



US Army Corps
of Engineers
Buffalo District

Lake Ontario Ordnance Works (LOOW)

RAB Information Session
21 October 2006



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Corps Community Outreach

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Buffalo District

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Overview

- Welcome & Introductions
- Corps Community Outreach
- US Army Corps of Engineers - Buffalo District
Mission & Programs
- Former LOOW Update
- Niagara Falls Storage Site Update
- Risk Assessments



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Welcome & Introductions

- Corps Speakers
 - Outreach
 - Project Management
 - Risk Assessment
- Availability Session After Presentations
- Question Cards
- Objectives for Today
 - Explain how you can participate and find information when you want it
 - Explain what the Corps has done/is doing at the LOOW site
 - Tell you what questions we will be able answer for the community in the coming year



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Corps Community Outreach

Renewed Focus on Project Communications

- Applying Lessons Learned from other projects
 - Ensuring consistency in communication procedures for all audiences
 - Enhancing project team information sharing
 - Pursuing holistic, integrated project planning



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The Corps' primary communication goals are to continue to:

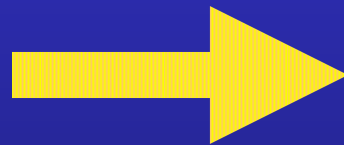
- Enhance public awareness and understanding of Corps' mission and work
- Be honest, forthright, responsive and clear



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**There are
three
“checklist”
items we use to
support our
goals**



1. Communicate effectively
2. Engage the community
3. Get to know & address community expectations



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Corps Community Outreach

1. Communicate effectively:

- Ensure that information released is factual, consistent, accurate, current, and complete.
- Ensure information is communicated using a variety of methods
- Ensure information appeals to a diverse audience with varied roles; responsibilities; interests; and technical abilities



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2. Engage the community:

- Ensure USACE information is accessible to the widest possible audience.
- Provide opportunities for public exchange consistent with federal law and program guidance.



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3. Get to know & resolve community expectations:

- Ensure public awareness and understanding of USACE responsibilities, capabilities, and constraints (legal, financial, technical etc.)
- If possible, engage other agencies and/or organizations that CAN meet needs that are outside of Corps' program authority and funding.



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Corps Community Outreach

**We are
working to
improve
communication**

In 2007, we will:

- Improve education efforts in community.
- Enhance public access to project information.
- Establish an effective and sustainable working relationship with the community LOOW RAB
- Develop a comprehensive communication plan to ensure the Corps communicates with the widest audience possible..



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Corps Community Outreach

**How
you
Can
find
out
More!**

- Visit the Corps website at www.lrb.usace.army.mil/derpfuds/loow-nfss
- Visit the RAB website at www.loowrab.com
- Visit the LOOW Information Repository at the Lewiston Library
- Attend any Corps meetings announced that are pertinent to the LOOW site
- Attend RAB meetings/contact a RAB member
- Attend Niagara County Health Department's LOOW Community Project Meetings
- Contact your state regulatory agency
- Call or email me at 879-4396 or derpfuds@usace.army.mil



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Buffalo District *Area of Responsibility*

- 38,000 square miles
- 100 miles of federal channels
- 18 commercial harbors
- 17 recreational harbors
- 33 miles of breakwaters
- 25 members of Congress



- 260 District Employees
- 2 Area Offices
- 3 Regulatory Field Offices
- 1 Resident Office
- 1 Project Office
- 1 Lock
- 1 Dam



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Congressionally Authorized Missions

- Navigation
- Flood Damage Reduction
- Shoreline Protection
- **Environmental**
- Global War on Terrorism
- Disaster Relief
- Regulatory
- Flood Control and Coastal Emergency
- IIS (Interagency and International Services)
- International Joint Commission (IJC)



