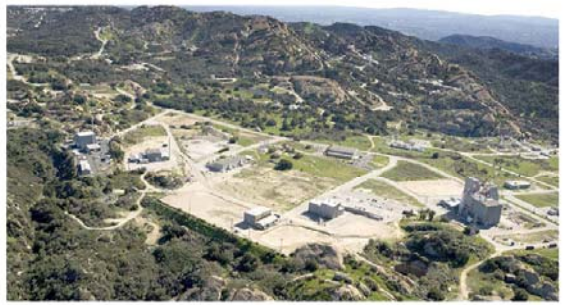
CDM a Joint Venture with SAIC & DSO

Area IV Santa Susana Field Laboratory

Environmental Impact Statement (Area IV SSFL EIS)

Text



Subject: **Task Order: DE-AT30-08CC60021/ET17**
Draft Gap Analysis Report

Deliverable Number: 02
Submitting to: Dave Hincks, DCO
Submitted by: John Wondolleck
Submittal Date: June 1, 2008

Prepared by: John Wondolleck
Distributed to: David Hincks, DCO
Stephanie G. Jennings, DCOR

Office Of Environmental Management
safety ❖ performance ❖ cleanup ❖ closure

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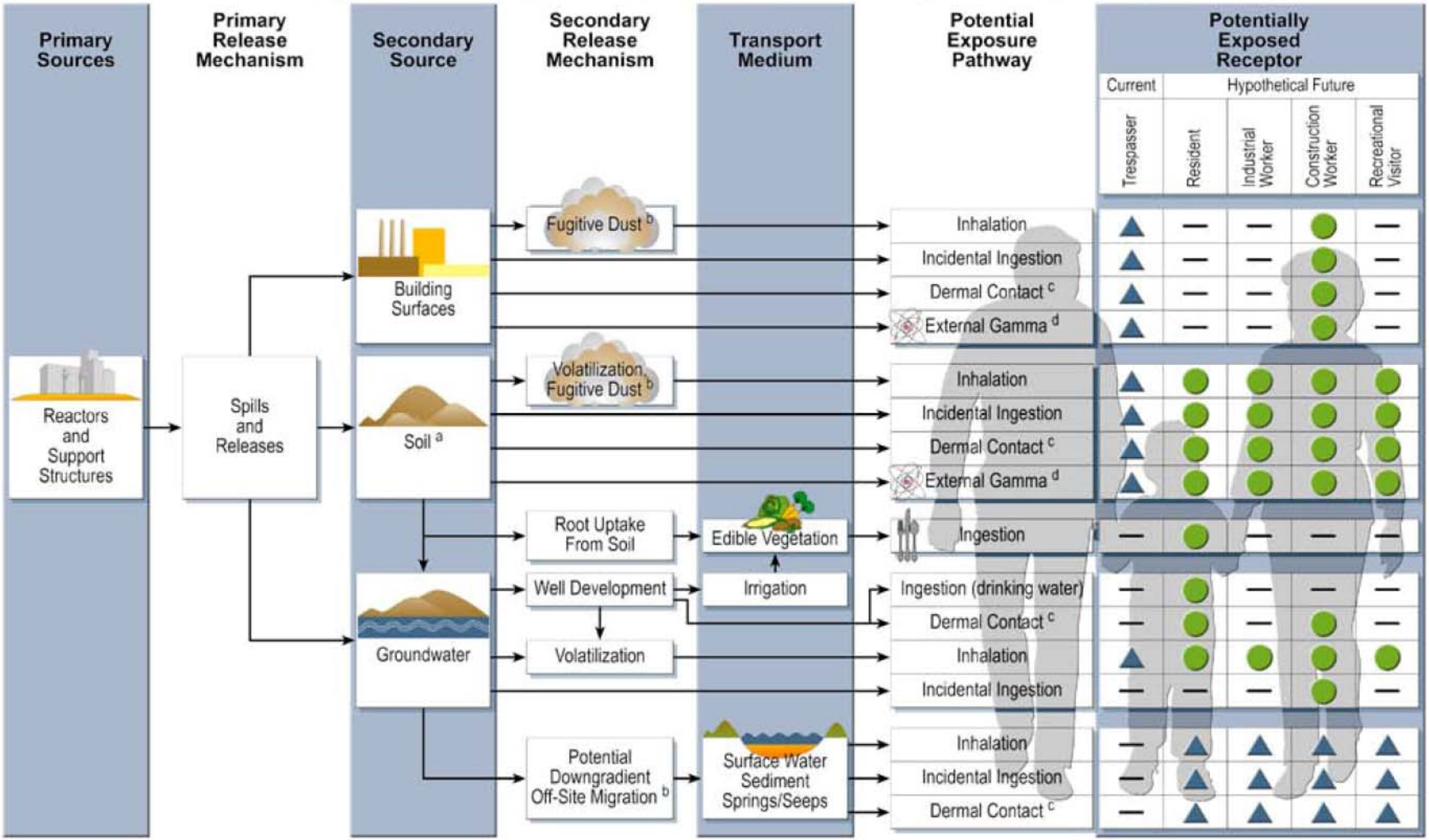
Conceptual Site Model for Human Health Exposure Pathways



