

**Lower Passaic River Cleanup Options Meeting
Discussion and Input from Municipalities on the Study of Cleanup Options**

**North Jersey Transportation Planning Authority
One Newark Center, 17th floor
Newark, NJ 07102**

July 12, 2007

Meeting Summary

**SRA Contract Number: EP-W-04-015
Prime Task Order Work Number: 077**

Meeting Agenda

9:00 am	Coffee and Registration	
9:30 am	Welcome	Alice Yeh, EPA
9:45 am	Objectives of Meeting	BRS
10:00 am	Overview of Focused Feasibility Study	Scott Thompson, MPI
10:20 am	Discussion of the Six Alternatives	Scott Thomson, MPI
11: 00 am	Question and Answers	BRS Facilitated
11:15 am	Municipality Plans- each municipality gives 10-15 minutes discussion of their plans and possible impacts of various options	
12:15 pm	Next steps: Providing input on the draft study & how it is used	Dave Kluesner, EPA
12:30 pm	Closing	BRS

Welcome and Introductions

Jerry McKenna, the facilitator, opened the meeting and briefly reviewed the objectives for the meeting which were:

- To provide the municipalities with a briefing on the early action Focused Feasibility Study (FFS)
- To continue discussions with Environmental Protection Agency (EPA) and the partners on how the municipalities plan to use a revitalized Passaic River
- To guide the municipalities on how they can provide effective input on the early action plans

Alice Yeh, project manager from EPA Region II, followed with a welcome and introductions of the participants. Alice gave a brief background on the Focused Feasibility Study targeting the lower eight miles of the river. A sign-in sheet is included

in Appendix 1. She said that the project was still in the early stages but she hoped that the meeting could give the municipal representatives something to keep their eye on and to be prepared to input their needs during the public comment period. Alice stressed the importance of having municipal level involvement in the process.

Overview of Focused Feasibility Study, Scott Thomson of MPI

Scott Thompson of Malcolm Pirnie, Inc. (MPI) then provided an overview of the Source Control Early Action Focused Feasibility Study for the lower Passaic River. A copy of the presentation slides is in Appendix 2. Major points from his presentation included:

- A description of the overall project which has two components: (1) a Comprehensive Study of the Lower Passaic River which covered as a study area the 17 mile tidal portion of the river from Newark Bay to Dundee Dam (including tributaries) and watershed. This is an integrated CERCLA/WRDA project and is a joint effort among EPA, US Army Corps of Engineers (USACE), NJ Department of Transportation (NJDOT), National Oceanic and Atmospheric Administration (NOAA), US Fish and Wildlife Service (USFWS), and the NJ Department of Environmental Protection (NJDEP); and (2) A Focused Feasibility Study which targets the lower eight miles of the river.
- The purpose of the Focused Feasibility Study is:
 - To evaluate the range of remedial alternatives that might be implemented as an early action to control the source of contamination
- An overview of the contents of the Focused Feasibility Study Report which includes:
 - Executive Summary;
 - Introduction;
 - Development of Remedial Action Alternatives and Selection of Target Areas;
 - Identification and Screening of General Response Actions, Remedial Technology Classes and Process Options; and
 - Development of Remedial Alternatives and Detailed Analysis of Remedial Alternatives.

The Appendices include:

- Conceptual Site Model;
- Sediment TBC's and PRG's;
- Risk Assessment;
- Empirical Mass Balance Model;
- Engineering Memoranda;
- Navigation Studies;
- Cap Erosion and Flood Modeling;
- Dredged Material Management Assessments; and

-Dredging Volume Estimates and Cost Estimates.

There followed a brief discussion on the very large size of the document and what parts would be the most relevant and important for municipal reviewers. Scott recommended reviewing the Executive Summary, Alternative plans presented in Chapter 4 and Appendix F Navigation Studies.

The lower eight miles are being looked at separately because at River Mile 8.3 there is a constriction in the river and below it there is a fairly uniform 90% composition of fine grained sediments in that portion which is identified as a major source of the contamination with an increased cancer risk of 1 in 100 for adults who eat fish. The risk is driven by dioxins and PCBs as well as metals and pesticides. Above River Mile 8.3, the sediments have a different composition.

- A contaminant inventory quantifies the chemicals of concern and the approximated date of deposition. Chemicals included are PCBs, dioxins, DDT, metals and petroleum related compounds. The bottom profile of the lower range of the river is a silt layer of five to 25 feet, above a sand layer of five to 10 feet, above red clay. Remediation of discrete areas will not provide sufficient risk reduction.
- Included in the report are desired navigation depth studies. The USACE conducted a study on current use depths. The State of New Jersey conducted a study, focusing on future use. The State study included input from the municipalities based on a questionnaire.

Current Use Navigation

River Mile	Constructed Dimensions of Authorized Channel	Current Usage	Future Usage
RM0 – RM1.2	30	30	30
RM1.2 – RM2.5	30	16	16
RM2.5 – RM3.6	20	Existing	16
RM3.6 – RM4.6	20		10
RM4.6 – RM8.1	16		10
RM8.1 – RM8.3	10		10

Future Use Navigation Alternatives

Reach (RM)	Municipalities		Future Use Navigational Depth (ft)	Anticipated Uses (per NJDOT Navigation Study)
	Eastern Bank	Western Bank		
0 - 1.2	Kearny	Newark	30	Maintain existing and future Industrial Use
1.2 - 2.5	Kearny	Newark	16	Preserve future potential Industrial Uses/Brownfields/Portfields
2.5 - 3.6	Kearny	Newark	16	Preserve future potential Industrial Uses/Brownfields/Portfields
3.6 - 4.6	Harrison	Newark	10	Future Recreational/commercial services (e.g., water taxis/ferries)
4.6 - 8.3	Kearny, Harrison, and East Newark	Newark	10	Future Recreational/commercial services (e.g., water taxis/ferries)

There was a question as to what type of vessels could be accommodated with the various depths? Scott provided the design requirements below:

- 30' accommodates bulk cargo vessels but would not accommodate large shipping container vessels
- 16' channel light barge (still allows for commercial use)
- 13' vessels draft
- 10' accommodates water taxi's and recreational use; bridge clearance restrictions up river would need consideration

At this point, Scott asked if there were any reactions to depth proposals. There was no response at this time.