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Buffalo District *Missions*

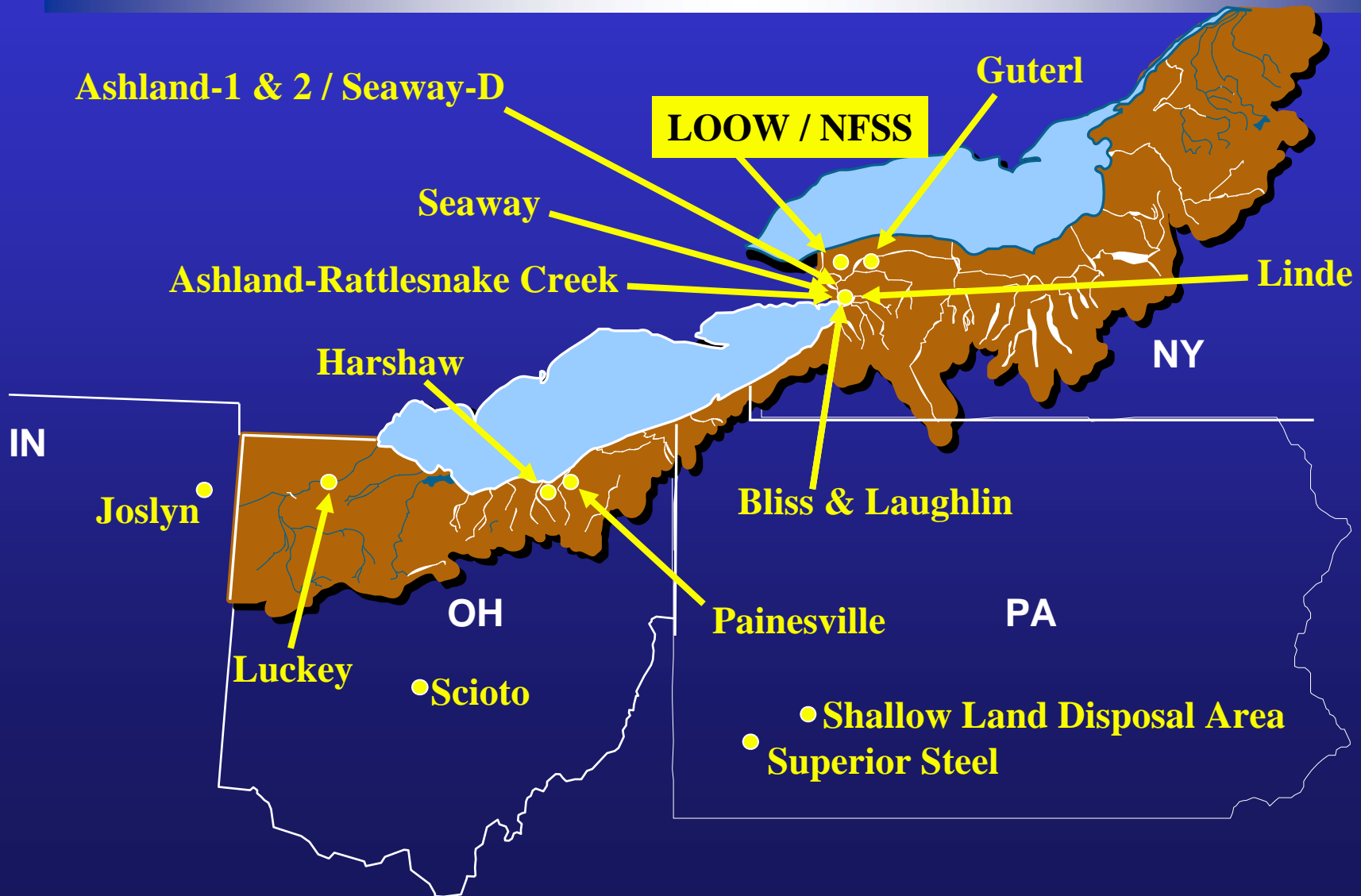
- Environmental Mission
 - *Ecosystem Restoration*
 - *Hazardous, Toxic, and Radiological Waste (HTRW) Response*



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Buffalo District Missions

HTRW Response Sites





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Buffalo District Missions

HTRW Response (LOOW / NFSS Site)





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Issues and Agencies

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- **IS** responsible for addressing **contamination** caused by past **federal** government activity at the LOOW
- **IS** responsible for protecting federally regulated **wetlands** at the LOOW
- **IS NOT** responsible for **contamination** caused by **non-federal** activity at the LOOW
- **IS NOT** permitting, regulating, building or managing commercial **landfills** at the LOOW
- **IS NOT** authorized to conduct **public health studies**



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Issues and Agencies

US Army / New York Army National Guard	- IS responsible for addressing contamination caused by past federal government activity at the National Guard property north of Balmer Road
US Air Force	- IS responsible for addressing contamination caused by past federal government activity at the Air Force property on the corner of Balmer Road and Porter Center Road

These properties are still actively owned and used by the DoD. Environmental issues are not managed by the Corps but by the DoD service owning the property.

See our website for additional information on these properties
<http://www.lrb.usace.army.mil/derpfuds/loow-nfss/index.htm>



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What USACE is Doing Now

- Identify and determine *nature and extent* of federal contamination remaining on Former LOOW property
- Ensure the public is not at risk from current site conditions
- Ensure the public will not be at risk from future site conditions



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What USACE is Doing Now

Are there impacts from past federal activity?

Complete – Answer is “Yes”

What is the nature and extent of the impacts?

In Progress

Are there risks?

In Progress

How might risks be reduced?