[a] Soil media include ash, bedrock, and sediment. Soil will be evaluated by depth

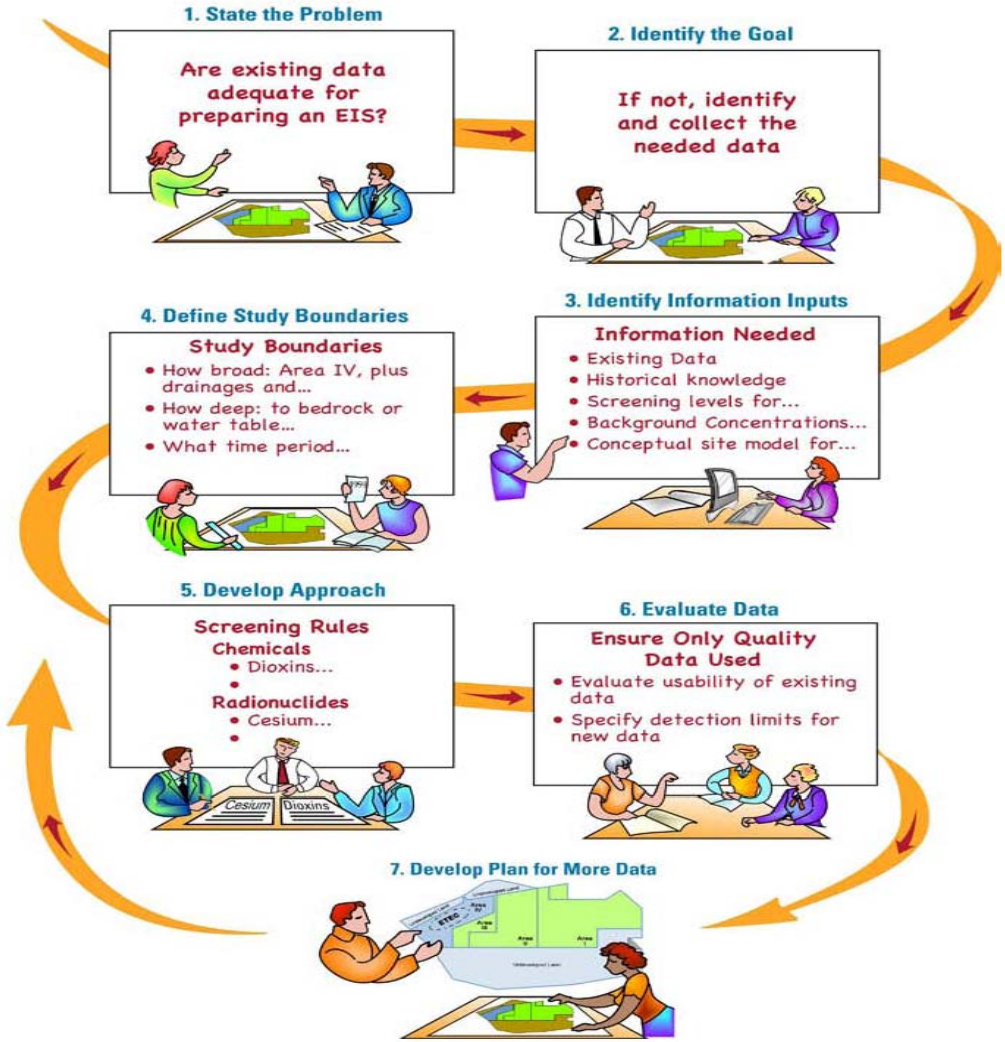
[b] The potential for offsite migration of site-related contaminants will be qualitatively evaluated

