



Engineering Service Center

*Innovation...*

*Leadership...*

*Performance*

***Naval  
Installation  
Restoration***

***Information  
Solution***

*2005 ESRI Users  
Conference*

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619-532-2810*

*Naval Facilities Engineering Command  
Southwest*

**NEDD/NIRIS Workgroup**  
**CADD/GIS Technology Center**  
**Navy Information Technology Center**  
**Regional Shore Infrastructure Management System**  
**Anteon Corporation**  
**Tetrattech NUS**  
**URS**

## Naval Environmental Restoration Information Solution

- Naval Environmental Restoration (ER) Program
- Goal of NIRIS
- NIRIS Concept
- Development
- Example Tools



## Navy's ER program cleans up contaminated sites following CERCLA / Superfund

- **CERCLA: Comprehensive Environmental Response, Compensation and Liability Act**
- **About 4500 active sites**
- **About \$300 million per year**
- **Managed by NAVFAC**
- **8 regional offices with multiple contractors working on multiple installations that have multiple ER sites** with multiple sample locations that can be sampled multiple times, and analyzed various ways with hundreds of analytes reported, and validated...

**LOTS of spatial data!!**

## Long-term management at an old landfill



- **Each year, the new contractor can access all historic, and provide current data**
- **Regulator reports are on time, with all pertinent data**
- **Institutional knowledge is maintained and shared**
  - **Remedy and land use controls and stays effective for 30+years**
  - **Future generations know why it is capped**

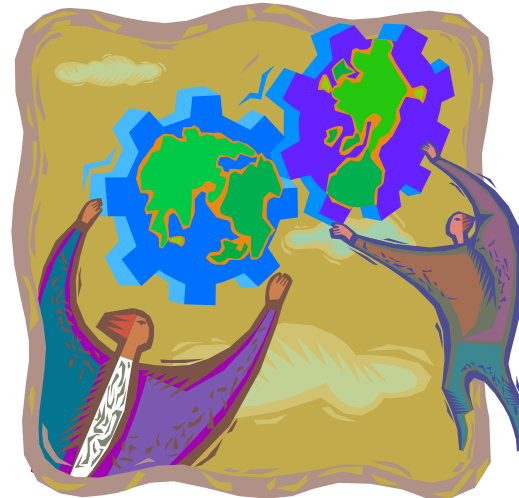
### **Current ER data management solution is complex, costly, and antiquated!**

- **Numerous organizations**
- **Data handled and reused multiple times**
- **Data stored on multiple databases outside of Navy network**
- **Data may not even be stored electronically**
- **Increased use of small business contractors**
- **High turnover causes data to be lost**

- **Minimize lost data and duplication of effort**
- **Reduce data “tax”**
- **Facilitate data sharing and access**
- **Navy owns data**
- **Reduce learning curve for contractors and project managers**
- **Gives all contractors access to same tools**



**Develop and implement a corporate methodology using common business practices for enhancing and facilitating the use of ER data through GIS and web based applications in a consistent and cost effective manner**



- **Tools to access, analyze, visualize data**
- **Non-proprietary**
- **Compliant with NMCI**
- **Manages all Navy and Marine Corps ER data**
  - **Environmental sample data**
  - **Munitions Response / Unexploded Ordnance Data**
  - **Administrative Record / Site File Documents**
  - **GIS Facility Maps and IR Site Boundaries**
  - **Land Use Control Data**