Not Started Yet

Corps Proposed Plan

Public & Agency Comment On Proposed Plan

Corps Decision – What to do

Not Started Yet

Action – Implement Plan

Not Started Yet

Action – Closeout Site

Not Started Yet



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What USACE is Doing Now

Corps Process

LOOW
(Bill)

NFSS
(Michelle)

Risk
(Karen)



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What USACE is Doing Now

**LOOW
(Bill)**



Photo taken in the early 1940's



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What Has Been Done at the LOOW

1970s – 1980s	Initial US Department of Energy investigations and response actions FUSRAP
1986	Congressional authorization to investigate and respond to past defense related environmental impacts DERP-FUDS
1980s - 1990s	Initial USACE investigations and response actions at the LOOW



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What USACE Has Accomplished

1998	Historical analysis of property ownership and defense activities at the LOOW
1998	Interim removal action for asbestos insulation and drums of waste chemicals
1998 - 2000	Interim removal action for TNT and chemical waste sewer lines
1999	Phase-I Remedial Investigation
2001	Phase-II Remedial Investigation



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What USACE Has Accomplished

2002	Historical analysis of aerial photographs of the LOOW 1938 – 1997
2003	Summary Report of federal and non-federal investigations at the LOOW
2004	Remedial Investigation of “Small Bermed Clearings” – ground disturbances from 1940s
2004	Initiated Human Health and Ecological Risk Assessments for portions of the LOOW
2005	Initiated Underground Utilities Remedial Investigation



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What is USACE Doing Now

2006-2007	Complete Underground Utilities Remedial Investigation
2006-2007	Complete Human Health and Ecological Risk Assessments for portions of the LOOW
2006-2007	Complete eligibility documents on whether to add new projects to the LOOW to address ordnance, underground tanks, and areas of potential private/federal contamination
2006-2007	Update Administrative Record File in Lewiston Public Library
2006-2007	Update and improve joint project Geographical Information System (GIS)



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What USACE Knows At This Time

- **We are not done investigating** – unanswered questions remain on areas of suspected DoD impacts
- There are DoD impacts on the portions of the LOOW
 - *Most concentrated in the “developed zone”*
 - *Ground disturbances in the “buffer zone” from 1942-1944 DoD ownership*
- The impacts include chemical contamination in buried pipelines, soils, surface water and groundwater at portions of the LOOW
- The impacts include residual TNT in the TNT waste sewer line. Residual TNT was present in soils. Additional TNT may remain on site.



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What USACE Knows At This Time

- Underground Utilities Remedial Investigation – Field Observations & Preliminary Findings
 - *The majority of the underground pipelines were found where we expected to find them*
 - *Radiation monitoring in the work locations did not indicate hazardous levels of radiation*
 - *The presence of PCBs, solvents, and hydrocarbons in some pipelines of the former Air Force Plant-68 is suspected*
 - *The field screening detection kits for TNT indicated the presence of TNT in pipelines in the former TNT production area*



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What USACE Has Yet To Do

- Complete the Investigation Phase before starting Feasibility Study Phase
 - Complete the Underground Utilities Remedial Investigation we have started
 - Complete the Risk Assessments we have started
 - Determine what unanswered questions remain regarding potential defense related impacts at the LOOW
 - Determine which questions can / need to be answered – and how best to answer them
- Now Michelle will address the Niagara Falls Storage Site



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Niagara Falls Storage Site

Site History





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Niagara Falls Storage Site

WHAT WE KNOW

- Over 20 years of regular site maintenance and monitoring of radon concentrations in air; external gamma radiation exposure; radionuclide concentrations in surface water, sediments, and ground water indicates:
 - No current transport of contaminants from IWCS
 - Interim Waste Containment Structure (IWCS) is working as designed to retard rainwater, groundwater infiltration, and radon emanation
- We have a better understanding of the nature and extent of contamination within the IWCS and the overall NFSS.



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Niagara Falls Storage Site

WHAT WE KNOW (Site Soils)

- We've located areas on the NFSS where surface soil gamma radiation levels and chemical concentrations are greater than background levels.
- We've identified the location of several historical areas:
 - former underground storage tank locations
 - former water treatment pond locations
 - disposal areas containing building demolition debris and vegetation from past site clearing efforts



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Niagara Falls Storage Site

WHAT WE KNOW (SW/Sed)

- We've located no areas on the NFSS where radiological and/or chemical concentrations would pose a human health risk.
- Radiological and chemical concentrations in the surface water and sediment will be addressed in the Feasibility Study



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Niagara Falls Storage Site

WHAT WE KNOW (Utility Lines)

On NFSS

- We've located gamma radiation levels and chemical concentrations within these former LOOW utility lines on the NFSS that are greater than background levels.

Within LOOW

- We've partnered with the LOOW team to sample the utility lines north of the NFSS for radiological analysis.