[c] Dermal Contact is evaluated for chemicals only

[d] External Gamma is evaluated for radionuclides only

Data Quality Objectives:

A Multi-step Process for Obtaining Needed Data



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Radionuclide Graphics

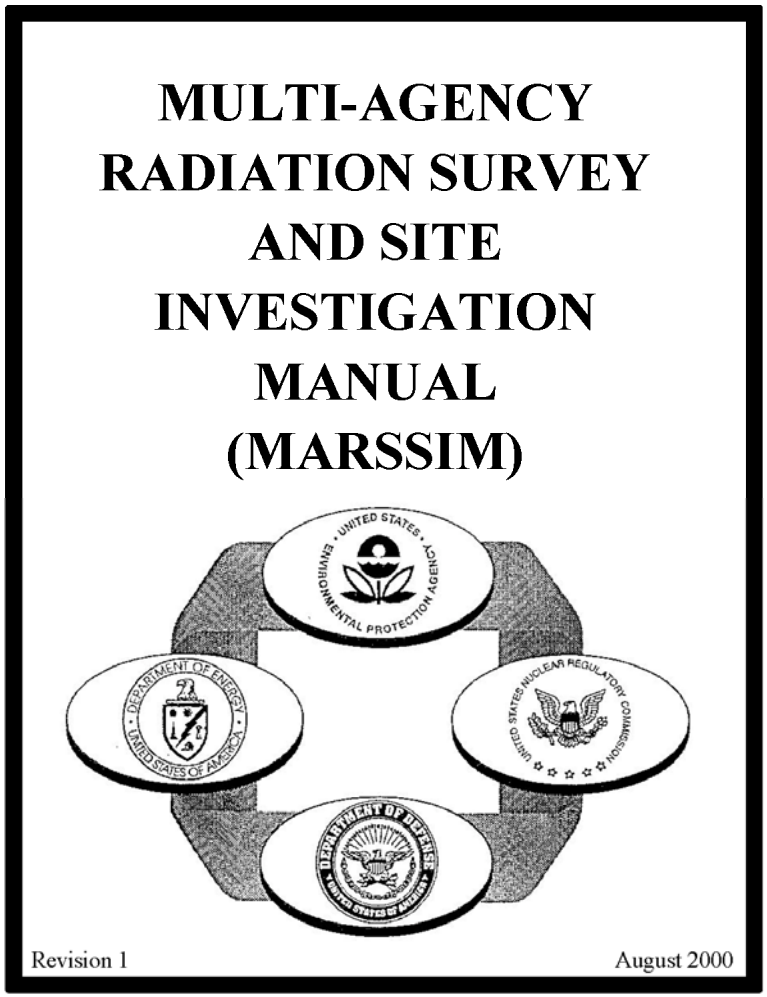

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Table 3-11
Radiological Contaminants of Interest

Radionuclide	Source	Half Life (years)
^{241}Am	Neutron Capture in Fuel	458
^{133}Ba	Activation Product Detected Onsite	10.5
^{14}C	Neutron Capture in Graphite and Soil	5.73E+03
^{243}Cm	Neutron Capture in Fuel	29.1
^{60}Co	Activation Product in Reactors	5.3
^{134}Cs	Fission Product	2.1
^{137}Cs +D	Fission Product	30
^{152}Eu	Activation Product in Reactors	12.7
^{154}Eu	Activation Product in Reactors	16
^{155}Eu	Activation Product Detected Onsite	4.7
^{55}Fe	Activation Product in Reactors	2.6
^{3}H	Activation Product in Reactors	12.3
^{129}I	Fission Product	1.70E+07
^{40}K	Natural and Activation Product	1.30E+09
^{22}Na	Activation Product in Coolant	2.6
^{59}Ni	Activation Product in Reactors	8.00E+04
^{63}Ni	Activation Product in Reactors	92
^{237}Np +D	Neutron Capture in Fuel	2.14E+06
^{210}Pb +D	Natural Only	21
^{238}Pu	Neutron Capture in Fuel	86.4
^{239}Pu	Fuel material	2.40E+04
^{240}Pu	Neutron Capture in Fuel	6.60E+03
^{241}Pu	Neutron Capture in Fuel	13.2
^{242}Pu +D	Neutron Capture in Fuel	3.80E+05
^{226}Ra +D	Natural Only	1.60E+03
^{228}Ra +D	Natural Only	5.8
^{125}Sb +D	Fission Product Detected Onsite	2.758
^{90}Sr	Fission Product	27.7
^{99}Tc	Fission Product	2.13E+05
^{228}Th +D	Natural and Fuel Material	1.9
^{230}Th	Natural and Fuel Material	8.00E+04
^{232}Th	Natural and Fuel Material	1.40E+10
^{234}U	Natural and Fuel Material	2.30E+05
^{235}U +D	Natural and Fuel Material	7.10E+08
^{238}U +D	Natural and Fuel Material	4.50E+09

