

Nuclear Metals, Inc. Superfund Site

CREW/2229 Committee Meeting

Concord, MA

March 10, 2010

Objectives of Presentation

- Where we are now – RI/RA/FS process
- Where we are going – next steps in RA
- Major comments on First Interim Deliverable

HHRA Deliverables

- Risk Assessment to be presented in 3 documents
 - 1) First Interim Deliverable – Part 1
“Exposure Areas, Pathways and Scenarios”
 - 2006
 - 2) First Interim Deliverable
 - 2009
 - 3) Baseline Risk Assessment
 - 2010

“Exposure Areas, Pathways and Scenarios”

- Exposure Areas, Pathways and Scenarios
 - Exposure Areas
 - Exposure Pathways
 - Land Use Scenarios
- Existing Site data were sufficient to proceed

“First Interim Deliverable”

- Built on & incorporated EPA feedback on ‘Exposure Areas, Pathways and Scenarios’
- Added on:
 - Data Evaluation
 - COPC Selection
 - Remainder of Exposure Assessment
 - Toxicity Assessment
- Required Site data collection to be complete
 - Post-Phase 1C
- EPA concurrence on completeness of RI data collection – avoid revising HHRA for additional data

HHRA Components - BRA

- Second Interim Deliverable / BRA
 - Builds on & incorporates EPA comments on First Interim Deliverable
 - Exposure Assessment (complete)
 - Risk Characterization (complete)
 - PRGs and Residual Risks
- Requires resolution of Agency, CREW, and 2229 Main St Cmte comments on First Interim Deliverable prior to proceeding

In Summary - Where We Are

- RI data have been presented
- COPCs have been identified
- Methods to quantify exposures and risks have been presented
 - Exposure areas
 - Exposure scenarios
 - Basis of exposure point concentrations (EPCs) and models
 - Toxicity (dose-response) values
- EPA and 2229 comments have been received

