



Connecticut Department of Energy and Environmental Protection



Remedial Action Plan for Lead-Impacted Sediment in the Mill River Study Area Related to the Former Exide Facility

January 10, 2013

Public Information Meeting

Ludlowe High School, Fairfield



Connecticut Department of Energy and Environmental Protection

Agenda

- Introduction and Background
- DEEP's Technical Review
- Implementation Overview of Sediment Remedial Action Plan
- Public Participation



Introduction

- DEEP Representatives from the Remediation Division, Planning & Standards Division, Office of Long Island Sound Program, and Water Permitting Division
- Exide Group Incorporated Representatives



Background

- 1951 – 1981 - Automotive battery manufacturing facility
- 1983 – Remediation of Mill River Sediment
- 1989 – DEEP issued Order to investigate the uplands and Mill River and complete any necessary remediation
- 2006 – Upland Remediation
- 2008 – DEEP issued Order to remediate lead-impacted sediment in Mill River and limited areas on upland parcel
- 2009 – Final Sediment Investigation
- 2013 – Supplemental Upland Remediation



Federal and State Requirements

State & Federal Requirements

Federal
CWA &
RCRA

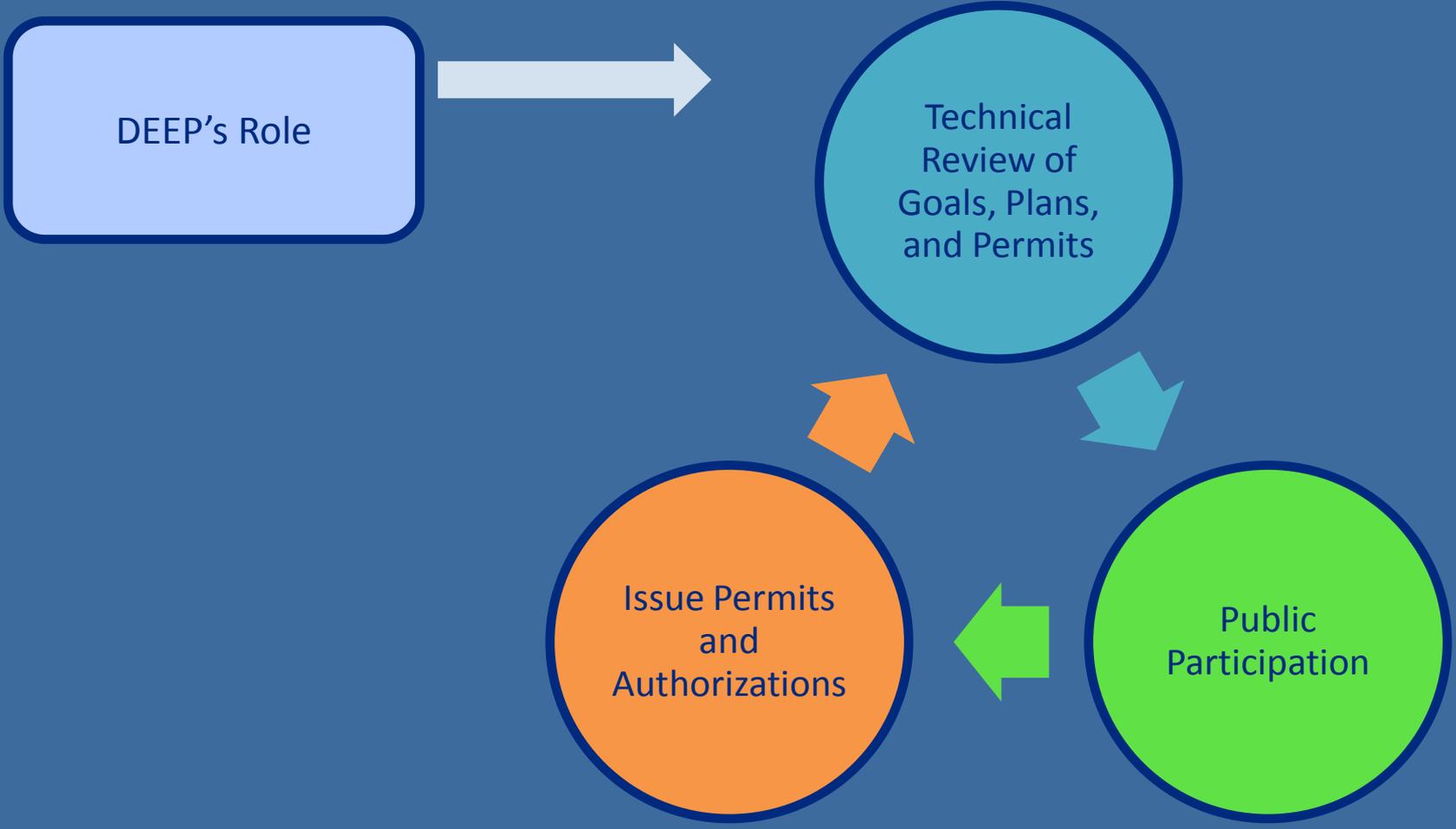
State
Statutes

- Environmental Goals
 - WQ Standards
- Regulations
 - Remediation Standard Regulations
 - Coastal Permitting Program
 - NPDES Permitting Program

Meet
Environmental
Goals



Remediation Program Process





CT DEEP Technical Review:

Environmental Goals, Conditions & Outcomes for the Mill River, Fairfield



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Mill River Study Area

Former Exide Facility



Superior Plating



Mill Hollow Park



Study Areas



I-95

Railroad

Route 1

Tide Gates

Southport Harbor



Area 4



Area 3



Exponent

Areas 1 & 2



Exponent



AREA I

AREA II

Superior Plating

Former Exide Facility

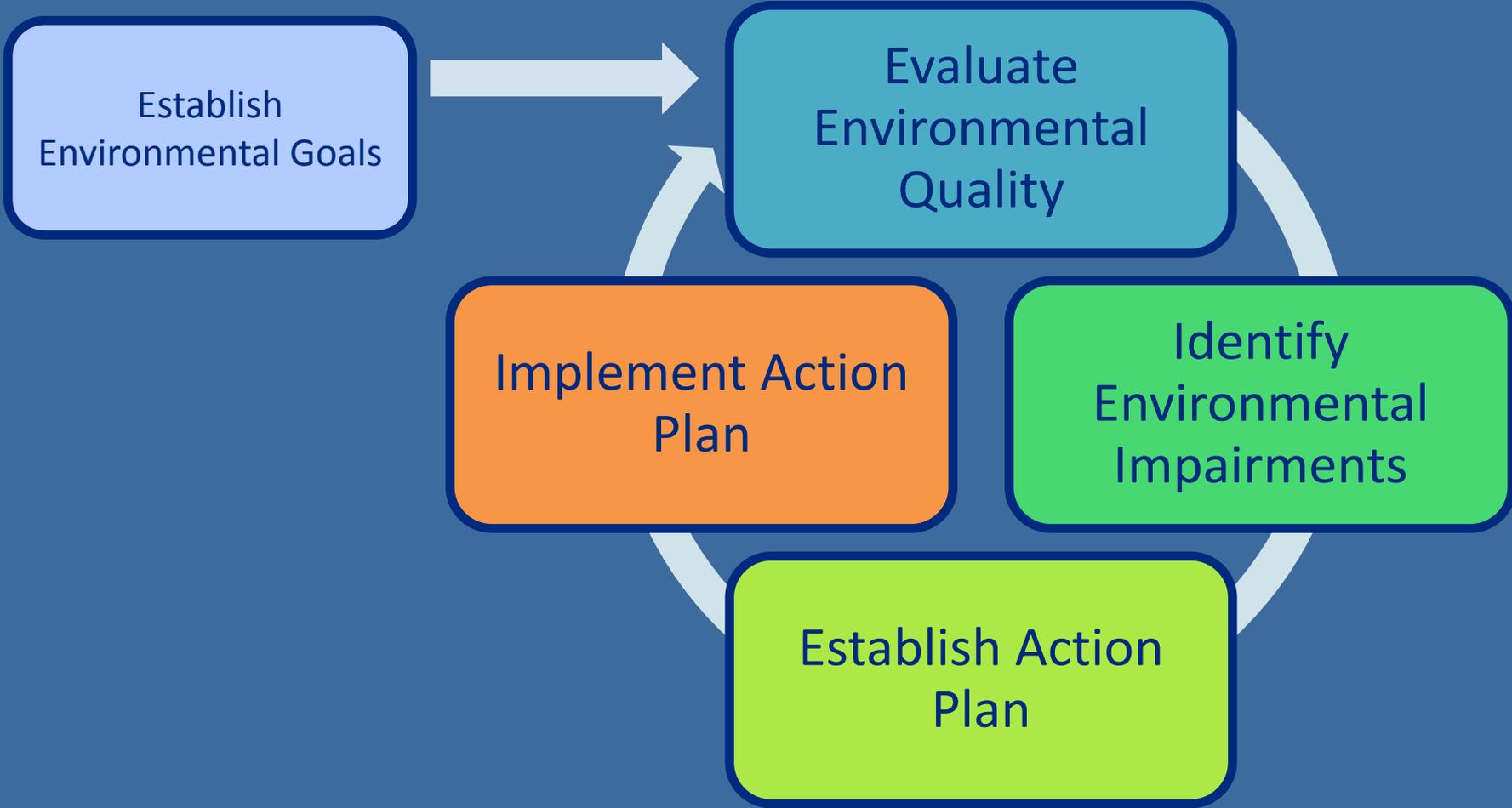


Exponent

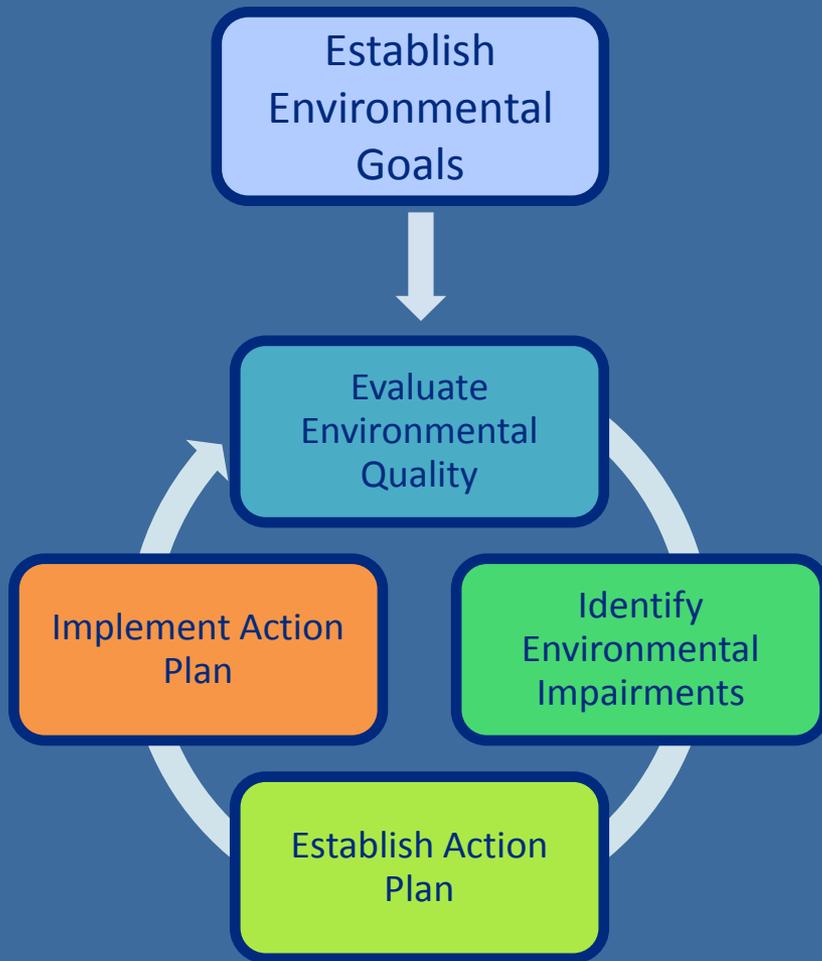
Area 5



Environmental Protection Process



Environmental Protection Process

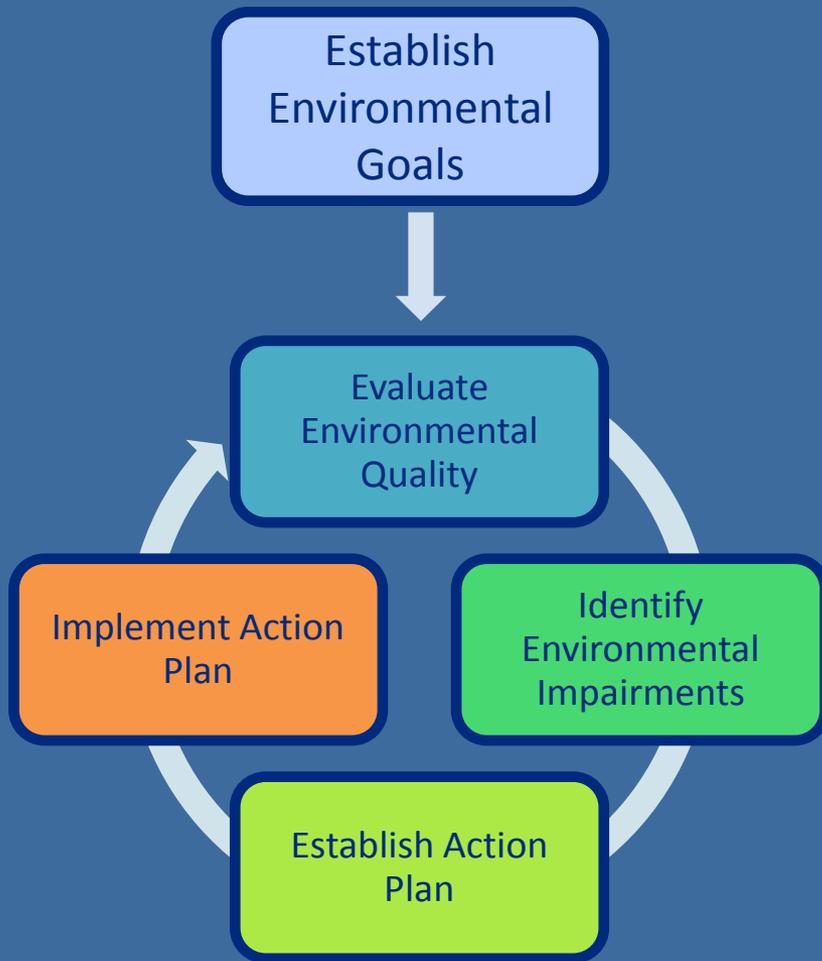


Establish Environmental Goals

- Class SA Water
 - Health Fish and Aquatic Life Communities
 - Health Wildlife Communities
 - Shellfishing
 - Recreation



Environmental Protection Process



- Human Health Risk Assessment
- Ecological Risk Assessment



Human Health Risk Assessment

Environmental Media

- Sediment
- Surface Water

Fish and Shellfish Tissue

- Blue Crab
- White Perch
- Oysters

Exposure Assessment

- Children and Adults
- Recreational and Frequent Fishing Scenarios

Conclusion:

Risk from Lead Exposures to Sediment and Eating Fish and Shellfish



Ecological Risk Assessment

Environmental Media

- Sediment
- Surface Water

Ecological Populations

- Plants
- Aquatic Organisms
- Birds
- Mammals

Biological Assessments

- Survival
- Growth
- Reproduction

Conclusion:

Risk from
Lead
Exposures
for Birds
and Aquatic
Organisms



Ecological Risk Assessment: Plants



http://www.esd.ornl.gov/facilities/nerp/basin_jpgs/arrowweed.JPG



<http://www.fs.fed.us/database/feis/plants/graminoid/phraus/all.html>



http://cfb.unh.edu/phycokey/Choices/Chlorophyceae/green_seaweeds/MONOSTROMA/Monostroma_Image_page.htm



