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January 15, 2004

Dr. David Moser
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Institute for Water Resources
Casey Building
7701 Telegraph Road
Alexandria, VA 22315

Subject: Delaware River Main Channel Deepening Project: External Independent Review Team Comments on Container Benefits

Dear Dr. Moser:

Please find attached the final report entitled Delaware River Main Channel Deepening Project: External Independent Review Team Comments on Container Benefits. The delivery of this report represents the conclusion of review activities of the external independent review panel that was assembled to evaluate the economic analysis and related documentation, assumptions and procedures employed in the Delaware River Main Channel Deepening Study.

This report is the last in a sequence of review panel reports spanning nearly a two-year period that sought to improve the validity, quality and credibility of the on-going analysis of prospective improvements to the Delaware River main channel. The iterative process of written communication and verbal discussion among the review panel, the study team and the Corps review personnel is deemed to have met the objectives of improving the study and of making the independent review process open and objective.

The external independent review panel finds the majority of the benefits analysis to be sound, well supported and a reasonable basis for a decision by the Corps. In the panel's opinion, the estimates of benefits from lightering, tanker operations and bulk vessel operations appear now to be based on the best available information, developed using appropriate methods and adequately documented.

It is the panel's conclusion, however, that the current analysis has not eliminated significant uncertainties associated with the estimation of container benefits. In particular, the panel is uncomfortable with the fact that the estimates rely on prospective benefits to container services provided by only two consortia or vessel sharing agreements, which make the

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benefits sensitive to the individual policies and future actions of only a few benefiting participants. Because the without-project scenario represents a significant departure from existing services, the panel considers the estimate of benefits accruing to the ANZ-ECUSA trade as the greatest source of residual uncertainty in the container analysis.

Sincerely,

John F. Langowski, Jr., Ph.D.
President
Planning and Management Consultants, Ltd.

Delaware River Main Channel Deepening Project

External Independent Review Team
Assessment of Container Benefits Analysis
January 15, 2004

Views, opinion and/or findings contained in this report are those of the author(s) and should not be construed as an official Department of the Army position, policy or decision unless so designated by other official documentation.

1. Overview

This set of comments addresses the state of the container benefits analysis as reflected in the four most recent documents/files provided to the external independent review panel by the study team:

- Container Benefits (Container benes 24Dec03.doc)
- Attachment 5 (Attachment 5 24Dec03.doc)
- Attachment 6 (Attachment 6 24Dec03.doc)
- The container benefits workbook (Del Rvr Containers 24Dec03.xls)

These documents reflect the most recent ocean carrier and customer contacts made by the study team, as well as the study team's efforts to verify key analytic facts and estimates. It is apparent from the available documentation that despite the study team's efforts much of the required information was not forthcoming. As a result, some questions previously raised by the external independent review panel have not been answered and documentation remains sparse in important areas.

The review panel found that the analysis of container benefits is thus weakened by residual uncertainties in a few key areas:

- The magnitude of the NYNJ/Philadelphia port and trucking cost differential.
- The source, accuracy and application of the container volume estimates for the without-project trucking scenarios.
- The sustainability of the container trucking scenarios.
- The validity of the projected ANZ trucking scenario and the associated benefits.

There are also two areas in which the final text version of the container benefits analysis could be improved:

- Clarification of the current and projected container vessel operations.

- Completion of documentation and reconciliation with the report text.

The following sections discuss the most pressing issues that have been identified by the review panel.

2. Uncertainties Remain Regarding the Overall Port Cost Differential for Container Benefits

Despite allegations made in Attachment 6 (p. 2) that the carriers received and confirmed the analysis of port fees, the 12/22 e-mails presented as confirmation in Attachment 5 indicate that both carrier representatives "cited a lower cost difference between the two ports" and that DMA was asking them to reconsider. The cost differences cited by the carrier representatives are not given, and no actual confirmation has been documented. However, existing documents clearly indicate that the carriers provided lower cost differential numbers that are neither cited nor reconciled.