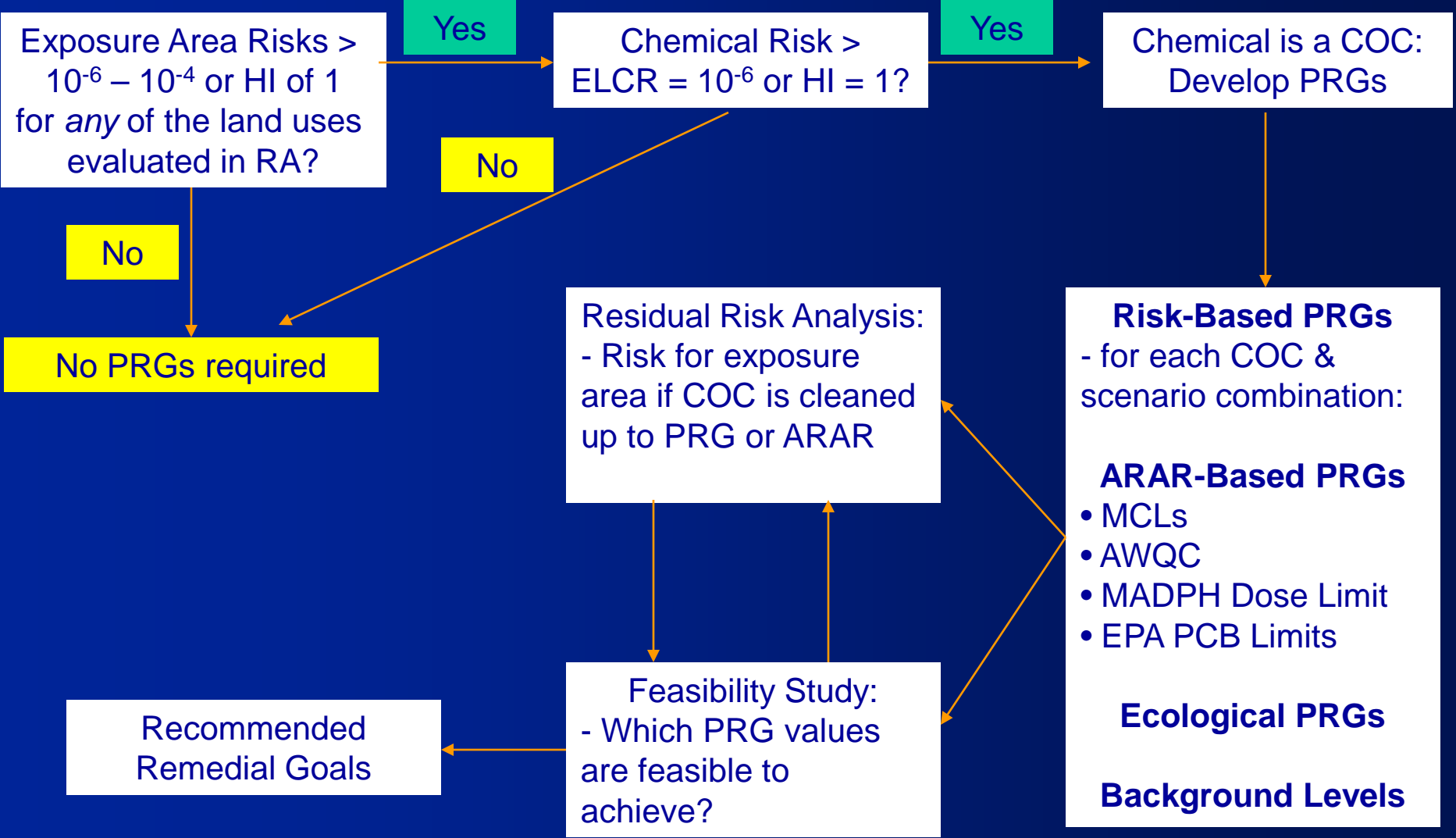
In Summary – Next Steps

- Respond to EPA, 2229, and CREW comments
- Develop BRA:
 - Incorporate comment responses
 - Update groundwater data set
 - Fall 2009 sampling event
 - Calculate EPCs
 - Calculate exposures and risks
 - Derive risk-based preliminary remediation goals (PRGs)
- Add these components to “First Interim Deliverable”

HHRA Project Goals

- Identify which areas of the Site pose risks that require a response action?