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Location of Background Soil Samples - Radionuclides

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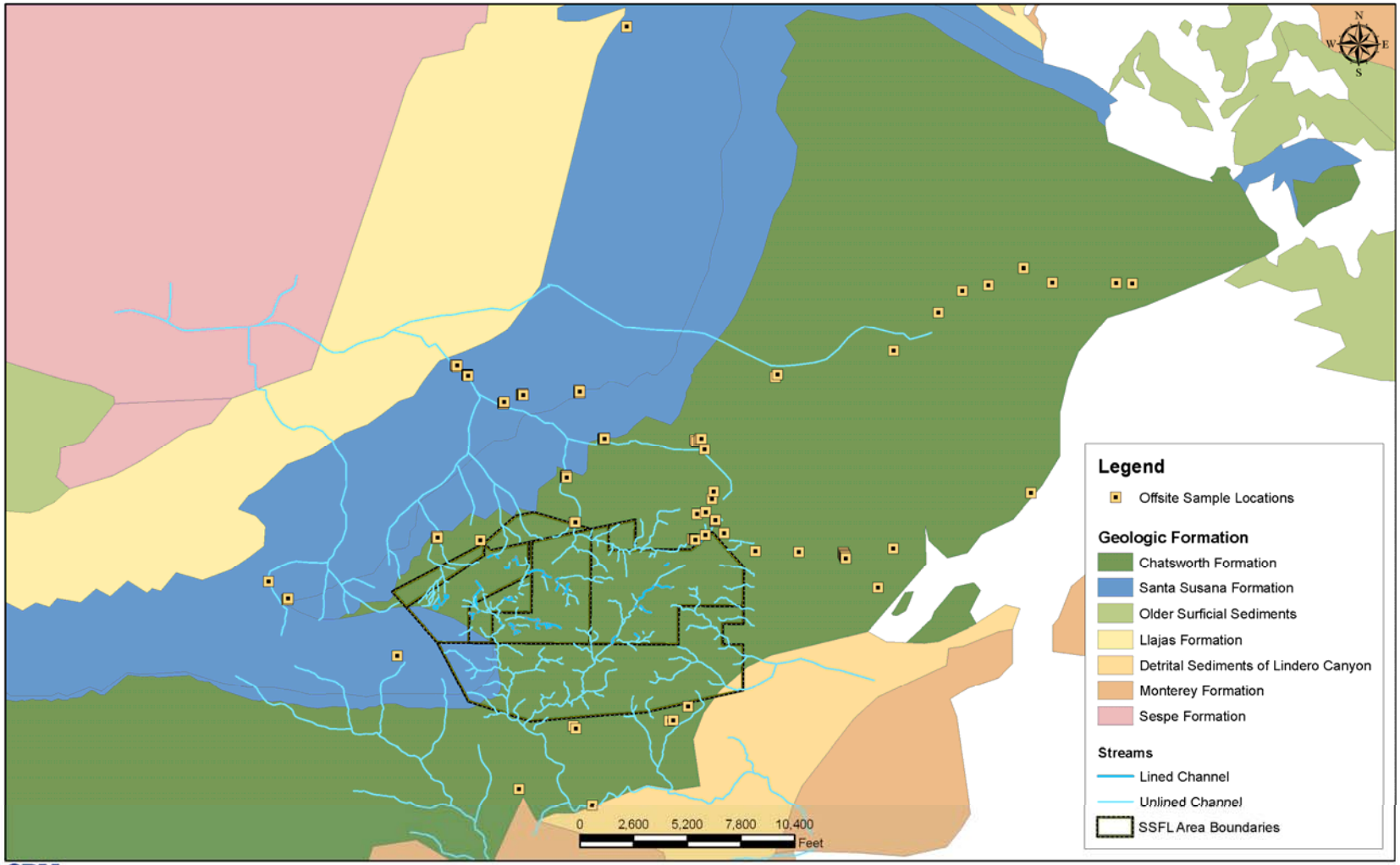