<http://en.wikipedia.org/wiki/Eleocharis>

Ecological Risk Assessment: Aquatic Organisms



http://upload.wikimedia.org/wikipedia/commons/6/68/Fundulus_heteroclitus.jpg



<http://www.eeusa.com/?p=18>



<http://portal.ncdenr.org/web/wq/taxonmanual>

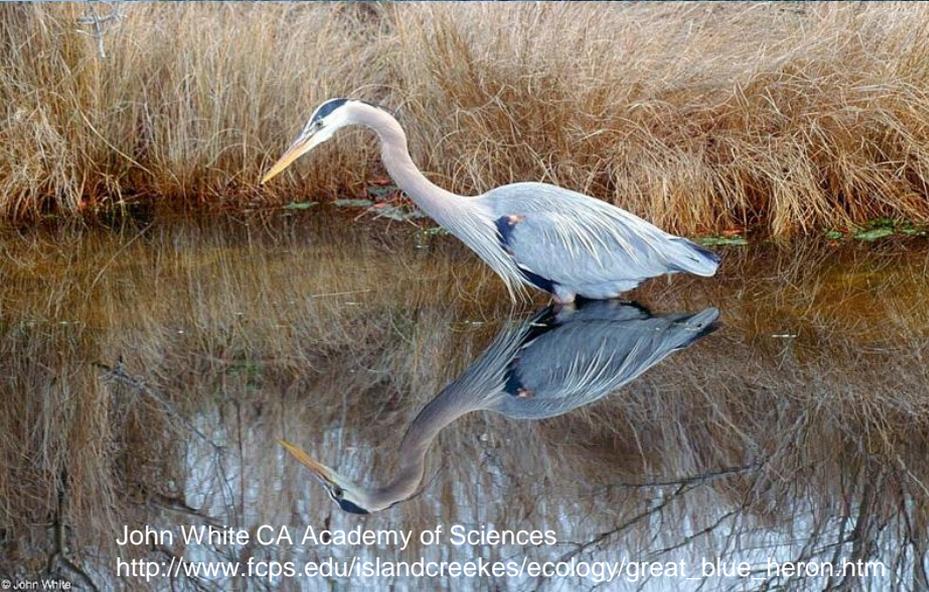


http://en.wikipedia.org/wiki/Callinectes_sapidus



http://www.michigan.gov/deq/0,1607,7-135-3313_3677_8314-83004--,00.html

Ecological Risk Assessment: Birds

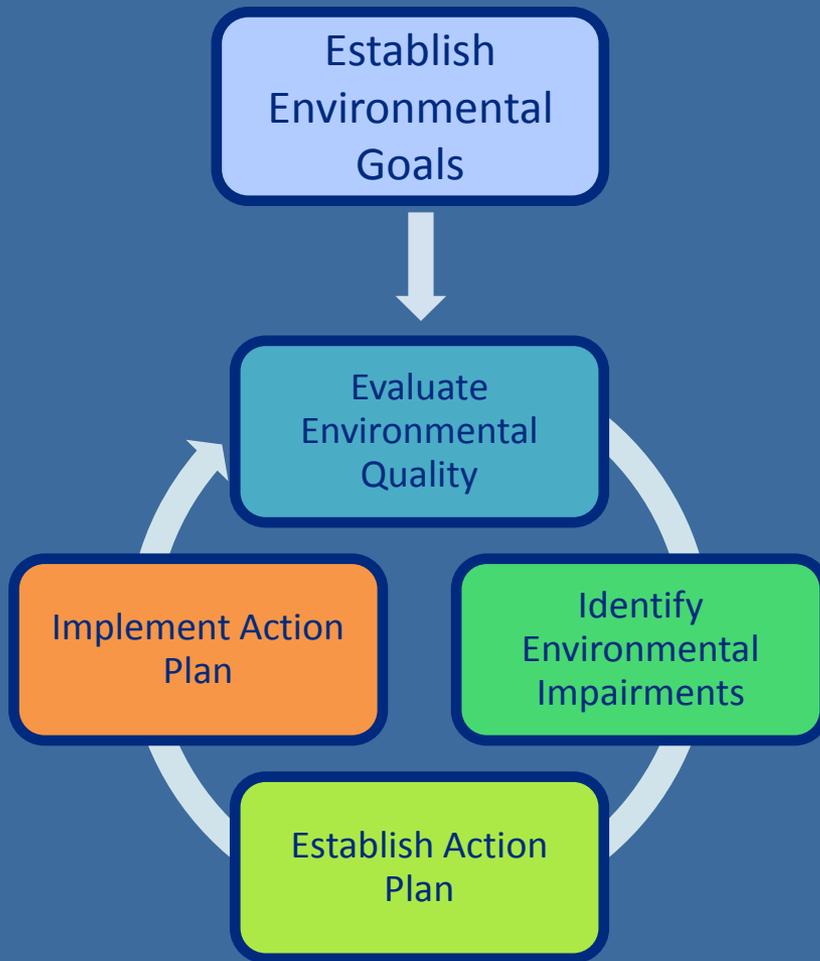


Ecological Risk Assessment: Mammals



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Environmental Protection Process



- Establish Remediation Goals to Protection Human Health and the Environment
- Compare to existing environmental quality



Risk-based Remedial Goals for Lead

- Based on Risk Assessments
- Human Health Protection
 - 400 mg/kg
- Ecological Protection
 - Birds: 437 mg/kg
 - Aquatic Organisms: 220 mg/kg