The DMA memo on customer interviews contains no confirmation of the cost differential. There are indications that customers have yet to be charged any cost difference (DMA memo of 12/8/03 regarding contact with a representative of Hamburg-Sud), and the interview notes do not indicate that customers were asked about the cost difference. Customers have not been asked if the cost increase was reasonable or if they would be willing to bear the cost, which is material in estimating whether the carriers could incur these costs indefinitely without changing the rotation. In essence, this represents an untested hypothesis, which adds uncertainty about the reasonableness of the analysis.

The correct trucking cost from NYNJ to Philadelphia appears to be $300 rather than $350.

- The Container Benefits document (p. 2) states that the [trucked] cargo is typically South American produce, because box weights are more often within the over-the-road weight limit.

- The 12/18 DMA memo on shipper interviews notes that the cargo trucked is typically lighter commodities to avoid overweight costs.

The $350 trucking fee estimate is based on $250 for a dry box, a $50 surcharge for a reefer and another $50 for triaxle chassis and overweight permit. Without the overweight requirement, the trucking cost would be $300. This agrees with the "about $300" cited in the 12/17/03 DMA memo on the PONL contacts.

The correction would reduce the NYNJ/Philadelphia cost differential from $308 to $258, and reduce the overall container benefits from $6,443,963 to $5,409,163 (per the DMA spreadsheets).

3. Uncertainties Remain Regarding the Source, Accuracy and Applicability of the Container Volume Estimates

Project benefits are very sensitive to the container volume estimates. Unfortunately, there is no clear audit trail for the container volume estimates used in the landside cost analysis (70 containers per week for the ECSA service, 328 containers per week for the ANZ service).

3.1 ECSA Service

The estimate of 70 containers per week for the ECSA service is derived from an estimate obtained from a the representative of Hamburg-Sud of 560 TEU "currently" offloaded at NYNJ, with 20 percent (112 TEU) trucked to Philadelphia customers. The 112 TEU were converted to 70 containers, apparently on the basis of an undocumented contact with a representative of Hamburg-Sud. The TEU figures (560 and 112) were presented to the contact at Hamburg-Sud for confirmation. In an e-mail dated 9/30/03, however, the contact did not explicitly confirm the figures, but stated: "The main problem with the description you enclosed is that it states as solid facts what were actually just general statements and assumptions" and "All volume figures are estimates for today's environment only. Do not know how they will change over the course of the next several years." This demonstrates the difficulty of using an interview process to generate accurate and reliable expectations of the future and verifies the sensitivity of container benefits to such scenarios.

It is thus unclear how the representative of Hamburg-Sud developed the figure of 560 TEU per call in NYNJ, the estimate of 20 percent being trucked to NYNJ, or the conversion of 112 TEU to 70 containers. It is unclear whether the figures should be taken as a current (9/03) average, a peak season average or a year-round average (which is how it is used in the analysis). When asked to provide actual data on the volumes of containers landed in Philadelphia versus trucked from NYNJ, the representative of Hamburg-Sud apparently declined on the grounds that it would be "too large an undertaking" per 12/8 DMA memo). The review panel cannot recommend how to improve upon or reduce this type of residual uncertainty associated with data collected via personal interview.

The panel strongly recommends additional sensitivity analysis, with one scenario perhaps being as drastic as a 50 percent reduction of the estimate. Another approach would use box weights and immersion factors to compute how many boxes would have to leave the ship in NYNJ in order to reduce the draft to an acceptable value for the Delaware River.

3.2 ANZ Service

The estimate of 328 containers trucked per week for the ANZ service is explained on page 8 of the Container Benefits document. This explanation is written in the present tense, giving the misleading impression that the service is now operating as described. In fact, the estimates are apparently based on a scenario for a revised service to begin in an unspecified future year. As the text notes "…P & O Nedlloyd estimates, on average, for each vessel call approximately 450 TEU…that would otherwise go directly to Philadelphia are expected to be transported to the Port of NYNJ on a separate service that operates from Manzanillo, Panama." The text goes on to note that 50 of the 450 TEU are expected to be bound for Canada and the remaining 400 TEU would be trucked to Philadelphia. There is no direct source or confirmation of these figures in

the documentation. The closest reference is the 12/17/03 DMA memo on the PONL meeting, which notes "As much as 400 TEU need to make decision about alternative transport to Philadelphia," yet the estimate predates the 12/17 memo.

