DONJON ENGINEERING AND MARINE SERVICES
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Pollution Remediation / Salvage Plan and Progress Report
Tugs 'Scooby Doo' and 'Big Boy'

General:
The tugs 'Scooby Doo' (aka 'Carol Wales') and 'Big Boy' are presently lying in a sunken condition dockside in approximately 18' of water on the Schuylkill River, Philadelphia PA. Based upon the initial look at the site and brief morning dive, 'Big Boy' sunk relatively upright to the river bottom parallel to the pier and the 'Scooby Doo' onto the first wreck and is lying on its port side, onto the bow of the first tug at an approximately 45 degree angle. The goal of this salvage operation is to mitigate the pollution threat by extracting both vessels from their present location/condition, dewater both vessels and finally place and block both vessels onto the adjacent dock area where there will be further remediated.

The vessel specifics provided to date are as follows:

I)	Scooby Doo - a.k.a. Carol Wales	Official #266173 Length - 104.2' Width - 26.1' Depth - 12.8'
II)	Big Boy -	Official #565591 Length - 93.6' Width - 25' Depth - 13.9'

Progress Summary:

Thursday, 31 July:
Met with Coast Guard and owners of vessels. Coast Guard provided authorization to proceed. Began mobilization of dive equipment out of Newark.

Friday, 1 August:
Divers arrived on site. Conducted dive survey and patch as many vents and oil leaks as was possible. Dive survey report prepared and submitted to all concerned. Mobilized Farrell (crane barge) out of Baltimore. ETA onsite 1000 2 August. Submitted revised preliminary salvage plan.

Saturday, 2 August:
Farrell arrived onsite, 0930. Moved boom to get Farrell inside tertiary and secondary lines of boom. Mobilized airlift equipment from Newark.

Sunday, 3 August:
Airlift equipment onscene. Divers began preparation work to fit slings. Farrell crew load slings and equip,ment onboard Farrell. Additional oil leakage stopped when observed. Two locations on Big Boy from engine room can't be stopped (two large an opening).

Monday, 4 August:
Divers and Farrell continue rigging slings. 2 additional slings rigged on Big Boy. 4th sling on Scooby Doo's stern requires moré airlifting/digging.

Salvage Plan:

Planned Operations:

Step 1 (completed 1 August) will be to perform a dive condition survey of the vessels to determine the location of any damage or vessel the condition which would impact the salvage effort. Care would also be taken to determine access under the hulls for lift sling placement. Divers will note any specific items related to possible sinking cause and/or fuel leakage in a survey report. After surveying the vessels, they will make attempts to secure any leaking fuel or oil that may be observed.

Step 2 (in progress) of the operation will be to rig the lifting slings. Lightship displacement of 'Scooby Doo' is approximately 190 tons. 'Big Boy' is approximately 150 tons. As far as the issue of sling size is concerned, we plan on using two 3 ½" diameter lift slings to perform the lift of each vessel. For both vessels, the approximate sling location would be under the stern between the shaft(s) and the bottom and just forward of the main deck house. In this way, the "load" is spread equally between the two slings.

3 ½" lift slings are Donjon's sling of choice for this type of operation based upon breaking strength (safe working load) and sling diameter. From the perspective of breaking strength, 3 ½" wire slings break at approximately 1,200,000 lbs. (600 tons). In a basket configuration the break on each wire is approximately 1200 tons (i.e. 600 basket sling arrangement x 2 tons).Therefore, the combined break on both slings is approximately 2400 tons (i.e. 600 tons x 2 basket slings arrangement x 2 slings). Assuming the light ship weight of the vessels do not exceed 350 tons, the effective safety factor is almost 7 to 1; well within normal safety parameters. Even if the light ship weight plus liquids of either of the vessels exceed 500 tons, the proposed rigging is sufficient from the perspective of safety.