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Figure 3-3
Location of Samples Included in Radiological Background Screening

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Area IV Exposure Units

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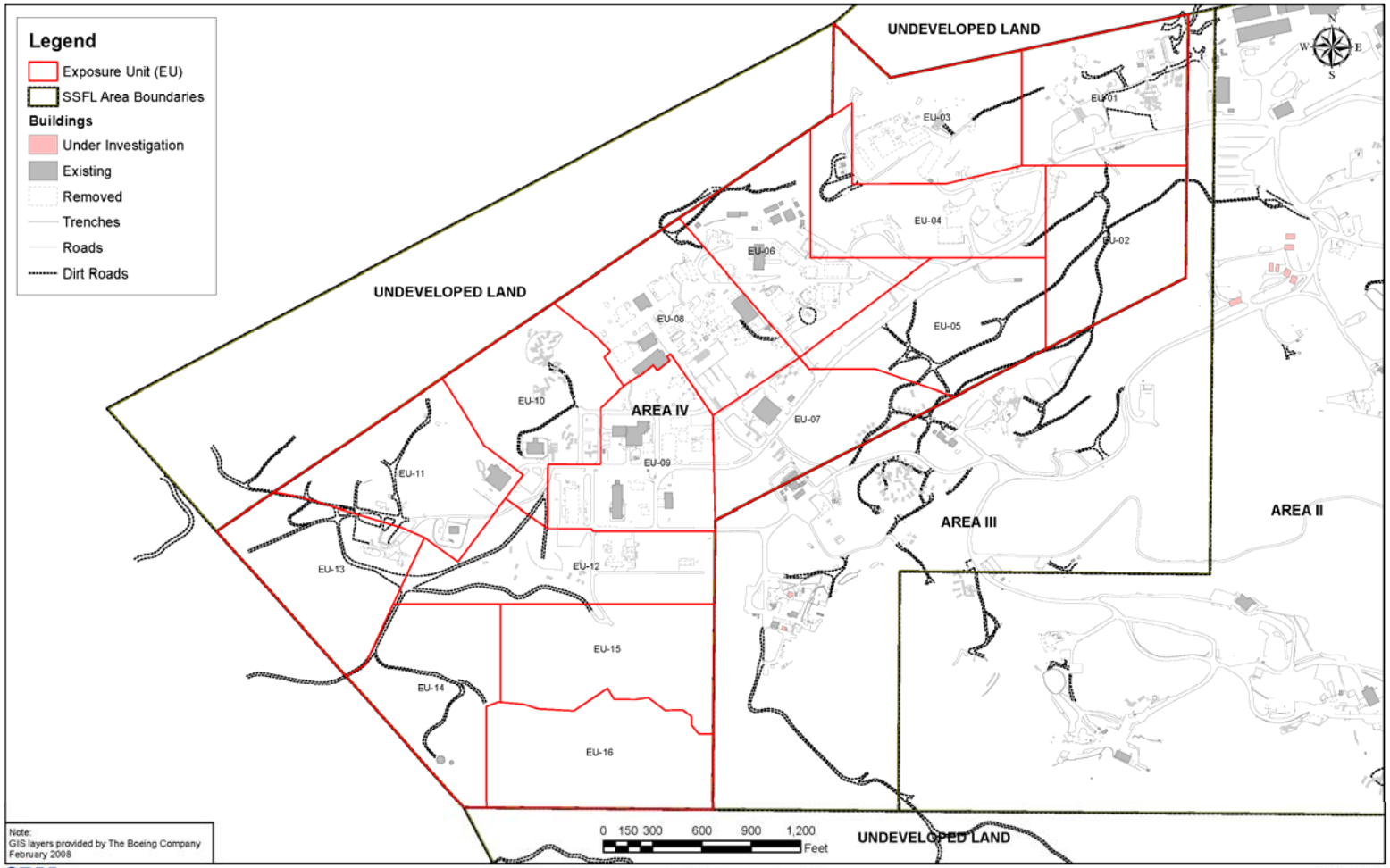