## **Uniformity allows sharing and leveraging with other databases e.g., RSIMS**

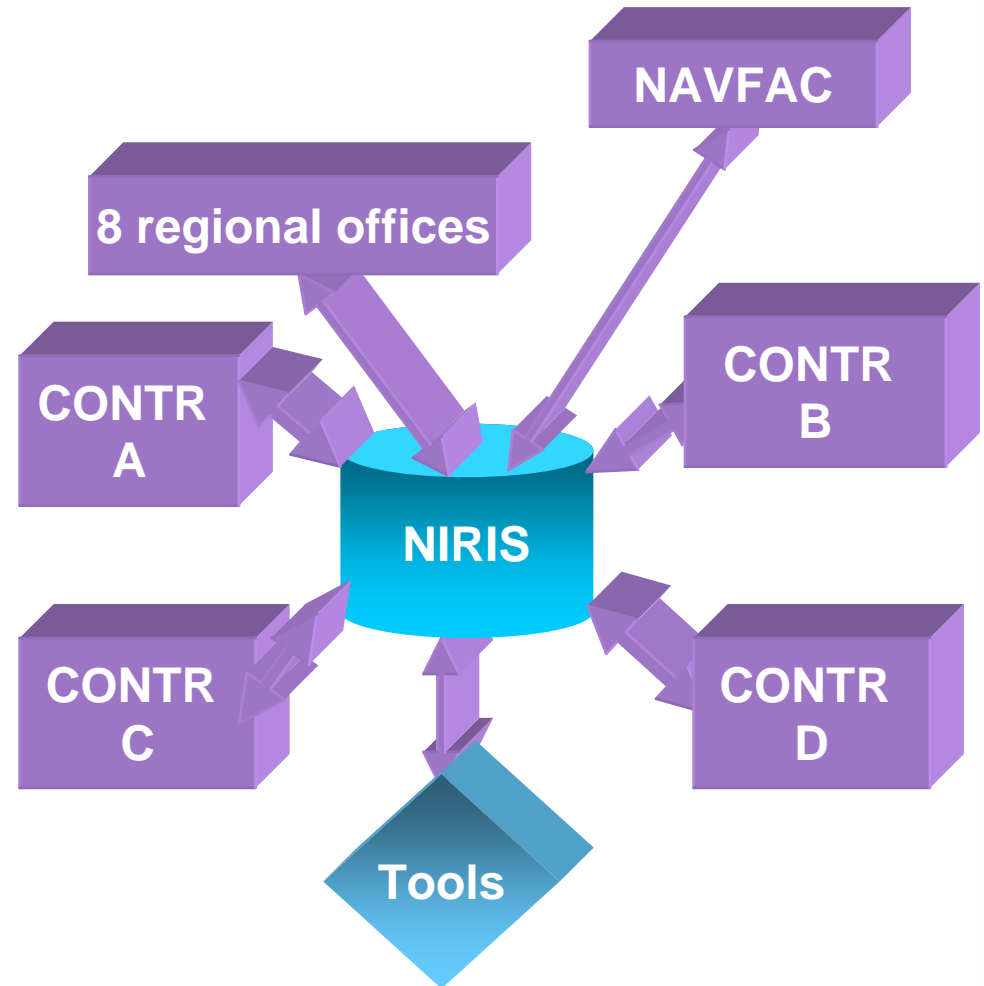
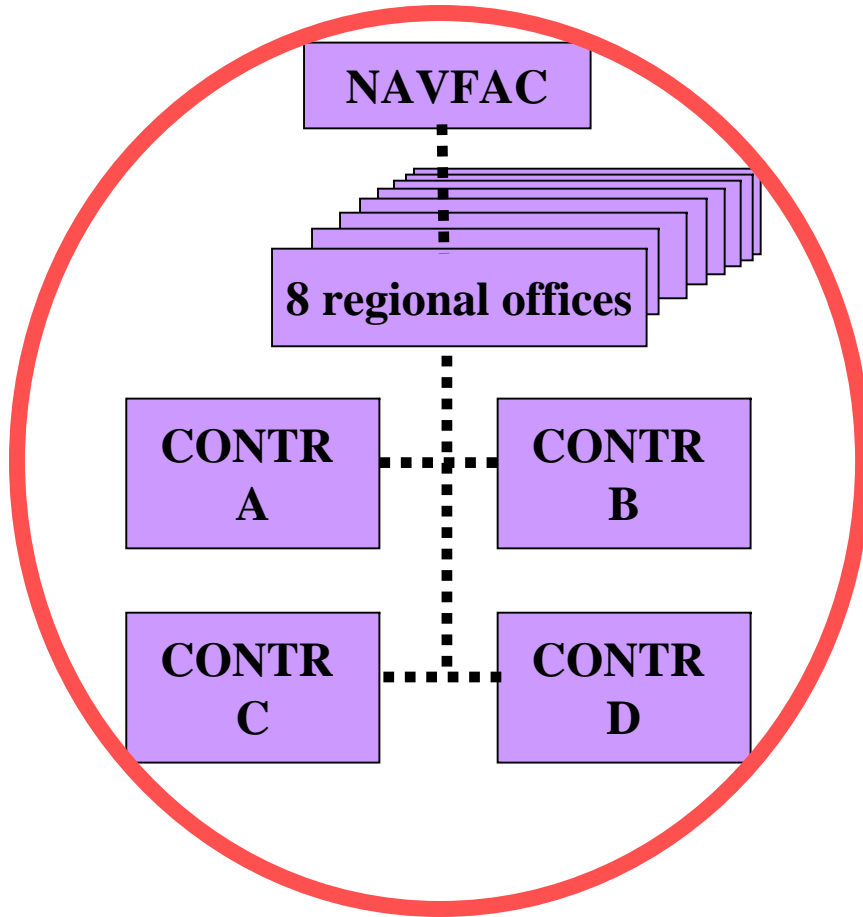
- **Tools developed by one can be used by all**
- **NIRIS provides**
  - **ER site boundaries**
  - **ER reports**
  - **Land Use Controls**