- Seven alternatives were evaluated in the Focused Feasibility Study:
 - No Action
 - Dredging
 - Capping
 - Navigationally Constrained Capping (NCC) – Authorized Channel
 - NCC- Current Usage
 - NCC- Future Usage
 - NCC- Future Usage and Dredging Primary Erosional Zone (PEZ) / Primary Inventory Zone (PIZ)
- The advantages and disadvantages/ challenges of dredging were discussed. Dredging permanently removes the contaminated inventory, deepens the river for navigation and reduces future flooding. However, it is very challenging to define the vertical limits for dredging. Also, dredging requires dredged materials management and is costly.
- The advantages and disadvantages of capping were discussed. Capping minimizes dredged material management and facility siting efforts. It also opens up opportunity for beneficial use such as KVK rock. The USACE is generating a lot of rock that is being disposed of and could be used for capping material. It is also less costly than dredging. However, capping requires maintenance in perpetuity and provides a reduced depth for navigation.
- An overview of environmental dredging equipment and description of various types of mechanical and hydraulic dredges was provided.
- A review was given of the disposal options for the dredged material:
 - Landfill: Difficult with Dioxin permitted facility;
 - Confined Disposal Facility (CDF): Near shore or offshore;
 - Contained Aquatic Disposal (CAD): This is being used in Newark Bay;
and
 - Deep Ocean Dumping: This has very strict disposal criteria.

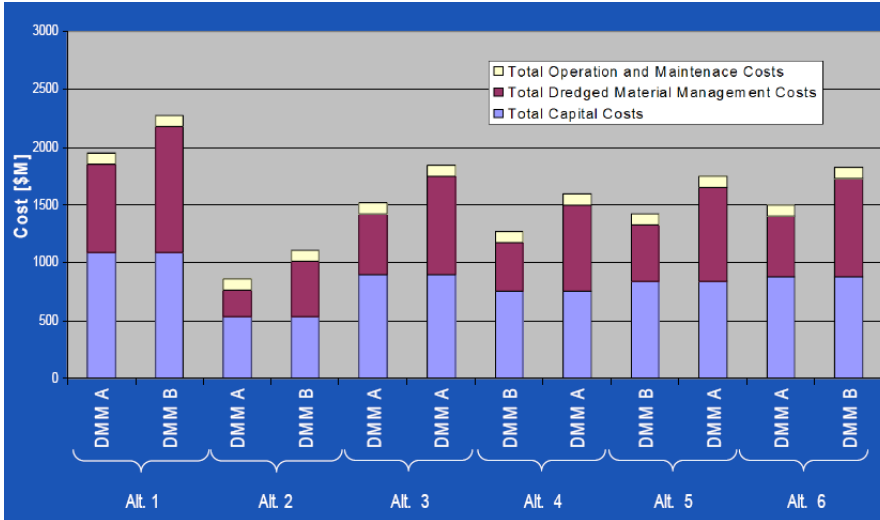
Scott indicated that there was a focus in the report on a near shore containment facility. In response to a question, Scott stated that there were no specific sites in mind at present but there is a desire to keep the site as close as possible to the dredging operations.

There was a question as to if a CDF could be used for passive recreation. Scott answered that this could be possible from a technical standpoint. There was a follow-up question whether a CDF near shore could be used in conjunction with the recreational waterfront walks that both Harrison and Newark are planning and a comment that EPA needs to consider that these communities are moving forward with construction of promenades.

- A review was made of the classes of potential treatment technologies that Eric Stern, EPA Region II, was working on. The leading categories are thermal, sediment washing and stabilization to make a beneficial product by adding Portland cement. The focus is on thermal technologies. An option would be to use treatment in conjunction with a near shore confinement facility.
- A review was made of capping techniques which were sand cap, armored sand cap and mudflat reconstruction cap. There was a discussion on how capping was implemented and a description of different types of capping equipment.
- A presentation on risk assessment comparisons associates with the remedial alternatives was given, using the graph below:

Alternative	Cancer Risks		Non-cancer Risks (Hazard Index)				Ecological Risks (Hazard Index)	
	Fish Ingestion	Crab Ingestion	Fish Ingestion		Crab Ingestion		Mink	Heron
			Adult	Child	Adult	Child		
No Action	4 x10 ⁻³	3 x10 ⁻³	6.8	31	5.2	27	52	5
1: Dredging	5 x10 ⁻⁴	4 x10 ⁻⁴	4.7	22	3.5	19	6	2
2: Capping								
3: NCC – Authorized								
4: NCC – Current Usage								
5: NCC – Future Usage								
6: NCC – Future Usage + Dredging PEZ/PIZ								
% Reduction of Active Alternatives compared to No action	88%	87%	31%	29%	33%	30%	88%	60%

- Cost estimate comparisons associated with the remedial alternatives was given, using the graph below:



- The Focused Feasibility Study considered the alternatives in terms of seven EPA criteria:
 - Overall protection of human health and the environment;
 - Compliance with Applicable or Relevant and Appropriate Requirements (ARARs);
 - Long term effectiveness and permanence;
 - Reduction of toxicity, mobility, and volume through treatment;
 - Short term effectiveness;
 - Implementability; and
 - Cost.

In addition, state and community acceptance will also be considered.
- A review was made of engineering considerations for each alternative. This included the estimated number of acres that would be flooded or saved from flooding, for each alternative.

Alternative	Volume (Millions of cubic yards)	Flooding (acres)	Cost (\$B)
1: Dredging	11.0	≤ -17	2.0 - 2.3
2: Capping	1.1	+ 93	0.9 - 1.1
3: NCC – Authorized	7.0	≤ -17	1.5 - 1.9
4: NCC – Current Usage	4.4	+24	1.3 - 1.6
5: NCC – Future Usage	6.1	-17	1.4 - 1.8
6: NCC – Future Usage + Dredging PEZ/PIZ	7.0	≤ -17	1.5 - 1.8

- The next phase will develop design considerations needed to address potential impacts of implementing the chosen alternative. These will include impacts on Transportation- waterborne and on-land; Recreational and commercial use; Community safety; Odor; Noise and Light.