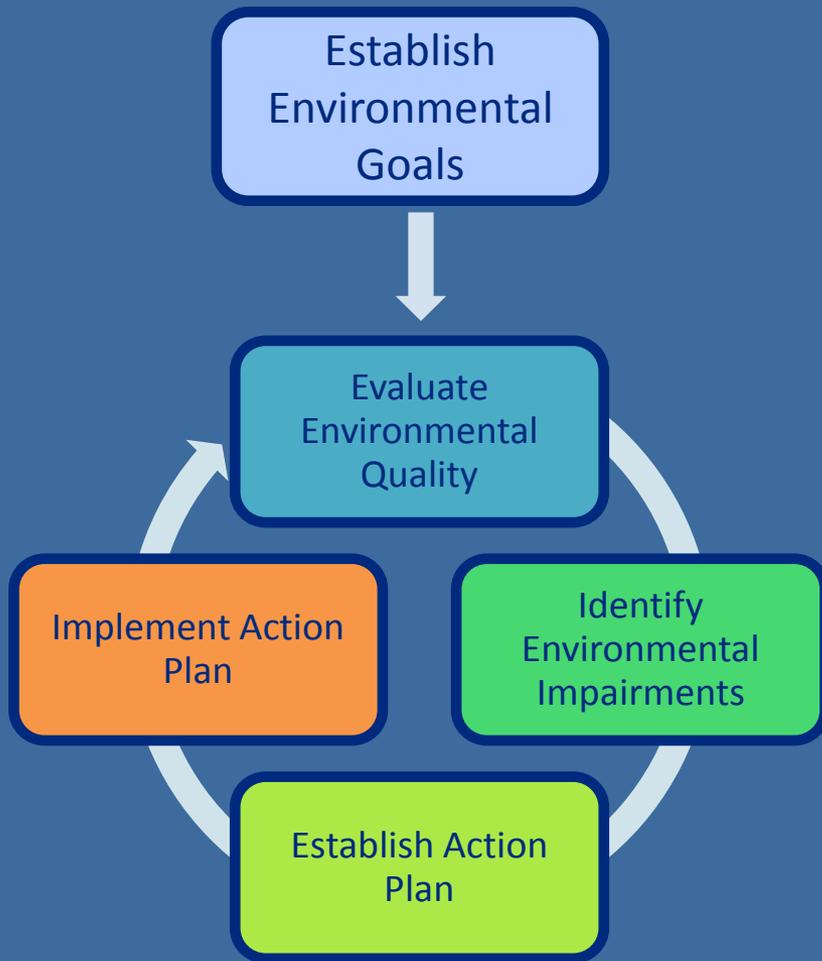
82	207.2
1750	1.6
327.6	
Pb	
[Xe]4f ¹⁴ 5d ¹⁰ 6s ² 6p ²	
11.4	2,4

<http://www.inorganicventures.com/tech/periodic-table/elements/pb>



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Environmental Protection Process



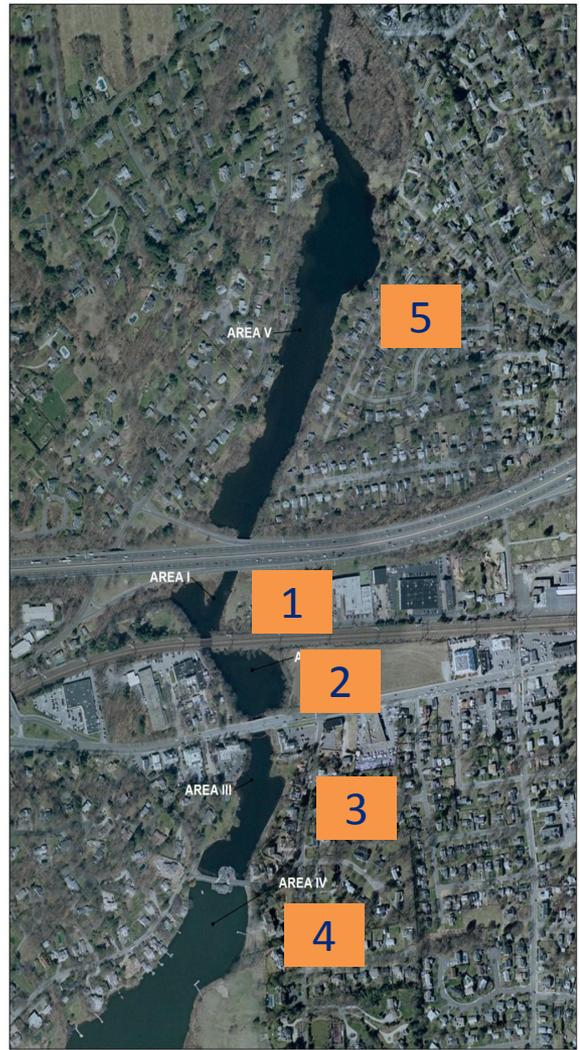
- Remedial Action Plan & Associated Permit Activities
- Subject of This Public Meeting



Risk-based Remedial Goals for Lead

Pre-Excavation	Area 4	Area 3	Area 2	Area 1	Area 5
Minimum	2	1	2.5	3	1
Maximum	1,300	3,200	170,000	3,600	6,200
Average	93	355	3,760	590	148
Post-Excavation	Area 4	Area 3	Area 2	Area 1	Area 5
Minimum	2	1	2.5	3	1
Maximum	220	220	200	220	400
Average	51	39	28	65	70