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WHAT WE KNOW (Buildings)

- Building 403, originally a laboratory and office building, was decontaminated and removed.
- Building 401, originally a boiler plant to support the TNT production process and later a Boron-10 Isotope Separation Plant, is now free from asbestos and ready for radiological decontamination and removal once funding is available



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WHAT WE KNOW (Groundwater)

- There are areas of groundwater on-site with chemical and radiological compounds above background levels
- There are isolated areas of groundwater on-site with chemical and radiological compounds that will need to be addressed in the Feasibility Study



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WHAT WE KNOW (NFSS VPs)

- Three VPs (VPG, VPE, and VPE') could not be completely addressed by the Department of Energy (DOE) since small areas of interest on these properties were inaccessible for investigation.
- We confirmed remnants of wastes associated with the former University of Rochester Burial Area on Vicinity Property G.
- We still need to determine the nature and extent of contamination at the DOE designated open NFSS Vicinity Properties, once funding is available



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Niagara Falls Storage Site

WHAT WE ARE CURRENTLY WORKING ON

- **Preparing a Remedial Investigation (RI) Report**
 - Baseline Risk Assessment
 - Groundwater and Contaminant Transport Model

RI Fieldwork included, but was not limited to:

- Site-wide Gamma Walkover and Geophysical Surveys
- Collection of over 1600 samples
- Installation of 25 groundwater-monitoring wells
- Excavation of 27 exploratory trenches



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Niagara Falls Storage Site

WHAT WE ARE CURRENTLY WORKING ON (cont.)

- Continue to regularly monitor and report site conditions
- Requesting funding to investigate open Vicinity Properties
- Partner with LOOW technical team to collectively sample underground utilities within the former LOOW



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Niagara Falls Storage Site

WHAT'S NEXT?

- Continue to regularly maintain, monitor, and report site conditions
- We need to conduct a Feasibility Study to:
 - *Determine Cleanup Options*
 - *Identify and Screen Remediation Technologies*
 - *Examine Disposal options*
 - *Look at Transportation options and routes*



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What USACE is Doing Now

Risk (Karen)

- In 2007 USACE will release the **first** risk assessments for portions of the Former LOOW
- More risk assessments may be required as we continue to investigate portions of the Former LOOW
- My presentation provides an overview of what you can expect from the risk assessment process



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Risk Assessment : **WHY**

- To ensure that we are fully protective of human health and the environment **NOW** and for the **FUTURE** at those areas of the former LOOW site impacted by past federal activities
- So that we know what we need to do to ensure the property is safe for **future land use**
- Because we are mandated by numerous federal laws, regulations, and executive orders





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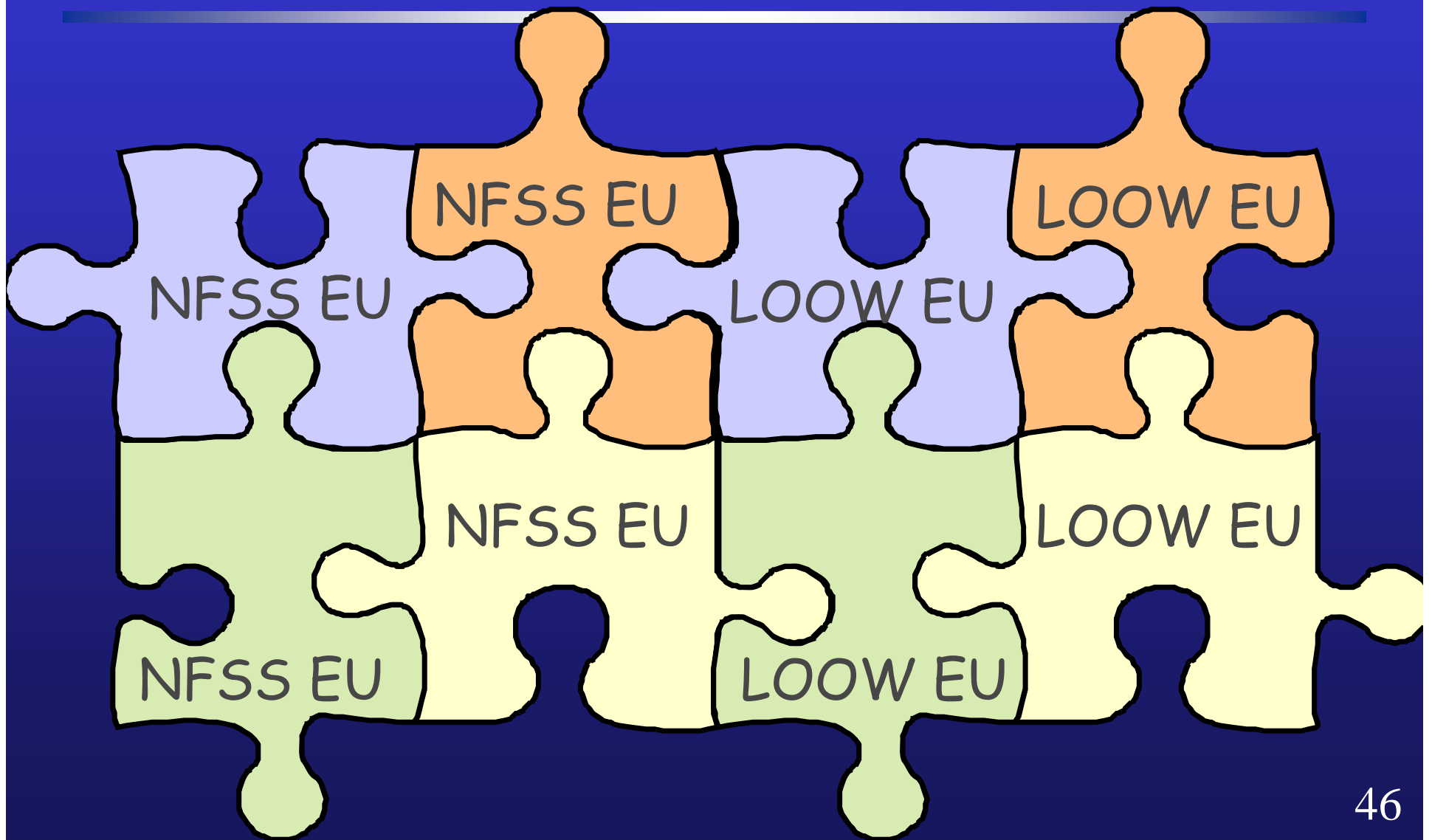
Risk Assessment : **HOW**

