inspections & Post Processing Field Information																	8 Weeks
Conceptual Design of Edna G Relocation																	10 Weeks
Preliminary Design of Cradle																	6 Weeks
Cost Estimation & Presentation of Results																	4 Weeks
																<b>Total</b>	<b>16 Weeks</b>