Proposed remediation activities will address risk concerns and restore environmental quality



Environmental Protection Process



- Future
- After Public Process & Final Approvals





Update: Chromium in the Mill River



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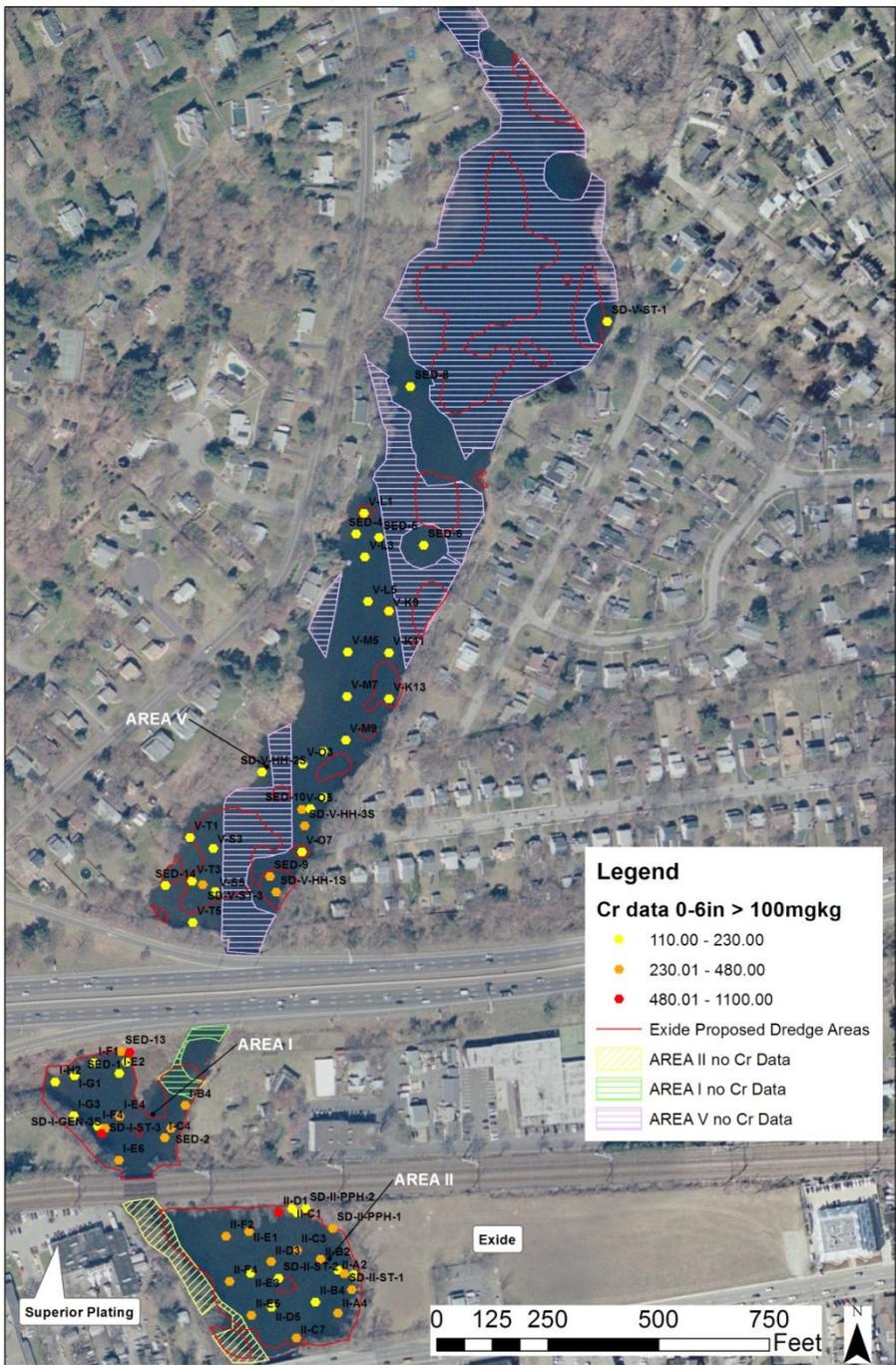