- USACE follows USEPA risk assessment methodology to determine cleanup requirements
- USACE assesses risk in a conservative (more protective) approach
 - We break large sites down into discreet **“Exposure Units,”** or **“EUs”** and evaluate risks to human health and the environment at each **EU**
 - This results in the **most protective** assessment of risk for each EU and the entire site
 - We model the worst case on individual **EUs** rather than averaging risks over one large site



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Risk Assessment: **HOW**





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Risk Assessment : **HOW**

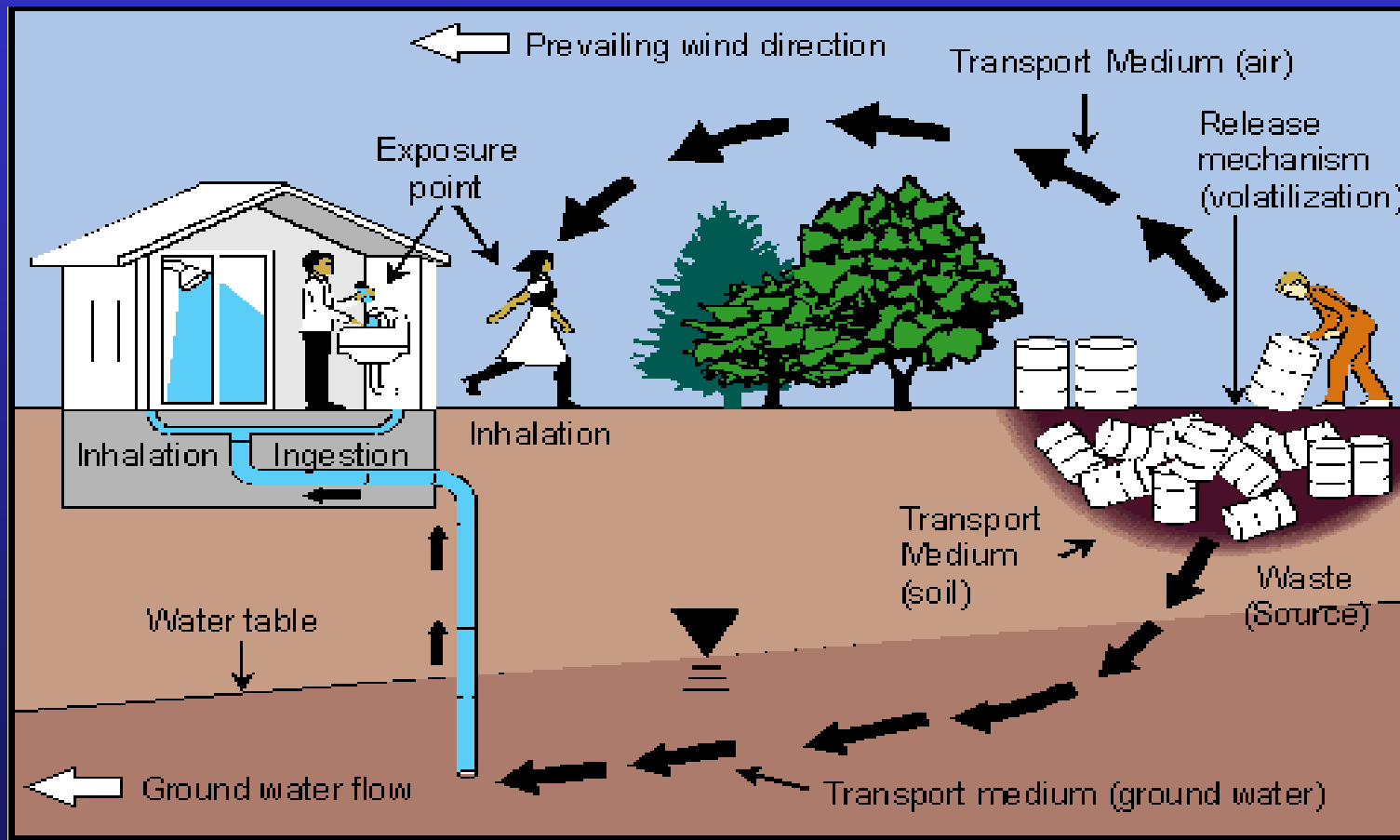
$$\text{RISK} = \text{Exposure} \times \text{Toxicity}$$