Public Comments on the Focus Feasibility Study are due by August 16, 2007.

Comments should be sent to:

Ms. Alice Yeh
USEPA Region II
290 Broadway, 19th Floor
New York, New York 10007-1866

Question & Answer Session

- How will the EPA weigh in community acceptance since Harrison, Newark and Hudson County are the only communities with people who are represented?

Scott Thompson (MPI) responded that EPA will try to measure what the communities want and consider input from the communities. EPA wants to understand the needs of communities and will be very responsive to municipal needs. If communities have concerns that are not being resolved, they will be able to elevate them to the Regional Administrator's Office. NJDEP will serve as advocates for municipal needs. They want municipalities to stay committed and involved, providing EPA with input.

Janine MacGregor (NJDEP) responded that they will be responsive to the communities and represent their needs to EPA. She said that the amount of work being done is hard to imagine. This project is challenged with a horrendous, unprecedented situation, possibly the worst in the world. The communities should stay active and inform NJDEP of your needs.

- Based on what you have heard so far, what issues or needs do the communities have?

Peter Higgins from Harrison stated that they were OK with the proposed desired depth restrictions and the proposed options. They understand that bridge constraints are a limiting factor. He stated that Harrison wants to be part of the solution and to be considered active partners in the process. They want water taxis, ferries, crewing and recreational watercraft.

Joel Sonkin from Newark stated that they would like to see industrial use depths up to two and a half to three miles to the Route 1-9 Bridge. They want to maintain the ability to expand the port up to River Mile 2 and keep the depth to 30 ft. They will follow up and discuss this with EPA.

- What about future water quality needs?

Ray Basso (EPA) stated that it really should be handled in two parallel processes. The first is to address the contaminated sediments and navigational depth. He believed that the CDF was the most expeditious way to deal with this. The second step was to simultaneously address water quality problems like Combined Sewer Overflows, runoff and odor.

- Although the lower eight contains 90% of the contaminants, will the upper nine remediation to be done later recontaminate the lower eight?

Ray Basso (EPA) responded that there was a pilot study done in the Passaic River near Newark that will help us understand how to handle the re-suspension issue (results are still being evaluated). A typical estimate is that dredging causes re-suspension of 1% of the materials removed.

- Who would pay for the remediation? Would it be the towns?

Ray Basso (EPA) responded that Potentially Responsible Parties (PRPs) would pay. The expectation is that the PRPs would build and design the remedy, with EPA oversight.

- Can maintenance dredging could be done after placement of a cap?

Scott Thompson (MPI) and Megan Grubb (USACE) responded “yes.” Megan added that the USACE has already done a preliminary analysis but they will be doing a formal analysis with public input. This is done when any changes are planned for navigational depths and approval must be obtained at a Congressional level.

Ray Basso (EPA) also explained the “Betterment” issue with regards to a remedy decision on the depth of cleanup. Headquarters and the Remedy Review Board look at every remedy and associated comments. While Superfund establishes the level of cleanup to protect human health and the environment, EPA can also take into account reasonably anticipated future use. However Superfund is not required to pay for “Betterment” of a resource beyond what is necessary to protect human and the environment. But municipalities in this case need to provide information and documentation to EPA so that they can support their desired future uses.

- Will the municipalities be likely to accept the idea of a near shore CDF in their area?

Harrison and Newark replied that they could accept the idea, especially if it led to resolution of the Passaic River problems. Neither would oppose having it near them and appreciated the possibility of the land increase that it might bring. Newark recognized the potential value it might have to them as a revenue source. Speaking for Kearny, Betty Spinelli (Hudson County) stated that the potential

impacts to the Foreign Trade Zone (FTZ) need to be understood and taken into consideration. Betty will pass along this information to Kearny.

There was a discussion about the need for educating the community on CDF's in order to gain acceptance. Ray Basso recognized this need as important for EPA to follow-up on. Janine MacGregor thought it would be useful to show people the favorable comparisons that a CDF would have when compared to other options. Betty Spinelli noted that educational outreach issues need to manage emotional concerns and be sensitive to the average human being's level of understanding.

Dave Kluesner (EPA) read an email he received from the representative from Kearny, Kevin O'Sullivan of Neglia, Engineering. The email described waterfront development in Kearny. A good portion of the Kearny's waterfront property is municipal owned parks. Future plans to the parks include adding a bicycle route and adding additional property to the greenspace. The Town has been undergoing a series of sewer separations and in-line or end-of-pipe netting chambers. The only netting chamber that will be visible along the Passaic River waterfront is the "Johnston Avenue Netting Chamber." This is a netting chamber being constructed now with a crane structure that will catch all the solid floatables from the combined sewer system. It is located just north of the Norfolk Southern Railroad Bridge stuck in the up position at the border of East Newark and Kearny. Other sewers that have outfalls along the Passaic River had inline netting chambers installed farther upstream or have been separated.

Dave Kluesner (EPA) then gave an overview of the community involvement process and indicated that later this year there would be a formal document on the preferred approach and there would be a 30-60 day public comment period. Also, he provided a personal message from Alan Steinberg, EPA Region II Administrator, that he is always available to the municipalities because he sees them as key players in this project.

Appendix 1

Meeting Sign-In Sheet

Lower Passaic River Cleanup Options Meeting
Discussion and Input from Municipalities on the Draft Study of Cleanup Options
Attendance Sheet
June 12, 2007

Name	Representing	Telephone	Email
Stephen Kehayes	NJDEP Office of Brownfield Reuse	609-777-0649	Stephen.Kehayes@dep.state.nj.us
Vince Pitruzzello	EPA	212-637-4354	pitruzzello.vince@epa.gov
Kelly-Ann Pokrywa	Gordon & Gordon. PC	973-467-2400	Kelesq@hotmail.com
Alice Yeh	EPA	212-637-4427	yeh.alice@epa.gov
Megan Grubb	USACE NY District	917-790-8618	Megan.B.Grubb@usace.army.mil
Scott Thompson	Malcolm Pirnie	914-641-2628	sthompson@pirnie.com
Bette Spinelli	Hudson County Economic Development Corporation	201-222-1900	director@hudsonedc.org
Joel Sonkin	City of Newark	973-733-8211	sonkinj@ci.newark.nj.us
Anthony DeBarrus	City of Newark	973-256-4965	debarrusa@ci.newark.nj.us
Nicholas J. Spadavecchia	Advance Realty Group	908-254-3130	nicksp@advancerealtygroup.com
Janine MacGregor	NJDEP	609-633-0784	janine.macgregor@dep.state.nj.us
Pete Higgins	Harrison		
Rocco Russomanno	Harrison	973-268-2446	rrussomanno@townofharrison.com
Peter Wepper	USACE	917-790-8634	peter.m.wepper@usace.army.mil
Michele Christina	Brownfield Redevelopment Solutions	856-964-6456	michele@njbrownfield.com
Gerard McKenna	Brownfield Redevelopment Solutions	908-472-3969	gerard38@comcast.net