Figure 2. Cr Sampling Locations 0-6in >100mg/kg, Exide Site Fairfield, CT

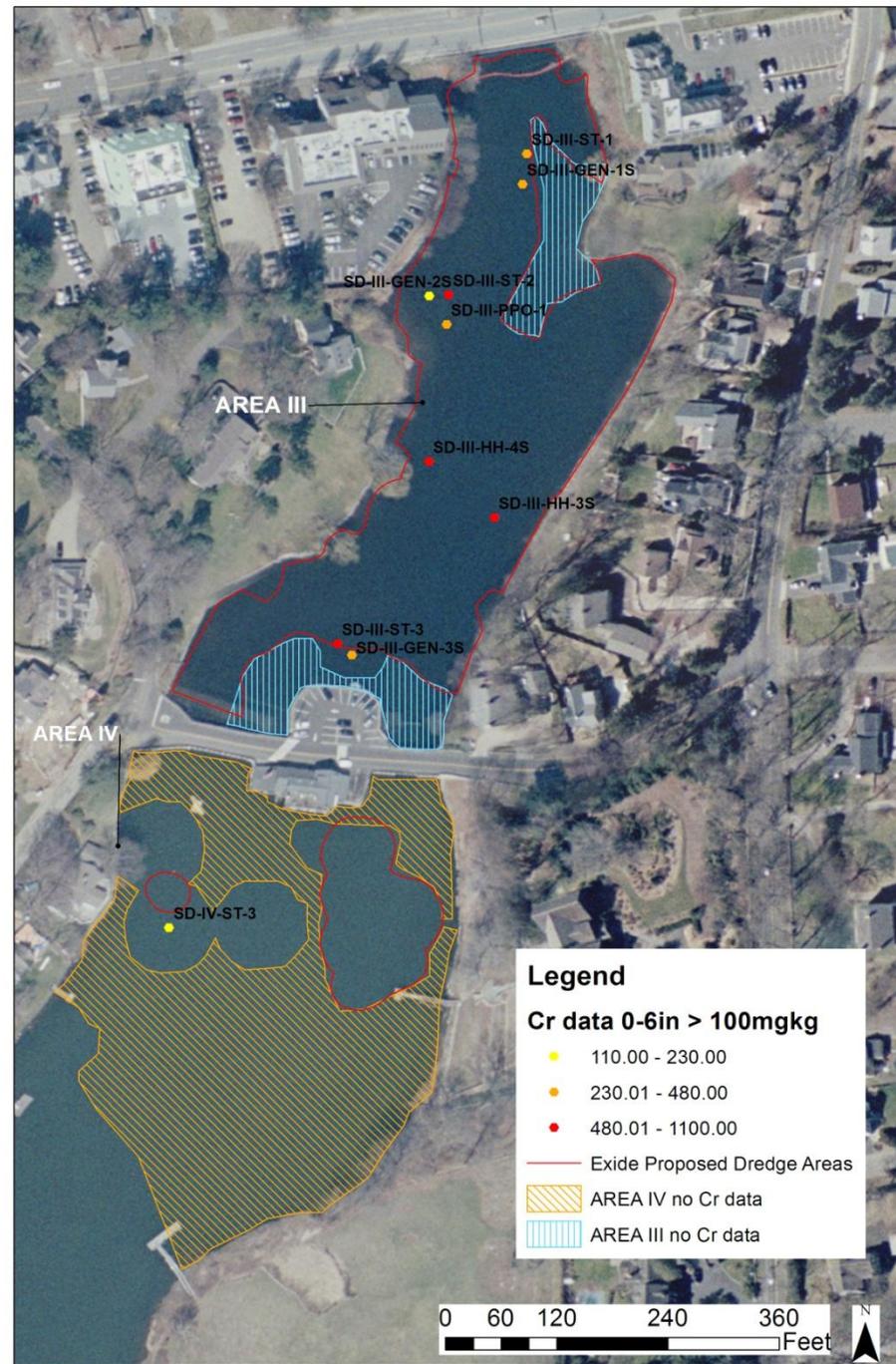


Figure 3. Cr Sampling Locations 0-6in >100mg/kg, Exide Site Fairfield, CT



CT DEEP Technical Review: Implementation Activities



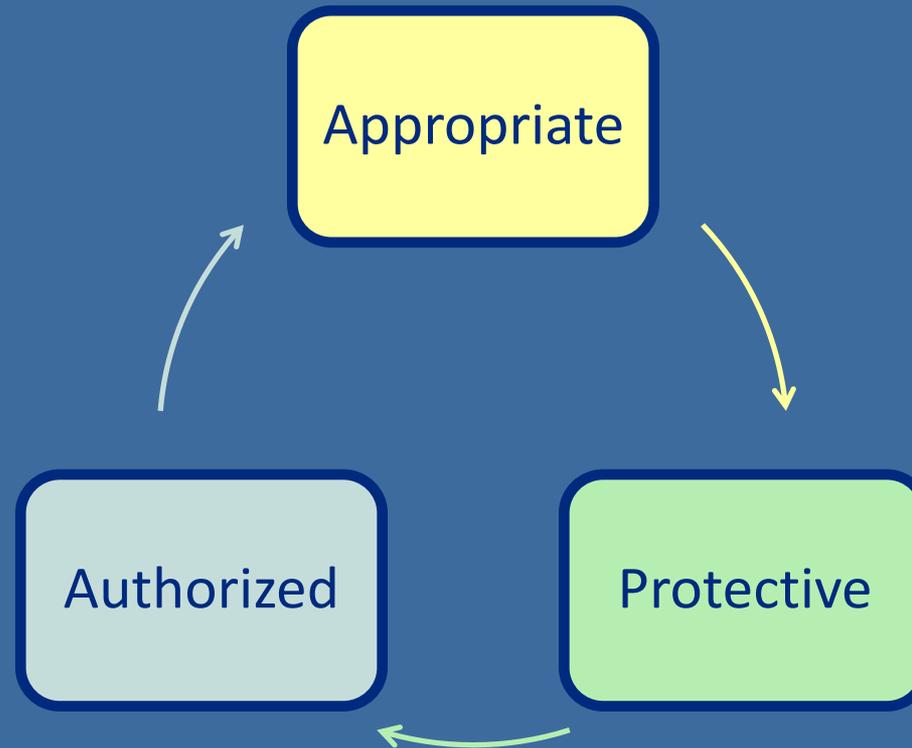
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Implementation Activities

- Sediment Remedial Action Plan
- OLISP General Permit
- NPDES Permit



DEEP's Review of Sediment RAP



Example Questions

Appropriate

- Does the plan address full extent of impacts?
- Is post-remediation monitoring sufficient to evaluate effectiveness?