- **Exposure** = How you come into contact with something
 - *Duration of exposure*
 - *Exposure route (inhalation, ingestion etc.)*
- **Toxicity** = Measure of harm to health of a living organism



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Risk Assessment: **HOW** *Exposure Assessment*



Exposure Model for an **Exposure Unit**



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Risk Assessment: **HOW** *Toxicity Assessment*

*All substances are poisons; there is none which is not a poison. The right **dose** differentiates a poison from a remedy.*

Paracelsus (1493 - 1541)





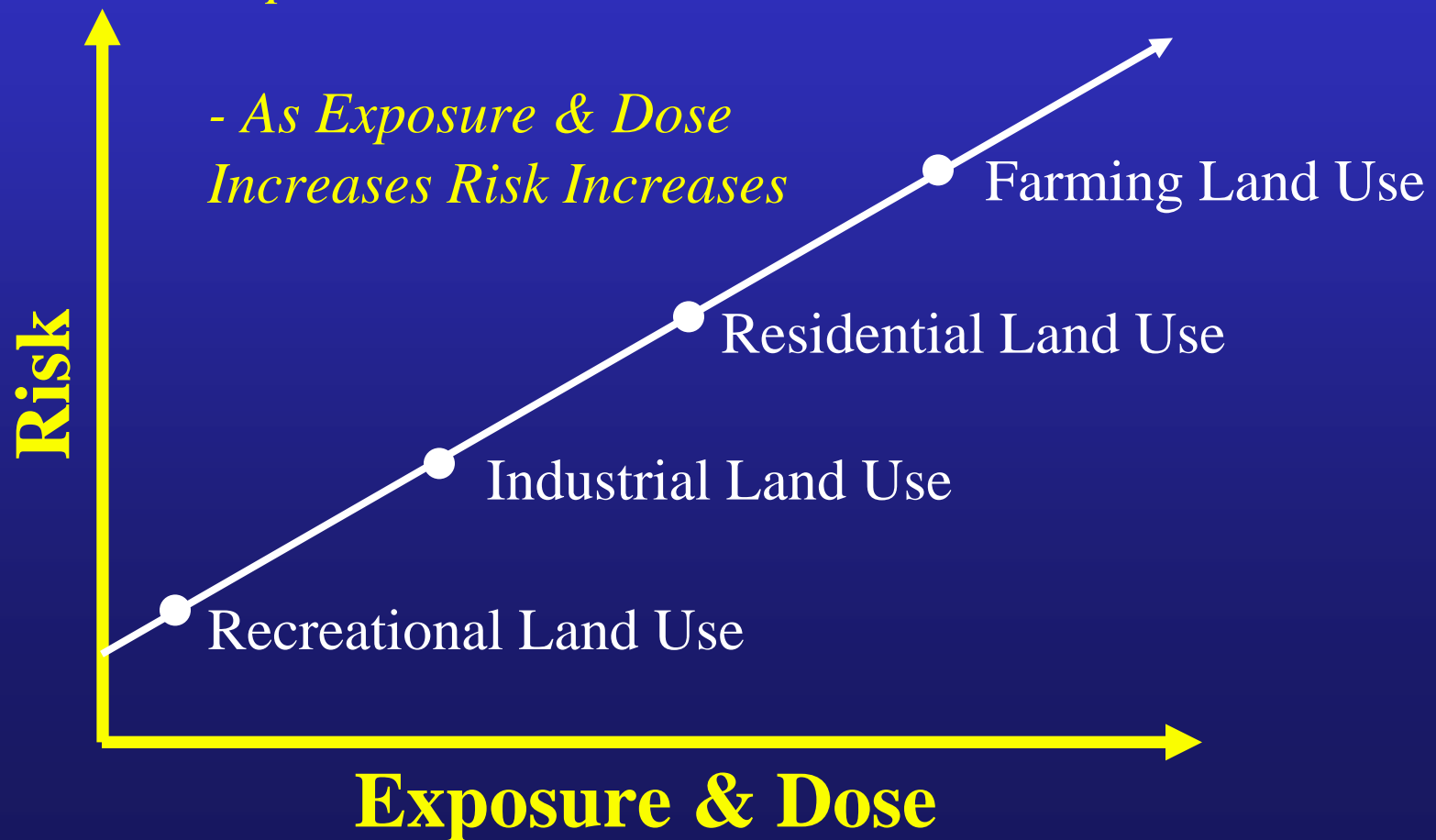
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Risk Assessment: **HOW**