- Develop remedial goals for areas requiring a response action.
- The remedial goals drive the remedial alternatives
 - Risk-based Preliminary Remedial Goals (PRGs)
 - Applicable or Relevant and Appropriate Requirements (ARARs)
 - Background concentrations

Site-Specific PRG Process



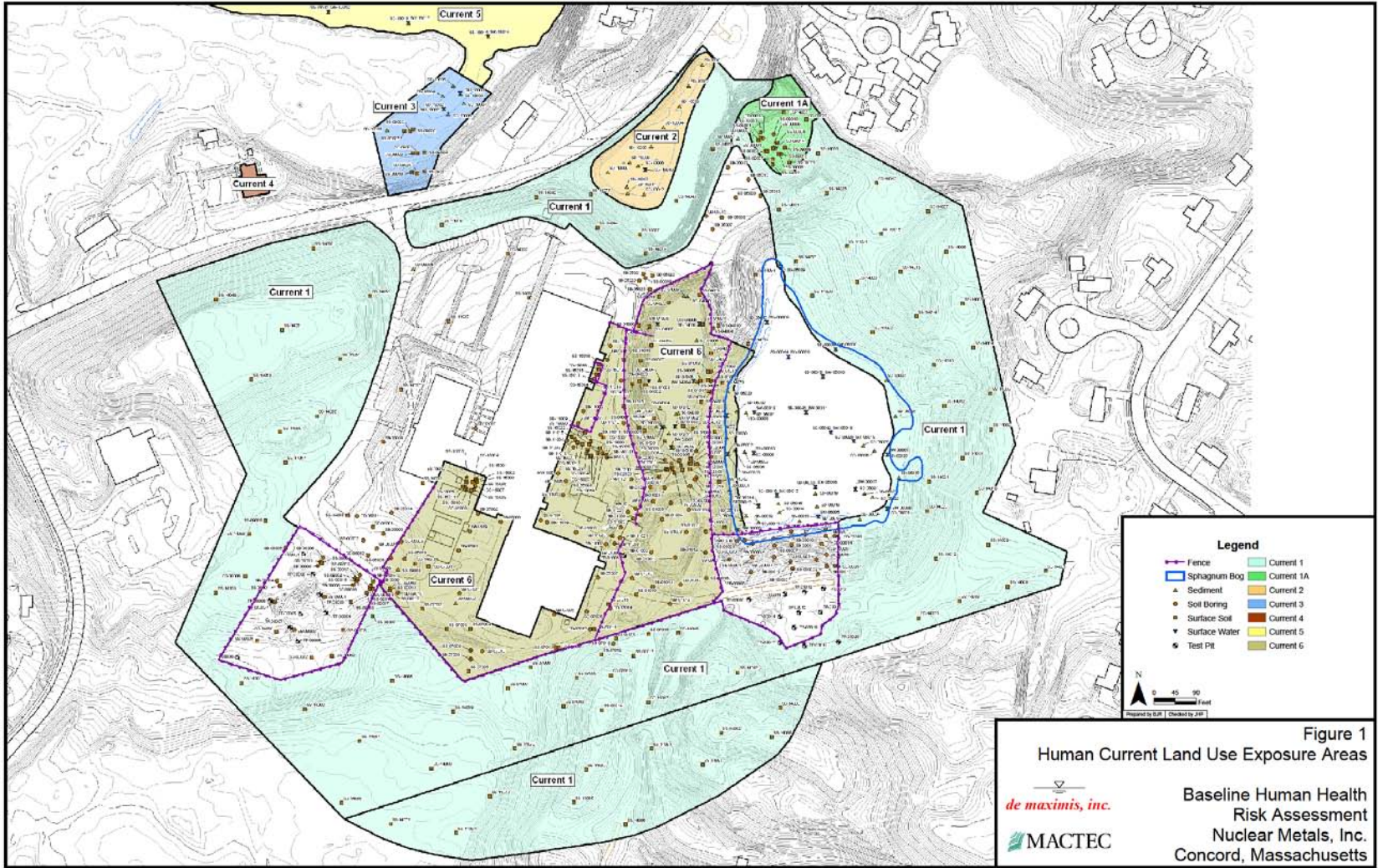
Risk Assessment Topics – Proposed for Further Discussion at May or July Meeting