## **Regional Shore Information Management System:**

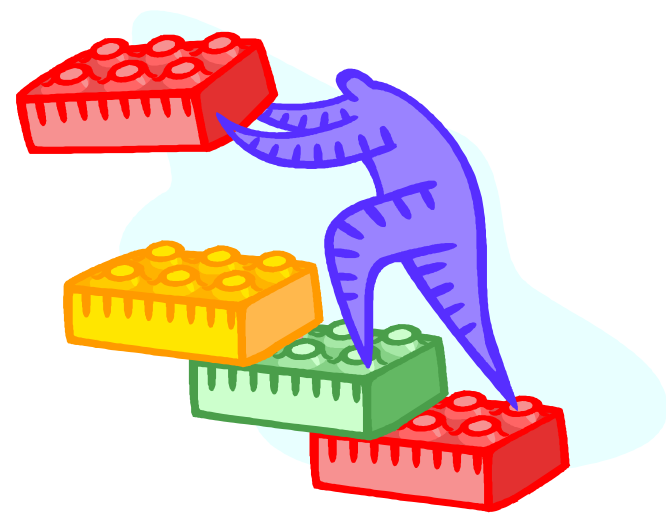
- **Base mapping**
- **Utilities**
- **Aerial photos**

# NIRIS is a Solution



## Components of NIRIS

- **NIRIS database structure**
- **Administrative tools and instructions**
  - Data Checker
- **Naval Electronic Data Deliverable submittal standards**
- **End user tools**
- **Web Portal**



- **NIRIS standardized data structure**
  - 192 total tables
- **Relational, normalized Database**
- **Oracle database and 10g portal**
- **Compliant with SDS at the advanced level i.e., customized**
- **Submitted data model to the Federal CADD GIS Technology Center**

- **ArcSDE**
- **Currently**
  - **ArcIMS**
  - **ArcGIS 8.3**
- **Future**
  - **ArcGIS 9.3**

**NIRIS is the Naval Facilities Engineering Command's (NAVFAC) enterprise GIS Data Management solution for managing Environmental Restoration (ER) data.**



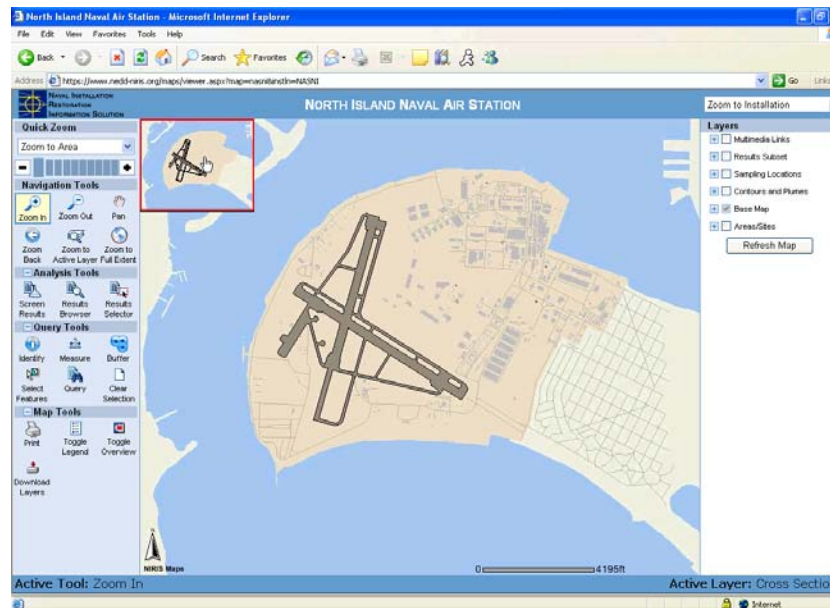
- **Web based ArcIMS GIS tool**

The screenshot shows a web browser window titled "Hunters Point Naval Shipyard - Microsoft Internet Explorer". The main content area displays a map of the shipyard with various environmental data layers. A legend on the right side lists the following layers:

- Parcel E Data Gap
- Analytical Results (Detects)
  - SVOA Water
  - SVOA Soil
  - VOA Water
  - VOA Soil
  - Pest/PCB Water
  - Pest/PCB Soil
  - Metals Water
  - Metals Soil
  - DIOXFUR Soil
  - TPH Water
  - TPH Soil
  - Radiation
  - Water Quality
  - Air Quality
- Sampling Locations
- Hydrology
- Base Map
  - Final Excavations
  - Roads
  - Buildings
  - Demolished Buildings
- Areas/Sites

The map shows several yellow buildings and red dots representing sampling locations. A scale bar at the bottom indicates 762 feet. The toolbar at the bottom includes options for Legend, Select, Query, Measure, Clear, Buffer, Adv Query, X-Sect, and Extract. The active tool is "Buffer".

- **Web based ArcIMS  
GIS tool**



# Custom Query Report and Charts

- Export to Microsoft Excel
- Export to GMS
- Text or visual

Hunters Point Naval Shipyard - Custom Query - Microsoft Internet Explorer

Export to Excel    Export to GMS (SP3 file)

**RRST01 OTHER (100% pore water fraction)**

CAS No.	Result	Final Qualifier	Validation Qualifier	Dilution	Collect Date	Starting Depth	Sample Type	Analyte Type	Matrix	Method	Site ID
-3162	96 %		RO	1	1/5/96	0 FT	Normal		Porewater	SED_TOX	F

**RRST02 OTHER (100% pore water fraction)**

CAS No.	Result	Final Qualifier	Validation Qualifier	Dilution	Collect Date	Starting Depth	Sample Type	Analyte Type	Matrix	Method	Site ID
-3162	89 %		P4	1	1/5/96	0 FT	Normal		Porewater	SED_TOX	F

**RRST03 OTHER (100% pore water fraction)**

CAS No.	Result	Final Qualifier	Validation Qualifier	Dilution	Collect Date	Starting Depth	Sample Type	Analyte Type	Matrix	Method	Site ID
-3162	87 %		RO	1	1/5/96	0 FT	Normal		Porewater	SED_TOX	F

**RRST04 OTHER (100% pore water fraction)**

CAS No.	Result	Final Qualifier	Validation Qualifier	Dilution	Collect Date	Starting Depth	Sample Type	Analyte Type	Matrix	Method	Site ID
4				1	1/5/96	0 FT	Normal		Porewater	SED_TOX	F