Appendix 2

Overview of Focused Feasibility Presentation

Future Design Considerations

- Transportation: Waterborne and On-land
- Recreational/commercial use
- Community Safety
- Odor
- Noise
- Light



Engineering Comparisons

Alternative	Volume (Millions of cubic yards)	Flooding (acres)	Cost (\$B)
1: Dredging	11.0	≤ -17	2.0 - 2.3
2: Capping	1.1	+ 93	0.9 - 1.1
3: NCC – Authorized	7.0	≤ -17	1.5 - 1.9
4: NCC – Current Usage	4.4	+24	1.3 - 1.6
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USEPA Criteria

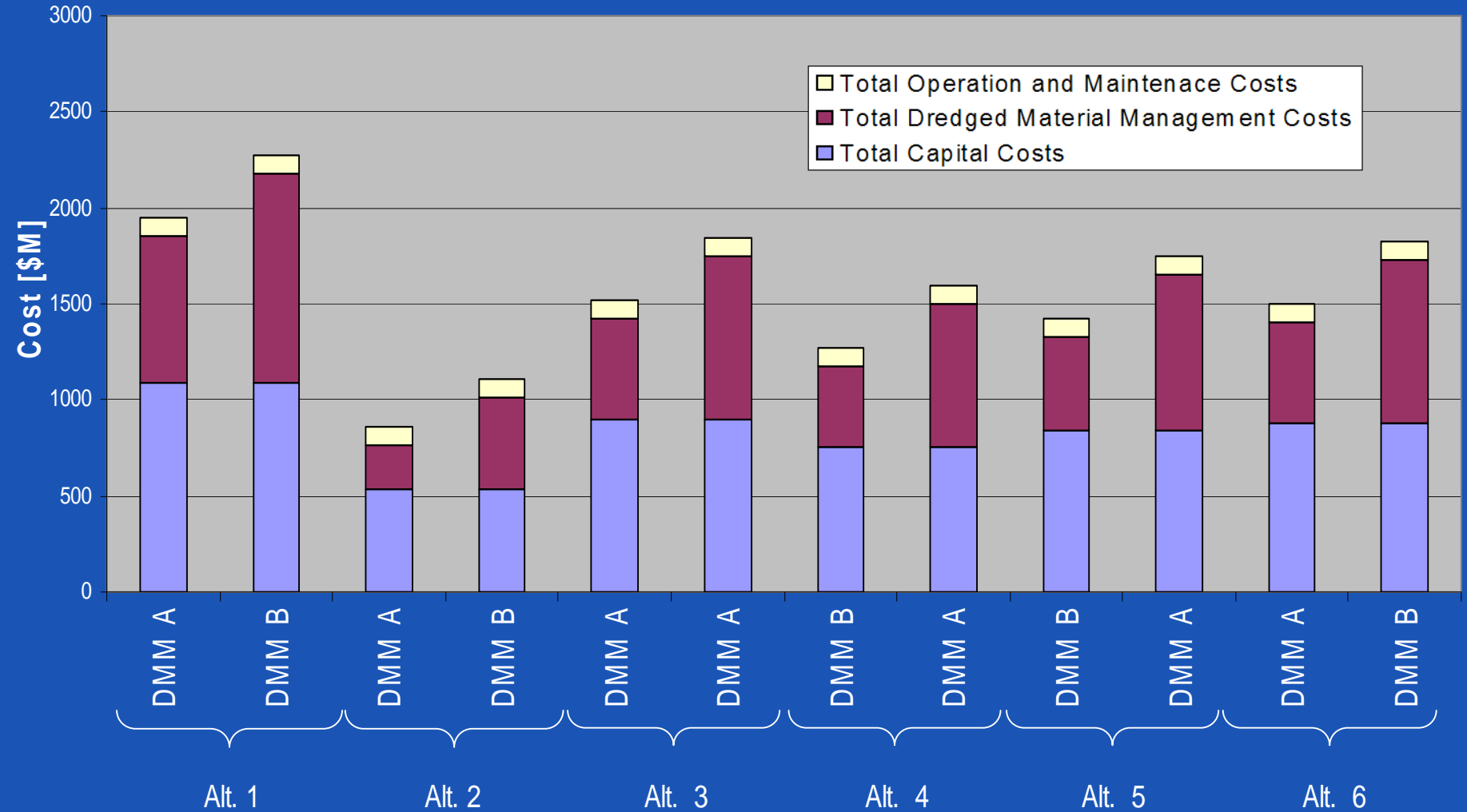
- Overall Protection of Human Health and the Environment
 - Compliance with ARARs
 - Long Term Effectiveness and Permanence
 - Reduction of Toxicity, Mobility, and Volume through Treatment
 - Short Term Effectiveness
 - Implementability
 - Cost
-
- State Acceptance
 - Community Acceptance