Land Use, Exposure, Dose & Risk

*-Future Land Use Determines
Exposure & Dose*

*- As Exposure & Dose
Increases Risk Increases*





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Risk Assessment: **SO WHAT?**

- For each **EU** we evaluate risk for the different land uses (exposures) shown in the previous slide
- We then compare the calculated risk to standards for “acceptable risk” which were developed by the USEPA



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Risk Assessment: **SO WHAT?**

What is “an acceptable risk”?

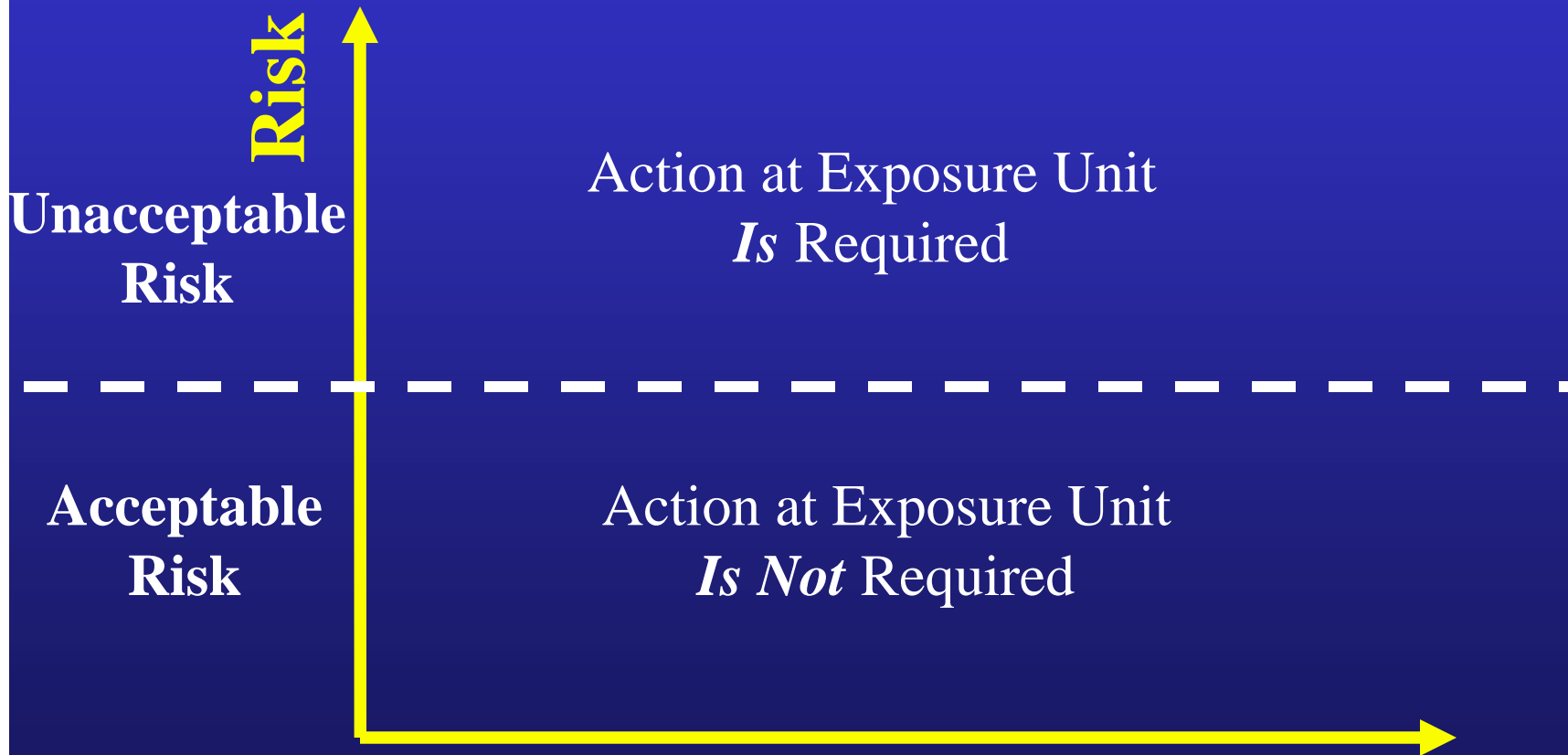
- Defined in the National Contingency Plan
40 CFR 300.430(a)(1)(iii)
- Cancer Risk: Less than 1 in 10,000 excess cancers
- Other Health Risks: Below a threshold of harm for a sensitive individual