**100% pore water fraction**

Validation Qualifier	Dilution	Collect Date	Starting Depth
4	1	1/5/96	0 FT

Microsoft Excel - 040721081352[1].csv

Location Name	Analyte Type	Dilution Factor	X Coordinate	Y Coordinate	Depth units	Detect (Y/N)	CAS no
1 IR59MW01F		1	-122.3696569	37.72757251	FT	N	93-76-5
2 IR59MW01F		1	-122.3696569	37.72757251	FT	N	93-76-5
3 IR59MW01F		1	-122.3696569	37.72757074	FT	N	93-76-5
4 IR59MW06F		1	-122.3658869	37.72757074	FT	N	93-76-5
5 IR59MW06F		1	-122.3658869	37.72757074	FT	N	93-76-5
6 IR59SS07		1	-122.3693337	37.7278332	FT	N	93-76-5
7 IR59TA08-066		1	-122.3693365	37.72796333	FT	N	93-76-5
8 PAS0B001		1	-122.3686213	37.72736886	FT	N	93-76-5
9 PAS0B001		1	-122.3686213	37.72736886	FT	N	93-76-5
10 PAS0B001		1	-122.3686213	37.72736886	FT	N	93-76-5
11 PAS0B002		1	-122.3686734	37.72744973	FT	Y	93-76-5
12 PAS0B002		1	-122.3686734	37.72744973	FT	N	93-76-5
13 PAS0B002		1	-122.3686734	37.72744973	FT	N	93-76-5
14 PAS0B002		1	-122.3686734	37.72744973	FT	N	93-76-5
15 PAS0B003		1	-122.3686251	37.72749557	FT	Y	93-76-5
16 PAS0B003		1	-122.3686251	37.72749557	FT	Y	93-76-5
17 PAS0B003		1	-122.3686251	37.72749557	FT	Y	93-76-5
18 PAS0B003		1	-122.3686251	37.72749557	FT	N	93-76-5
19 PAS0B004		1	-122.3684709	37.72755458	FT	N	93-76-5
20 PAS0B004		1	-122.3684709	37.72755458	FT	N	93-76-5
21 PAS0B004		1	-122.3684709	37.72755458	FT	N	93-76-5
22 PAS0B004		1	-122.3684709	37.72755458	FT	N	93-76-5
23 PAS0B005		1	-122.3684239	37.72761172	FT	N	93-76-5
24 PAS0B005		1	-122.3684239	37.72761172	FT	N	93-76-5
25 PAS0B005		1	-122.3684239	37.72761172	FT	N	93-76-5
26 PAS0B005		1	-122.3684239	37.72761172	FT	Y	93-76-5
27 PAS0B007		1	-122.3686532	37.72735081	FT	N	93-76-5
28 PAS0B007		1	-122.3686532	37.72735081	FT	N	93-76-5
29 PAS0B007		1	-122.3686532	37.72735081	FT	N	93-76-5
30 PAS0B007		1	-122.3686532	37.72735081	FT	N	93-76-5
31 PAS0B008		2	-122.3684995	37.72749619	FT	N	93-76-5
32 PAS0B008		2	-122.3684995	37.72749619	FT	N	93-76-5
33 PAS0B008		2	-122.3684995	37.72749619	FT	N	93-76-5
34 PAS0B008		2	-122.3684995	37.72749619	FT	N	93-76-5
35 PAS0B008		2	-122.3684995	37.72749619	FT	N	93-76-5
36 PAS0B008		2	-122.3684995	37.72749619	FT	N	93-76-5
37 PAS0B008		2	-122.3684995	37.72749619	FT	N	93-76-5

Chart - Microsoft Internet Explorer

PA50B002 (2,4,5-t) [SOIL]