FFS

PP/ROD



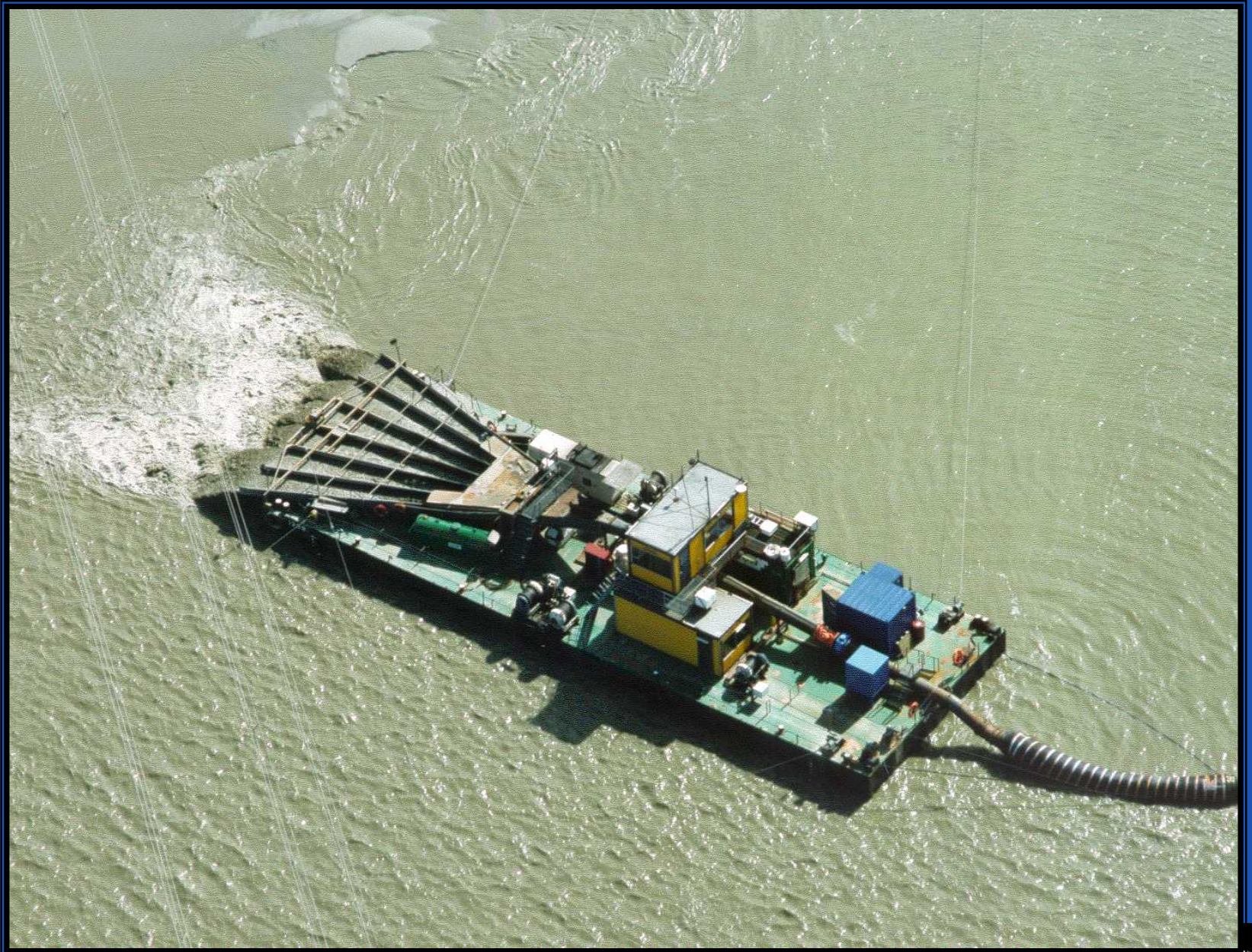
Cost Estimates



Risk Assessment Comparisons

Alternative	Cancer Risks		Non-cancer Risks (Hazard Index)				Ecological Risks (Hazard Index)	
	Fish Ingestion	Crab Ingestion	Fish Ingestion		Crab Ingestion		Mink	Heron
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% Reduction of Active Alternatives compared to No action								