Protective

- Are suitable material handling and disposal procedures proposed?
- Are best management practices and adequate controls proposed?

Authorized

- Does the plan satisfy the Remediation Program Requirements?
- Were applicable permits applied for?



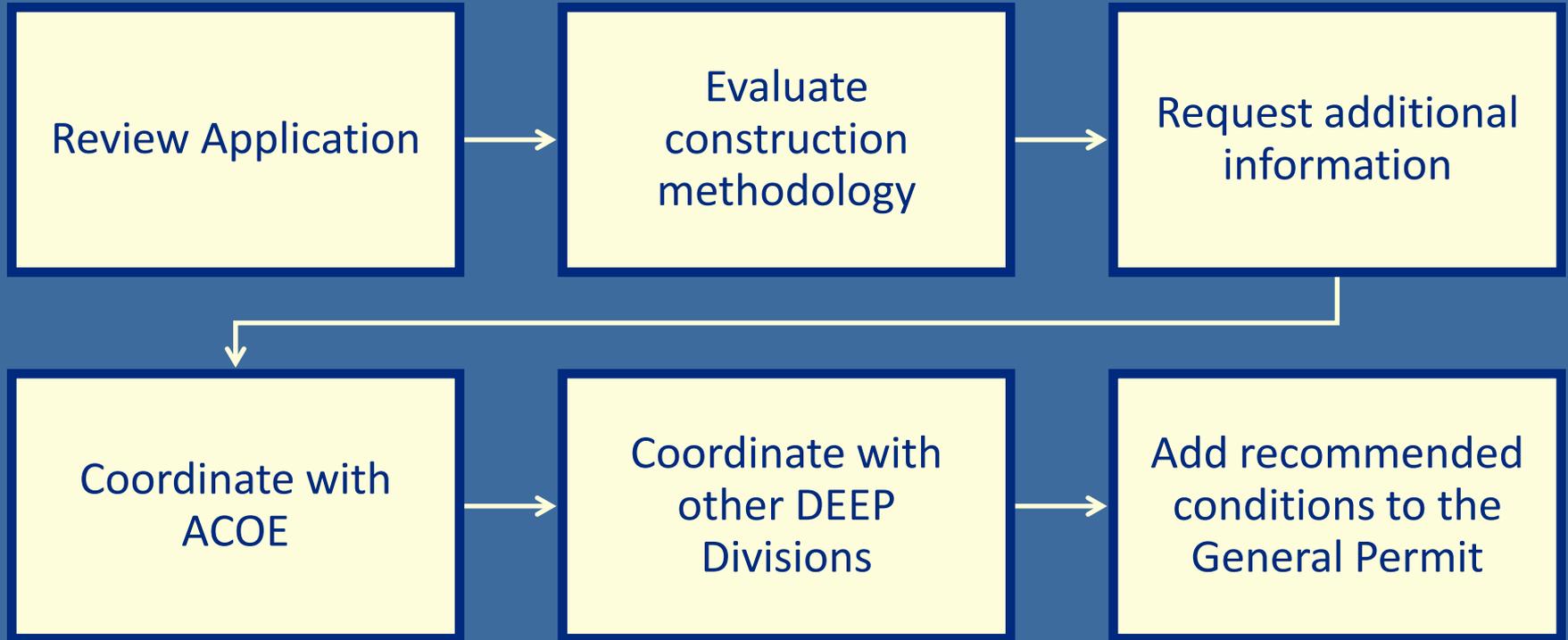
OLISP General Permit

General Permit for Coastal Remedial Activities Required by Order (DEP-LIS-GP-009)

- For remedial activities waterward of the coastal jurisdiction line or in tidal wetlands which are required by state or federal enforcement actions
- Registration and written DEEP approval is required for activities to be authorized by this general permit



OLISP General Permit Review



OLISP Permit Preliminary Results

- Department of Agriculture/Bureau of Aquaculture
 - Work closure period from May 1- October 1 for Area III and Area IV
- DEEP Fisheries
 - Work closure period from April 1 - June 30 in Area IV and a portion of Area II, and during that same period in a portion of Area III - passage over the adjacent section of the dam shall not be blocked from one hour before high tide to one hour after high tide
 - Work restriction - dredging only allowed during a continuous 12 hour period each 24 hour period, with no work allowed during the remaining 12 hour period
- ACOE
 - Issued Permit in September 2012



NPDES Permit

- Required under Federal and State Law for discharge activities
- Regulatory Focus
 - Treatment System
 - Effluent Quality



Water Quality Protection in NPDES Permit

- Lead limit
- Toxicity test limit based on aquatic organisms
- Solids
- No Visual Impact

Limits designed to protect both Human Health and Aquatic Populations





Technical Presentation:

Implementation Overview of Sediment Remedial Action Plan (EGI Representatives)



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Public Participation

RAP

- EGI required to perform work under DEEP order
- Accept and consider public feedback
- Comment period open until 2/11/13

OLISP GP

- General Permit established by Statute
- Consider public feedback under the RAP or conditions to GP

NPDES Permit

- Public Notice NTD 1/8/13
- Public comments on NPDES permit open until 2/7/13



Questions and Answers

Please state your name

Please provide written comments to:

carolyn.fusaro@ct.gov (RAP)

donald.gonyea@ct.gov (NPDES Permit)

website coming soon: www.ct.gov/deep/



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