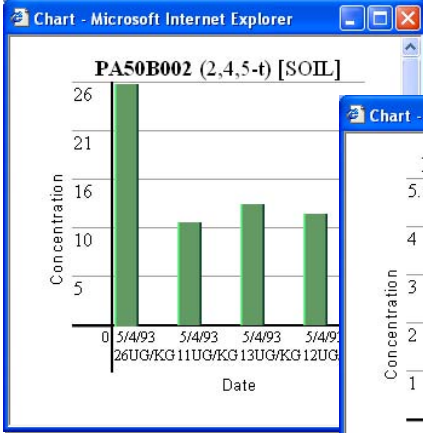
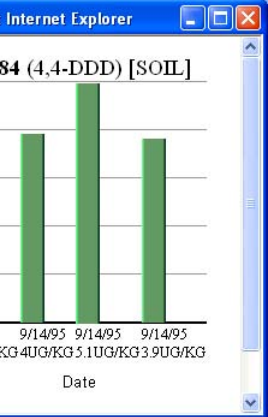
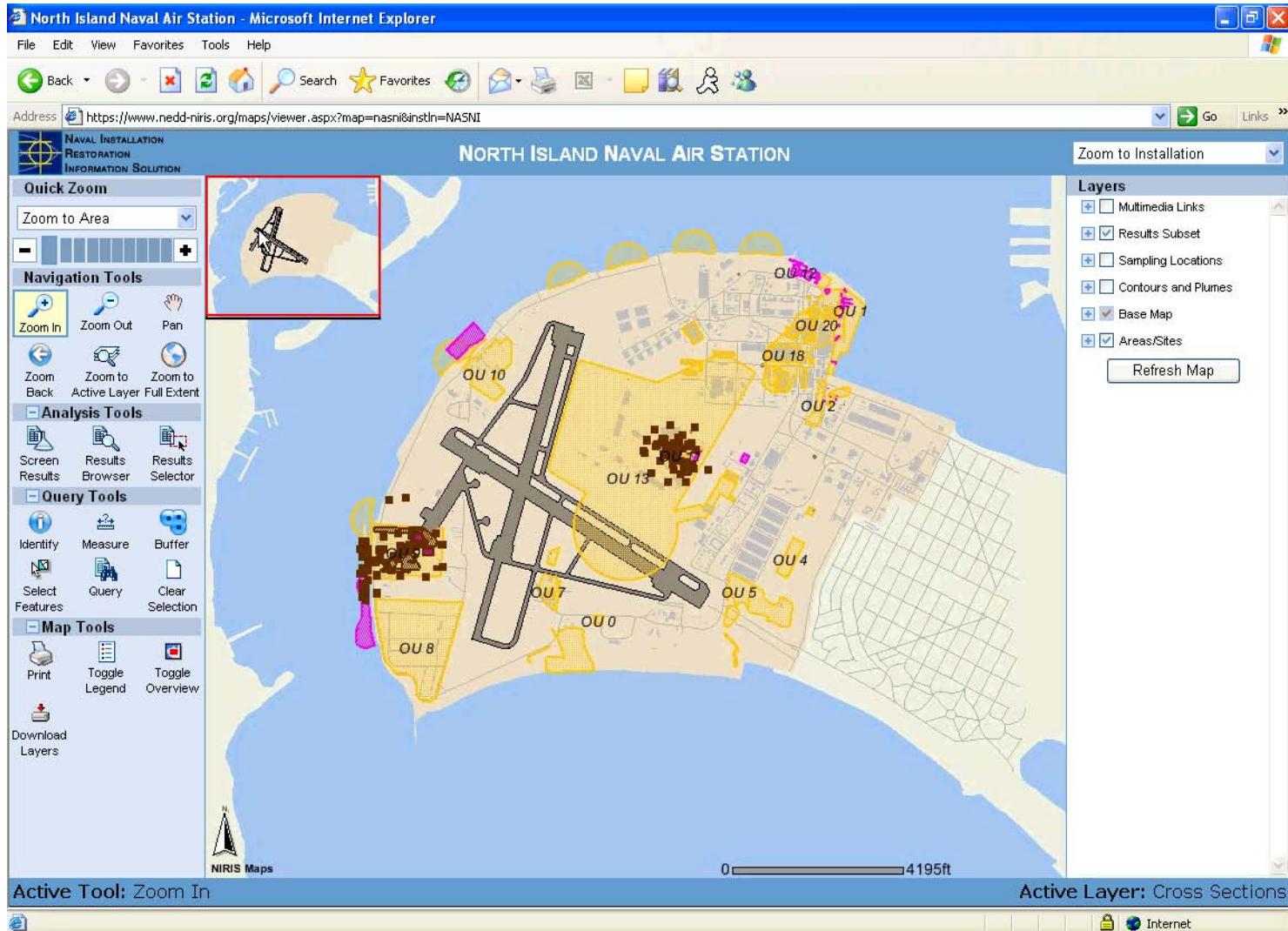


Chart - Microsoft Internet Explorer

IR28B284 (4,4-DDD) [SOIL]





North Island Naval Air Station - Microsoft Internet Explorer

Address: <https://www.nedd-niris.org/maps/viewer.aspx?map=naeni&instn=NASNI>

**NAVAL INSTALLATION RESTORATION INFORMATION SOLUTION**

**NORTH ISLAND NAVAL AIR STATION**

Zoom to Installation

**Quick Zoom**

Zoom to Area

**Navigation Tools**

- Zoom In
- Zoom Out
- Pan
- Zoom Back
- Zoom to Active Layer Full Extent
- Zoom to

**Analysis Tools**

- Screen Results
- Results Browser
- Results Selector

**Query Tools**

- Identify
- Measure
- Buffer
- Select Features
- Query
- Clear Selection

**Map Tools**

- Print
- Toggle Legend
- Toggle Overview
- Download Layers

**Layers**

- Multimedia Links
- Results Subset
- Sampling Locations
- Contours and Plumes
- Base Map
- Areas/Sites

Refresh Map

Active Tool: Zoom In

Active Layer: Cross Sections

0 4195ft

NIRIS Maps

Internet

- **Initial Deployment Spring 2005**
  - **Transactional Database ready**
  - **Deployment can begin**
- **Full Deployment by January 2006**
  - **Basic end user tools developed**
  - **Historic data loading continues**

**NIRIS is not just a GIS, it is a solution to NAVFAC's data management needs.**

**Questions???**

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**Workgroup**