INDEPENDENT ENVIRONMENTAL ENGINEERS, SCIENTISTS AND CONSULTANTS

Source: Bean E

**MALCOLM
PIRNIE**

Capping Equipment



Hydraulic Diffuser



Conveyor



Split-Hull Barge

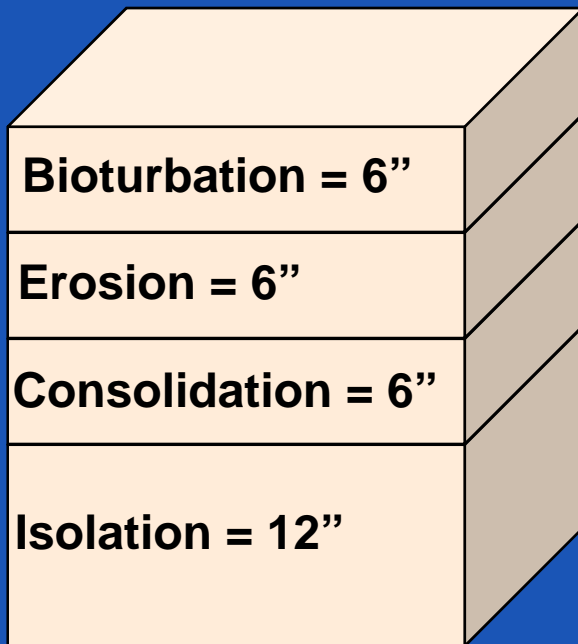


Clamshell

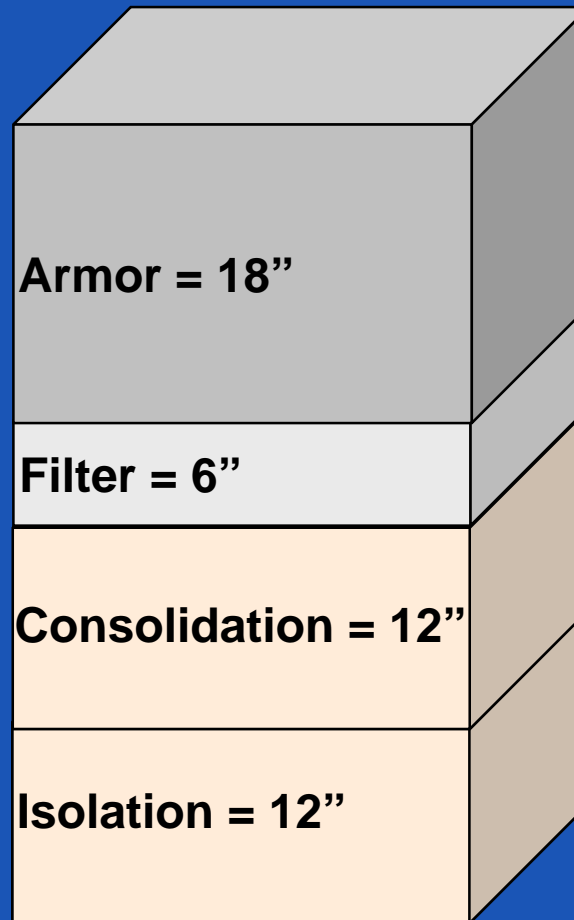


Conceptual Design: Capping

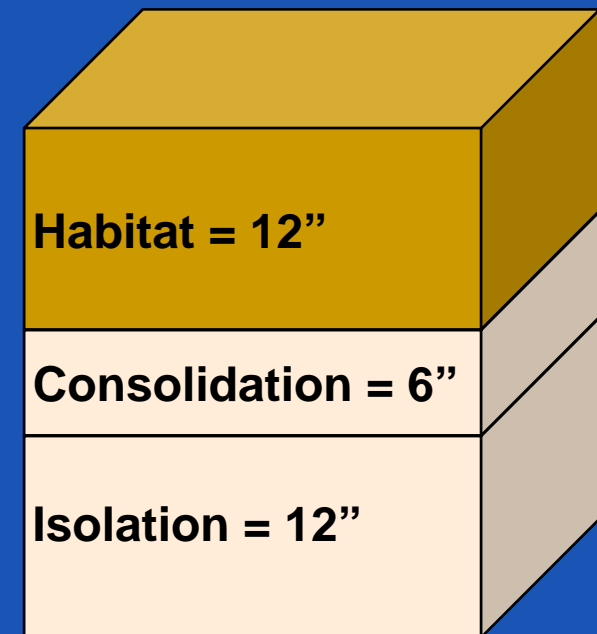
Sand Cap



Armored Sand Cap



Mudflat Reconstruction Cap



Decontamination Technologies

- Minergy
- Biogenesis
- Endesco / GTI
- Upcycle



Disposal Options



Dredging Equipment Selection



Source: Bean Environmental, Cable Arm



Capping Advantages/Disadvantages

- Capping Advantages
 - Minimizes dredged material management & facility siting efforts
 - Beneficial use opportunity (KVK rock)
 - Cost
- Capping Disadvantages
 - Maintenance required in perpetuity
 - Reduced depth for navigation



Dredging Advantages/Disadvantages

- Dredging Advantages
 - Permanently removes inventory
 - Deepens river for navigation
- Dredging Disadvantages/Challenges
 - Defining vertical limits of contamination; extensively deep
 - Dredged material management
 - Cost



Alternatives

- No Action
- Alternative 1: Dredging
- Alternative 2: Capping
- Alternative 3: NCC – Authorized Channel
- Alternative 4: NCC – Current Usage
- Alternative 5: NCC – Future Usage
- Alternative 6: NCC – Future Usage & Dredging PEZ/PIZ

NCC – Navigationally Constrained Capping

PEZ – Primary Erosional Zone

PIZ – Primary Inventory Zone



Future Use Navigation Alternative

Reach (RM)	Municipalities		Future Use Navigational Depth (ft)	Anticipated Uses (per NJDOT Navigation Study)
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4.6 - 8.3	Kearny, Harrison, and East Newark	Newark	10	Future Recreational/commercial services (e.g., water taxis/ferries)



Alternative Development: Navigation Depths in MLW

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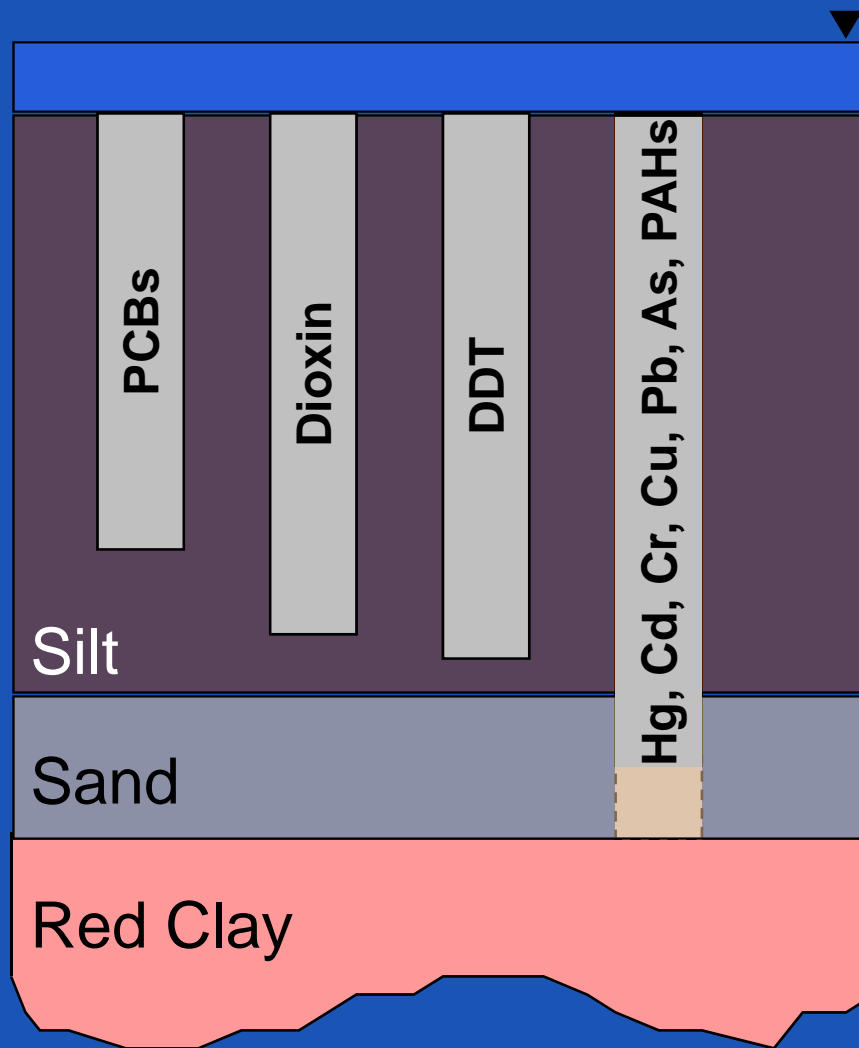