Different figures appear elsewhere and confuse the issue.

- Average volume per call is given as 700.6 boxes on page 1 of the 12/17 DMA memo and as 685 boxes on page 3 of the same memo.

- The 8/26/03 DMA memo on PONL states (p. 2-3) "Under with-project conditions, the container ships on this service could arrive at Philadelphia with an additional 200 boxes per week for Philadelphia and another 250 boxes per week bound for Europe. Eventually, the 250 boxes bound for Europe would be replaced with boxes from the Pacific destined for Philadelphia…"

- The external panel believes that the source of the analysis figures should be documented and the various volume figures reconciled.

3.3 Conversion Factors

It is far preferable to obtain volume estimates in containers rather than TEU. Thus, the conversions between tons, TEU and containers remain a source of uncertainty, and a potential source of unreliability and error.

- The conversion of 112 TEU to 70 containers for the ECSA trade is credited to the contact from Hamburg-Sud, but does not appear in any documentation provided to date. The implied conversion rate is 0.625 boxes per TEU, equivalent to a 60 percent/40 percent mix of 40-foot and 20-foot containers. As noted elsewhere, the representative from Hamburg-Sud declined to provide actual data.

- The conversion of 400 TEU to 328 containers for the ANZ trade was based on a ratio of 0.82. This ratio was based on tonnage and TEU data for Packer Ave. and was reportedly confirmed by PONL (although documentation is missing). A ratio of 0.82 TEU/container implies a 22 percent/78 percent mix of 40-foot and 20-foot containers. The PONL data given in the 12/17 DMA memo, however, yield a mix of 33 percent/67 percent 40-foot and 20-foot, and a ratio of 0.6 TEU/container. Using that ratio, 400 TEU would be 240 containers. Reducing the estimate of 328 weekly containers to 240 would reduce the estimated container benefits from $6,443,963 to $5,034,555. (This is independent of reducing the port cost differential from $308 to $258. The combined impact would cut the benefits to $4,228,555.)

- The memos indicate that the cargo being trucked is predominantly produce. The appropriate TEU/box conversion ratios should reflect the mix of 40-foot and 20-foot containers used to transport produce in the ECSA and ANZ trades, regardless of the overall ratio at Packer Ave. or elsewhere. The customers who receive the cargo would be a likely source of this information.

4. The Incidence and Sustainability of the Extra Costs for Trucking Cargo Down From NYNJ Remain Uncertain

The case for sustainability of the trucking scenario depends in part on the alleged, but undocumented, willingness of the customers to pay the cost. There is no indication that any customers have paid the extra cost of ECSA trucking to date, or that they would be willing to bear the far greater cost of the future ANZ trucking scenario. The 12/8 DMA memo on the Hamburg-Sud contact notes that "the cost was probably not passed on to the customer." The DMA memo on customer interviews does not indicate that the question was asked. The discussions of potential negotiated charges (Container Benefits p. 6, 12/8 PONL memo page 2) appear speculative.

Although, as noted elsewhere, the volume estimates remain problematical, the container volumes presented (70 containers for the ECSA service, 328 containers for the ANZ service) entail a 468 percent increase in the amount (and cost) of cargo diversion to NYNJ. In the absence of thorough documentation for any current trucking operation, it does not appear safe to "bootstrap" a sustainability argument for a future five-fold increase as is done on page 10 of the Container Benefits document.

The reasonableness of the trade trucking scenarios for the without-project condition rests on the willingness of either the carriers or their customers to incur costs of approximately $6 million annually for the indefinite future.

- There is no indication that customers are paying the higher costs on a box-by-box basis, and the benefits analysis argues that the carriers would negotiate a higher rate covering all the affected cargo in the trades. If the customers would be willing to negotiate a sufficiently higher rate for all the cargo at stake, the carriers would then be able to provide substitute service via NYNJ and cover the cost from the added revenue. The Attachment 5 notes from the customer interviews, however, are silent on this issue. Moreover, individual carriers within the VSAs would need to negotiate such an increase with individual contract customers, unless it can be shown that the customers are in fact paying tariff rates published by the relevant conferences in the ECSA and ANZ trades.