- How we calculate EPCs
- How we quantify exposures
- What are slope factors and RfDs
- How we calculate risks
- Risk vs. dose
- How we sum risks among media and exposure areas
- How background is considered
- What defines a risk that requires a response action
- PRGs
- Residual risks

Significant Comments on First Interim Deliverable

- Vapor intrusion
 - Groundwater
 - Soil
 - Beneath buildings
- Exposure areas
 - Current
 - Future
 - Groundwater
 - Clarification of scenarios
- Summation of risks across exposure areas

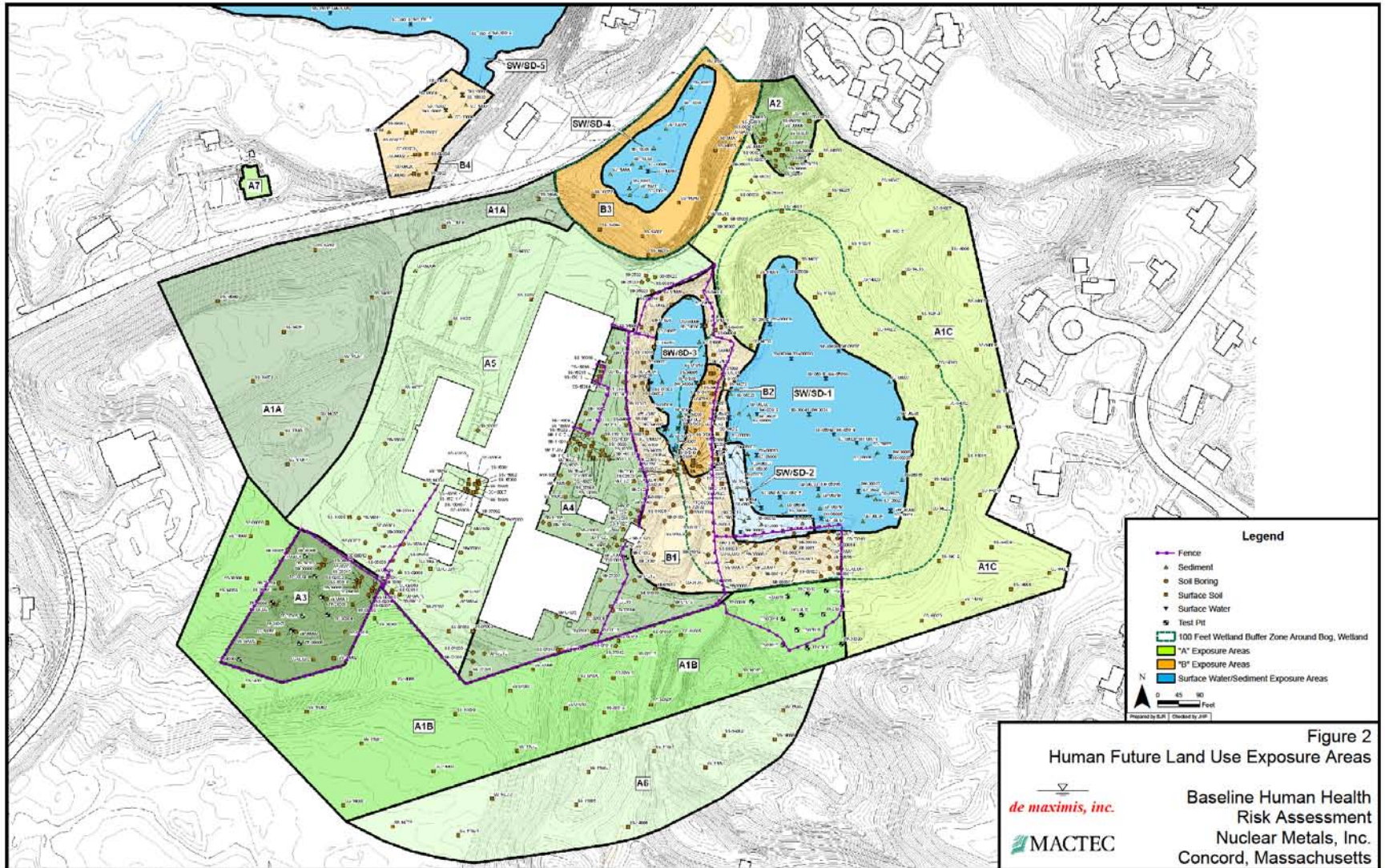
Current Land Use Exposure Areas



Current Use Scenarios

- Abutting Resident
 - Soil at Current 1 and Current 2
 - SW and sediment at NE wetland and bog
- Trespasser
 - Unpaved soil at Current 6
 - SW and sediment at cooling pond and bog
- Recreational visitor
 - Soil at Current 3
 - SW and sediment at river (Current 5)
- Resident
 - Indoor air at 2250 Main St (Current 4)

Future Land Use Exposure Areas



Future Use Scenarios

FUTURE USE SCENARIOS

Scenario	Applicable Exposure Areas	Description	Assumptions	Media	
Resident (children and adults)	Future 'A' EAs Also Future 'B' EAs	Lives in residence at Exposure Area and plays in backyard at Exposure Area.	Soil direct contact Radiation exposure outdoors Radiation exposure indoors	150 days/yr 150 days/yr 350 days/yr	Surface soil Subsurface soil
Area Resident (children and adults)	Future 'B' EAs	Plays in area as though it is "backwoods" at residence	Soil direct contact Radiation exposure outdoors	150 days/yr 150 days/yr	Surface soil Subsurface soil
Recreational Visitor (children and adults)	Future A and Future B EAs	Passive recreational activities	Soil direct contact Radiation exposure outdoors	75 days/yr 75 days/yr	Surface soil Subsurface soil
Indoor Worker	Works in building constructed at Future A EAs; spends breaks outdoors at Future A and B1 or B2 EA	Full-time work	Soil direct contact (A and B EA) Radiation exposure outdoors (A and B EA) Radiation exposure indoors (A EA only)	150 day/yr 150 days/yr 250 days/yr	Surface soil Subsurface soil
Outdoor worker	Works outdoors at Future A EAs; spends breaks outdoors at Future A and B1 or B2 EA	Full-time work	Soil direct contact (A and B EA) Radiation exposures outdoors (A EAs) Radiation exposures outdoors (B EAs)	150 day/yr 225 day/yr 150 day/yr	Surface soil Subsurface soil
Construction worker	All EAs	Full-time outdoor work	All exposure routes: full time for 1 year		Surface soil Subsurface soil

Groundwater Exposure Areas

- On-property plumes
 - A) Overburden (VOCs and uranium combined)
 - Should coincide with VI exposure area
 - B) Bedrock (VOCs and uranium combined)
- On-property outside of plumes
 - C) Overburden
 - D) Bedrock
- Off-property
 - E) Overburden
 - F) Bedrock
- In all cases (A – F), EPCs based on maximum concentrations

Summation of Risks

- For each scenario, risks for all applicable exposure media will be summed together
- Summation of groundwater risks with risks for other media
 - Future A-5 and A-1A plus groundwater plumes and VI
 - All other Future EAs with non-plume groundwater