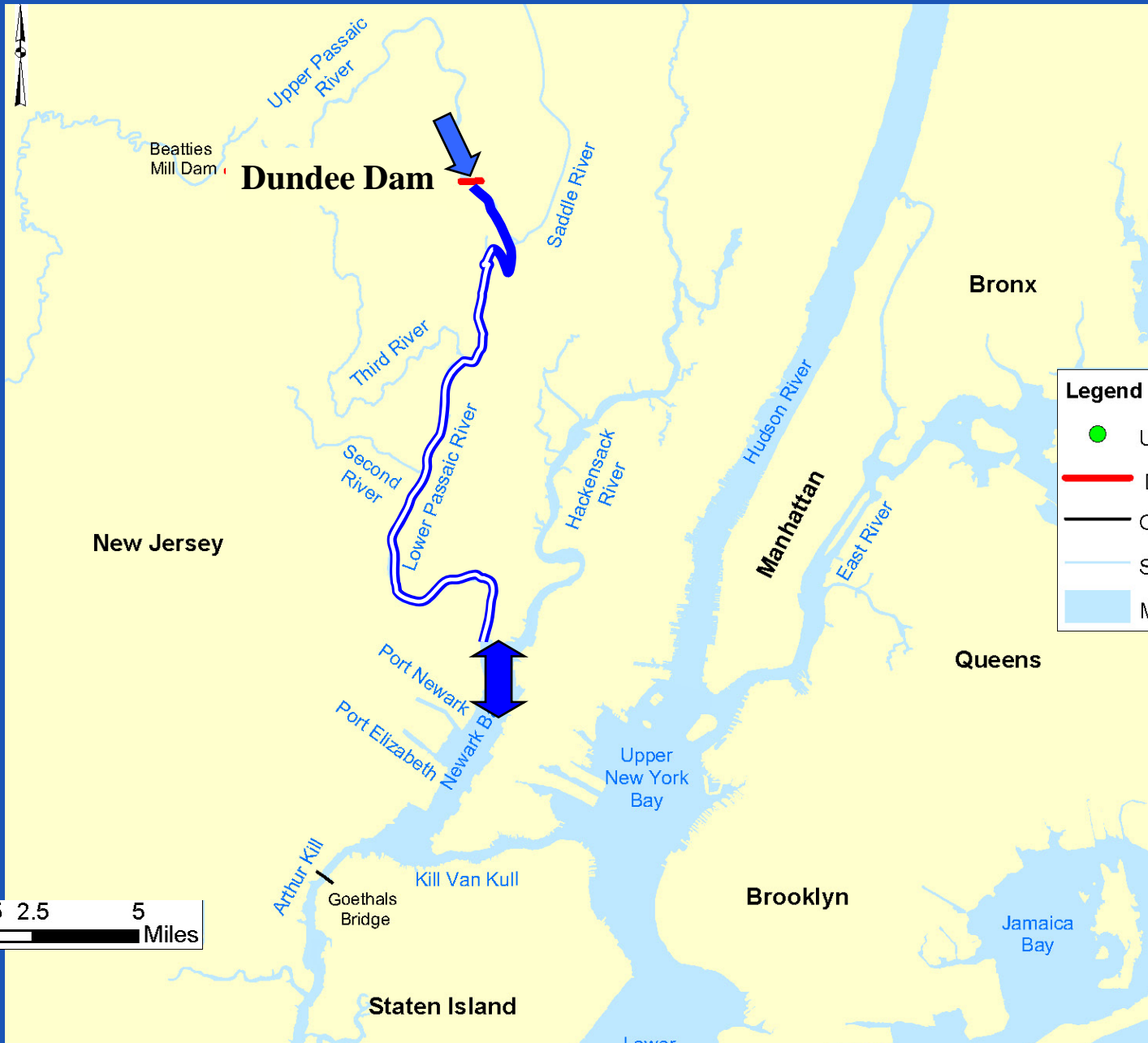
Target Area Selection

- CSM: Fine grained sediments of lower 8 miles identified as major source of contamination
- Increased cancer risk of 1 in 100 for adults who eat fish. Risk driven by dioxin and PCBs (also by metals and pesticides)
- Remediation of discrete areas unable to effect sufficient risk reduction
- Six active alternatives developed to consider entire lower 8 miles



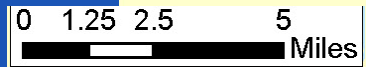
Contaminant Inventory in the Lower Passaic River





Legend

- USGS Gauge Station
- Dams
- Goethals Bridge
- Streams/Rivers
- Major Waterbodies