3 ½ slings are also preferable over smaller diameter slings due to the issue of spreading the load. Smaller diameter slings may have a sufficient safe working load to safely perform the lift but we have found that by using a large diameter sling we are able to spread the load over a larger surface area of the hull to minimize the point loads and

therefore the potential to damage or rip thru the hull. The use of web or kevlar slings are not practical due to the concern of cutting the sling during the salvage lift.

A small cranebarge (Farrell 258) will be mobilized to the site to effect sling placement and all related preparatory work. The Farrell 256 will get underway from Baltimore late Friday, schedules for a 1000 arrival Saturday morning. Sling placement will begin Sunday after jetting equipment and slings arrive via truck Sat and Sunday. For the sling placement phase of the operation, the following personnel and equipment will be utilized.

Equipment:
Cranebarge Farrell 256 (3 man operating crew)
Attendent Tug (approximately 2000 HP)- fully crewed workboat
Jet Pump/Airlift
Shallow water dive set
3 ½" slings & miscellaneous rigging
Salvage container (misc. tools, lights, etc.)
4- 3" water pumps (w/discharge hose)
1- 6" hydraulic submersible pump

Personnel:
Project/Contract Administrator – Paul Hankins
Salvage Master – Billy Kratz, III / Stephen Lappies
2- Divers
2- Tenders
2- Salvage Technicians
1- Crane Operator

Based upon the location and assumed bottom conditions at the work site a water jet or airlift will be needed to create a hole under the hulls to facilitate sling placement. Once access via water jet/airlift is created, a small messenger wire (3/4") will be passed under the hull. Once in place, this wire will be used to pull the 3 ½" lift slings under the hull.

Step 3 will be the actual lifting of the vessels. For the tug which is laying on its side, we may need to first roll the vessel more upright by placing the rigging in a "rolling configuration" before the actual lift to the surface once properly rigged, the first tug will be lifted off the second tug before the 1st tug is lifted to a "decks too" condition and dewatered. Care will be taken to pump out all accessible water to lighten the load of both vessels as much as possible for the vessel lift from the water and placement onto the adjacent dock. Once the first tug is removed from the site, the second tug will be lifted, dewatered and placed onto the dock as well.

For the purposes of the lift, due to the weight of the vessels, the 1000 ton capacity D/B Chesapeake 1000 will be mobilized from New York to perform the lift of the two tugs. To minimize costs, Donjon will have both vessels pre-rigged and ready for lifting before the arrival of the Chesapeake to minimize the Chesapeake's time onsite.

Assuming a weight of 200 tons, Chesapeake can lift that weight out to a radius of approximately 160' from its fenders (see attached table). There is plenty of dock space

available within that radius, behind the timber pier face, to place and block each vessel. Donjon will coordinate with Hayes to ensure a suitable location is selected.

Our current estimated timeline (revised 5 Aug) to complete this work is as follows:

Fri, 1 August (complete)	Mobilize Farrell;Dive Condition Survey; Leak mitigations
Sat, 2 August (complete)	Farrell Arrives; offload slings; place workboat in water; mobilize airlift equipment from Columbia (another Donjon asset)
Sun, 3 August (complete)	Dive Team, Crane crew rig slings on Big Boy (1)
Mon, 4 August (complete)	Dive Team, Crane crew rig slings on Big boy (2) Dive Team, Crane crew rig slings on Scooby Doo (1)
Tue, 5 Aug (in progress)	Dive Team, Crane crew rig slings on Scooby Doo (2)
Wed, 6 Aug	Dive team, Crane crew rig slings on Big Boy; Mobilize Chesapeake;
Thurs, 7 Aug	Chesapeake Arrives; final sling preps; develop blocking plan
Fri, 8 Aug	Lift and block Scooby Doo
Sat, 9 Aug	Lift and block Big Boy
Sun, 10 Aug	Demobilize Farrell and Chesapeake

Please note that Donjon will also work with Clean Venture to minimize any additional escape of pollutants from either vessel during this salvage effort.

For specification for all Donjon Equipment please visit our web site at www.donjon.com