- If the customers are not willing to pay the higher price, then the carriers will be forced to choose between incurring additional costs of roughly $1 million annually in the ECSA trade and $5 million annually in the ANZ trade with current port rotations and transshipment practices, or changing the rotations and transshipment practices to minimize the excess cost. While the report offers general arguments regarding carrier reluctance to make changes, the magnitude of the extra cost and the record of the carriers in making such changes in the recent past create some doubt as to their actual response to the without-project condition.

5. Underlying Support for the ANZ Container Benefits Remains Weak

As currently written, the report ignores a critical issue. On page 10 of the Container Benefits document, the text refers to "extensive discussions" held with PONL representatives regarding alternatives to the NYNJ trucking scenario. The information provided there is largely beside the

point, as there is no explanation of why the separate service from Manzanillo could not add a Philadelphia call, especially when the cost of the trucking scenario is over $5 million per year (as noted above). The only justification given for the trucking scenario is as follows:

> "The underlying rationale that explains the sustainability of this benefit estimation is the same rationale that explains sustainability of benefits for the ECSA to ECUSA service."

This statement, however, must be considered in the light of notable differences between the two situations.

- One part of the rationale for sustainability of the ECSA-ECUSA trucking scenario is that it is only a small part of the customer's cargo volume. The estimated ANZ trucking volume and cost, however, would be almost five times greater.

- The ECSA trucking reportedly occurs at present (although, as noted elsewhere, this is not documented). The ANZ trucking does not, and it has yet to be shown as either operationally or commercially feasible.

Moreover, the contention that alternative service by unrestricted vessels is impractical is seemingly contradicted by the next sentence:

> "Similarly, it is anticipated that future growth in Philadelphia-bound cargo tonnage…would be handled by smaller vessels unconstrained by (?) without project channel depths."

In the 12/17/03 DMA memo on the PONL interview, it appears that the PONL representatives apparently confused ANZ (the trade) with ANZL (the carrier) in response to question 6.

> "Provide an explanation for why the excess boxes that cannot be carried on the ANZ service are being transported from Manzanillo to New York, and not Philadelphia. What would be the cost differential for the service if it called at Philadelphia instead of New York?"

The carrier representatives thus did not answer this most critical question, and have not explained why they would shift Philadelphia-bound cargo to a service that bypassed Philadelphia in favor of a costly trucking operation without considering a Philadelphia call.

The validity of the $5,322,843 in estimated benefits for the ANZ service thus continues to rest on fragile arguments.

6. Descriptions of Current and Expected Container Services Need Clarification and Support

Due perhaps to successive revisions of the report materials, the discussion of past, current and future container vessel services is difficult to follow or comprehend. The report would benefit from a clear exposition of the relevant services, vessel strings, and port rotations. Tabular or graphic presentations would be helpful.

6.1 ESCA Service

There are apparently two relevant ECSA-ECUSA services: the primary service calling Philadelphia with 3,739 TEU vessels ("Sling 1"), and an overlapping service using 2,442 TEU vessels ("Sling 2").

The 41-foot draft Sling 1 vessels arrive NYNJ at sailing drafts of up to 40 feet, but are limited to 37 feet at Philadelphia (although the 42-foot draft ANZ service vessels arrive Philadelphia at sailing drafts of up to 40 feet). Although the text refers to arrivals through October 2003, Tables 5-3 and 5-4 continue to show arrival data only through July.

Due to the draft limit in the Delaware River, the Sling 1 vessels reportedly offload an average of 70 Philadelphia-bound containers at NYNJ. These containers are then reportedly trucked to Philadelphia at an estimated annual cost of $1,121,120.