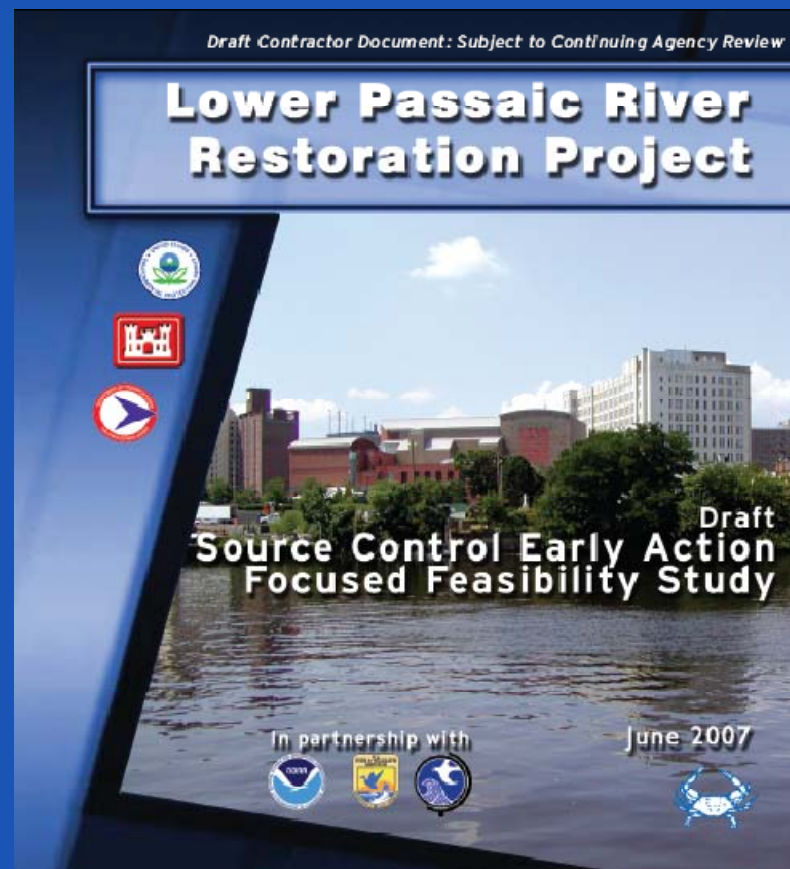
Contents of FFS Appendices

- Conceptual Site Model
- Sediment TBCs and PRGs
- Risk Assessment
- Empirical Mass Balance Model
- Engineering Memoranda
- Navigation Studies
- Cap Erosion and Flood Modeling
- Dredged Material Management Assessments
- Dredging Volume Estimates
- Cost Estimates



Contents of FFS Main Text

- Executive Summary
- Introduction
- Development of RAOs and Selection of Target Areas
- Identification and Screening of General Response Actions, Remedial Technology Classes, and Process Options
- Development of Remedial Alternatives
- Detailed Analysis of Remedial Alternatives



Purpose of FFS

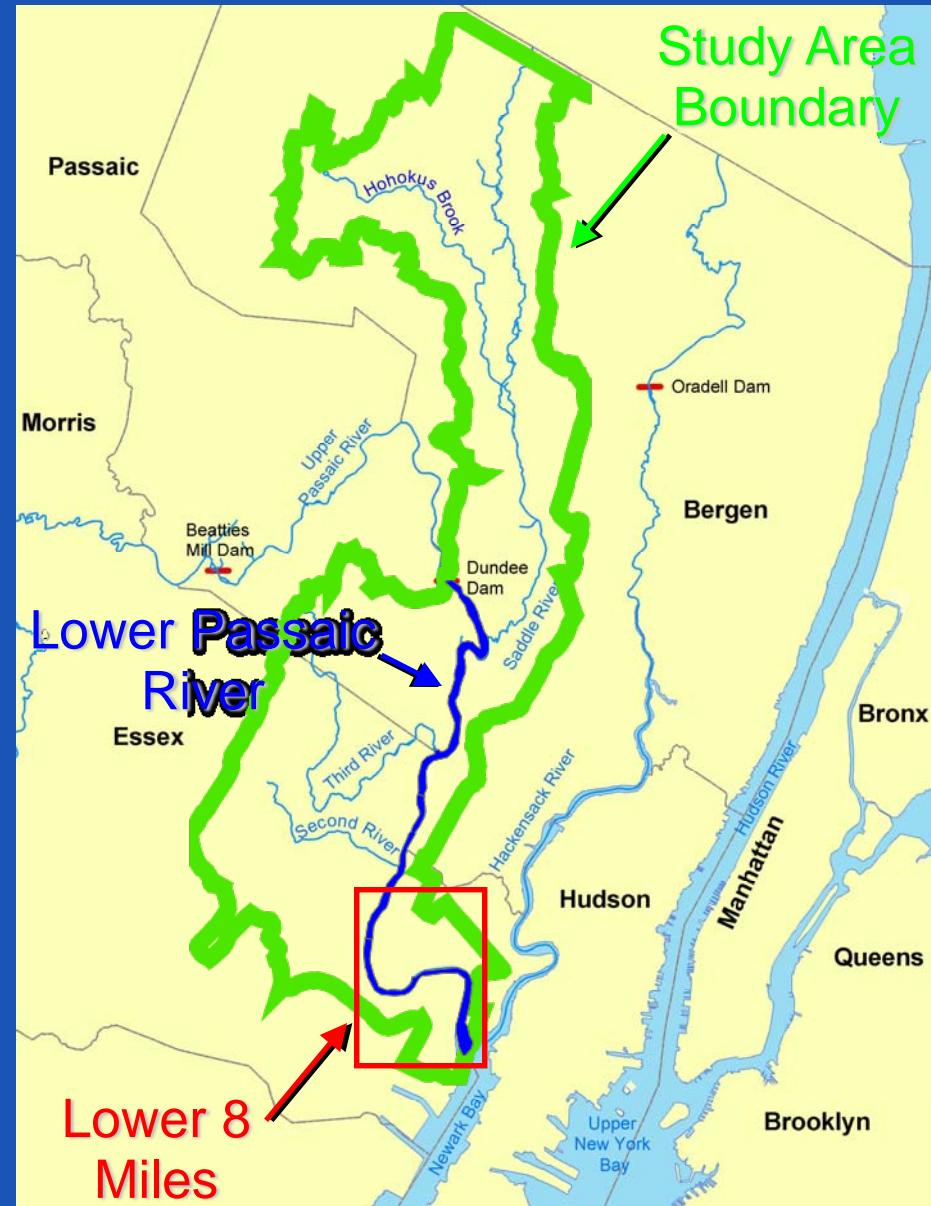
- FFS undertaken to evaluate range of remedial alternatives that might be implemented as early action to control source
- Final action for the sediments in the lower eight miles
- Intended to take place in the near term, while comprehensive 17-mile study is on-going.



Description of Overall Project

Comprehensive Study of the Lower Passaic River

- Study Area includes 17-mile tidal portion of the river from Newark Bay to Dundee Dam (including tributaries) and watershed
- Integrated CERCLA / WRDA project
- Joint effort among USEPA, USACE, NJDOT, NOAA, USFWS, and NJDEP



Source Control Early Action Focused Feasibility Study

Lower Passaic River Restoration Project

Scott E. Thompson, PE
Malcolm Pirnie, Inc.

*Cleanup Options Meeting with Municipalities
July 12, 2007*



August 16
Comments on Draft FFS Due

Alice Yeh
USEPA, Region 2
290 Broadway, 19th Floor
New York, New York 10007-1866
Yeh.Alice@epamail.epa.gov
212-637-4427