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Risk Assessment: **SO WHAT?**

Risks, Exposure & Dose, Action



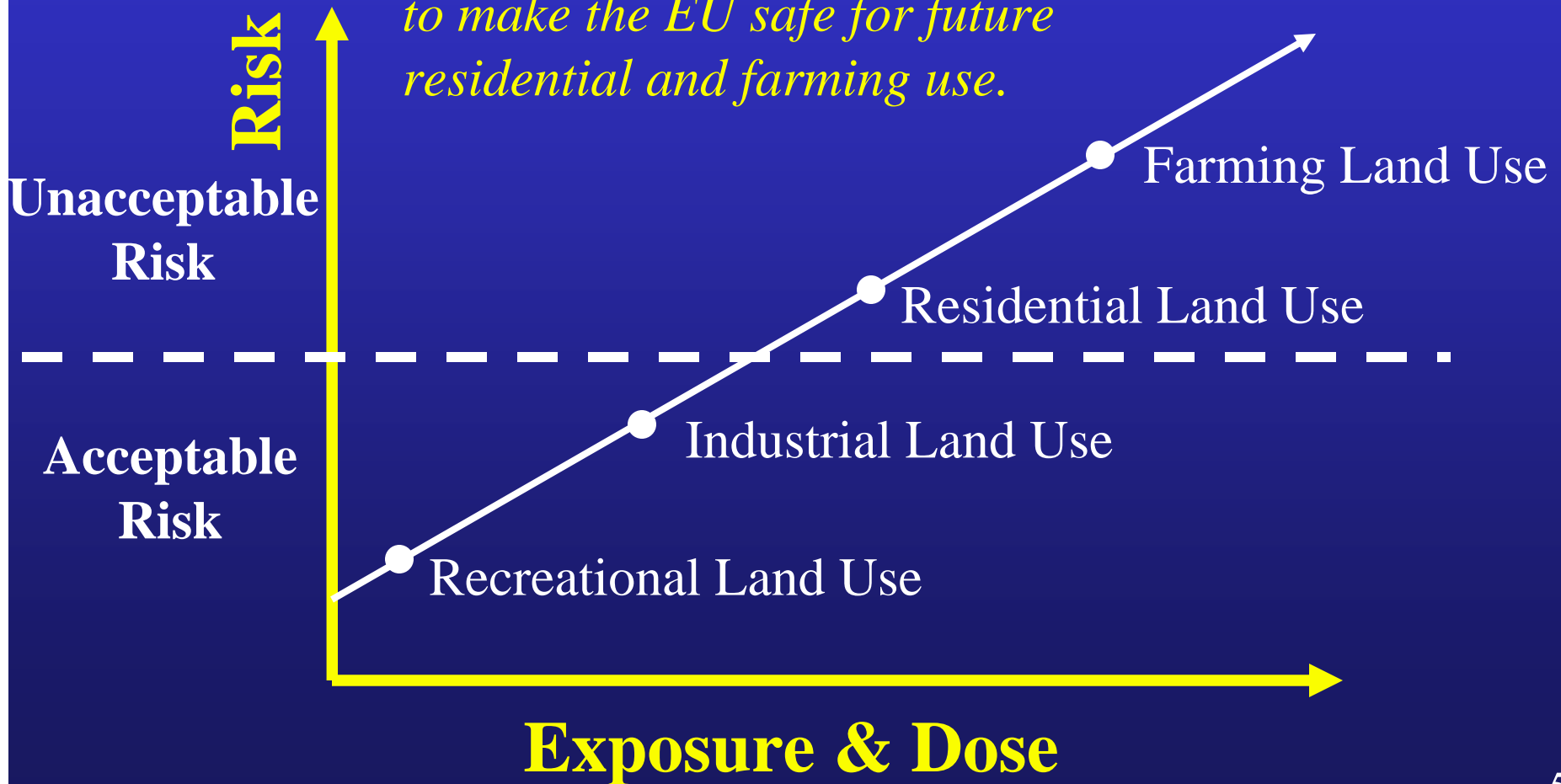


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Risk Assessment: **SO WHAT?**

Example Risk Decision

For this EU, action would be required to make the EU safe for future residential and farming use.





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Risk Assessment : **WHEN**

- In 2007 USACE will release the **first** risk assessments for several Exposure Units at the Former LOOW
- Human Health Risk Assessments
- Ecological Risk Assessments
- For Exposure Units:
 - *Niagara Falls Storage Site EUs 1 - 17*
 - *Former LOOW EUs 1 - 6, 8, 9*



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Questions

? ? ?