The reasons why the additional Philadelphia-bound containers are not carried on Sling 2 vessels are based on the existing Sling 2 port rotation, and on the costs and difficulty of transshipment. Given the changes to vessel rotations already exhibited in the trade, however, these do not seem like strong arguments. The report materials also argue that establishment of new services with unrestricted vessels is unlikely, but this point appears irrelevant when the Sling 2 service already exists. Moreover, the inability of Sling 2 to accommodate additional Philadelphia cargo contradicts the study assumption that cargo growth would be carried on unrestricted vessels for the foreseeable future.

6.2 ANZ Service

The ANZ trade likewise involves two services: the primary "RTW" service, calling Philadelphia with 42-foot draft vessels of 4,112 TEU and a secondary service calling NYNJ with 3000 TEU vessels from Manzanillo, Panama. The 4,112 TEU vessels are currently arriving Philadelphia at depths of up to 40 feet.

Due to the draft restrictions in the Delaware River, at some unspecified future date it is expected that about 369 weekly containers otherwise bound for Philadelphia would be transported to NYNJ instead or a separate service that operates from Manzanillo. About 328 of those boxes would be trucked down to Philadelphia customers.

7. Some Report Contentions are not Supported by the Documentation - The Final Report Documentation Could be Improved by Filling in Apparent Gaps

- Page 3 of the Container Benefits states that "The carriers concur with the finding of the landside cost analysis with a single exception." That concurrence is not reflected or documented in Attachment 5.

- Attachment 6 states, on page 2, that the port fees analysis "was presented to and confirmed by representatives of Hamburg-Sud and P & O Nedlloyd (documentation is included in Attachment 5)." Attachment 5 actually indicates that the carrier representatives cited lower port fee differentials and does not indicate confirmation.

- Page 5 of Container Benefits states

"None of the carriers or warehouse operators interviewed for this analysis expects significant refrigerated warehouse development in the Port of NYNJ in the future, or believed that the additional trucking costs being incurred provided a sufficient financial incentive to shift back to the New York region."

There is no indication in Attachment 5 that trucking costs were discussed with the warehouse operators.

- Page 7 of Container Benefits discusses July-October, 2003 sailing draft data, but the data presented in Attachment 5 only go through July.

- The 8/26/03 DMA memo on PONL states that the carriers expect to reroute some Midwest-bound cargo from Philadelphia to the west coast. This step would increase the vessel space available for Philadelphia-bound cargo and reduce the need to truck containers down from NYNJ. The existing analysis does not take this issue into account.

- The 9/8/03 email from the representative of Hamburg-Sud to DMA states that he had "reviewed the notes and edited/commented where required." These edits/comments do not appear in the report documentation.

- The 12/17/03 DMA memo on the PONL interview states that PONL provided YTD "summations" of the container volume data. Only Parker Ave. totals are presented. What data were provided?

- The memo states that "PONL is currently reviewing the port fee analysis." Has that analysis been completed? What did they conclude?

8. Summary Conclusions

The revised benefits analysis reflects extensive improvements made by the study team through a cooperative and productive iterative process with the review panel. The majority of the benefits analysis now appears to be sound, well-supported and a reasonable basis for a decision by the Corps. The estimates of the benefits from lightering, tanker operations and bulk vessel operations appear to be based on the best available information, developed using appropriate methods and adequately documented.

Despite the considerable efforts of the study team, however, significant uncertainties remain in the container benefits. The benefiting container services include just two consortia or vessel sharing agreements, one in the ECSA-ECUSA trade and one in the ANZ-ECUSA trade, with overlapping carrier membership. The reliance of the container benefits estimate on such a small number of participants necessarily introduces a degree of uncertainty regarding their individual policies and future actions. This uncertainty is illustrated by the changes in vessel rotations and port calls made in the last year, between the initial and revised benefits analyses.

The estimate of benefits accruing to the ANZ-ECUSA trade is the greatest source of residual uncertainty. The without-project scenario for the ANZ-ECUSA trade is based on opinions and

estimates obtained in discussions with carrier representatives. This without-project scenario represents a significant departure from existing services, and entails roughly $5 million in annual costs to the carriers and/or customers involved. The analysis to date does not demonstrate that the trucking scenario is a least-cost, long-term solution to the challenges of without-project cargo flows. The realism and amount of the project benefits from avoiding the without-project scenario costs are therefore still uncertain.