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Figure 3-4
Location of Area IV Exposure Units

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Example of Survey Units

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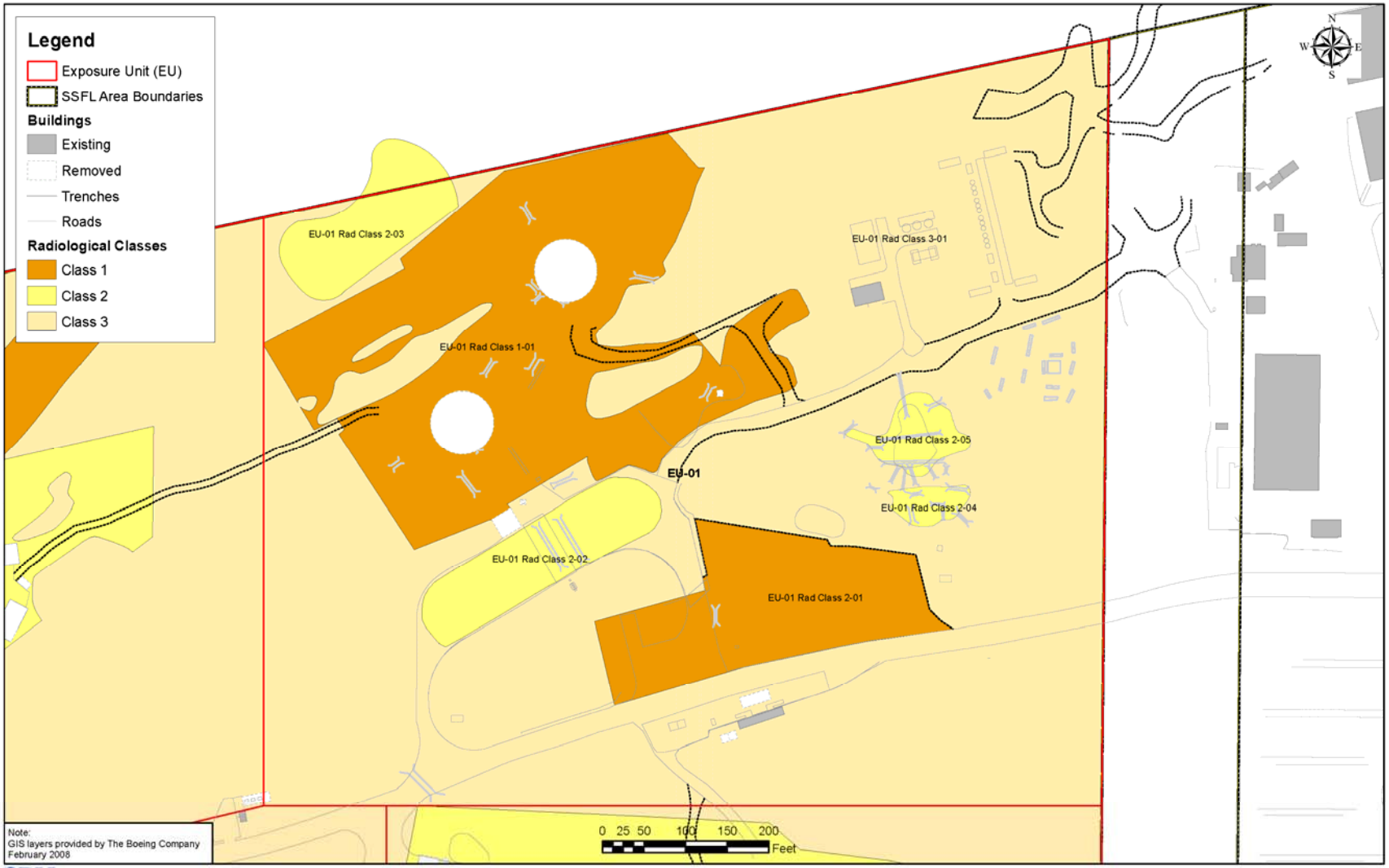

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Figure 1-4
Example Survey Unit Delineation

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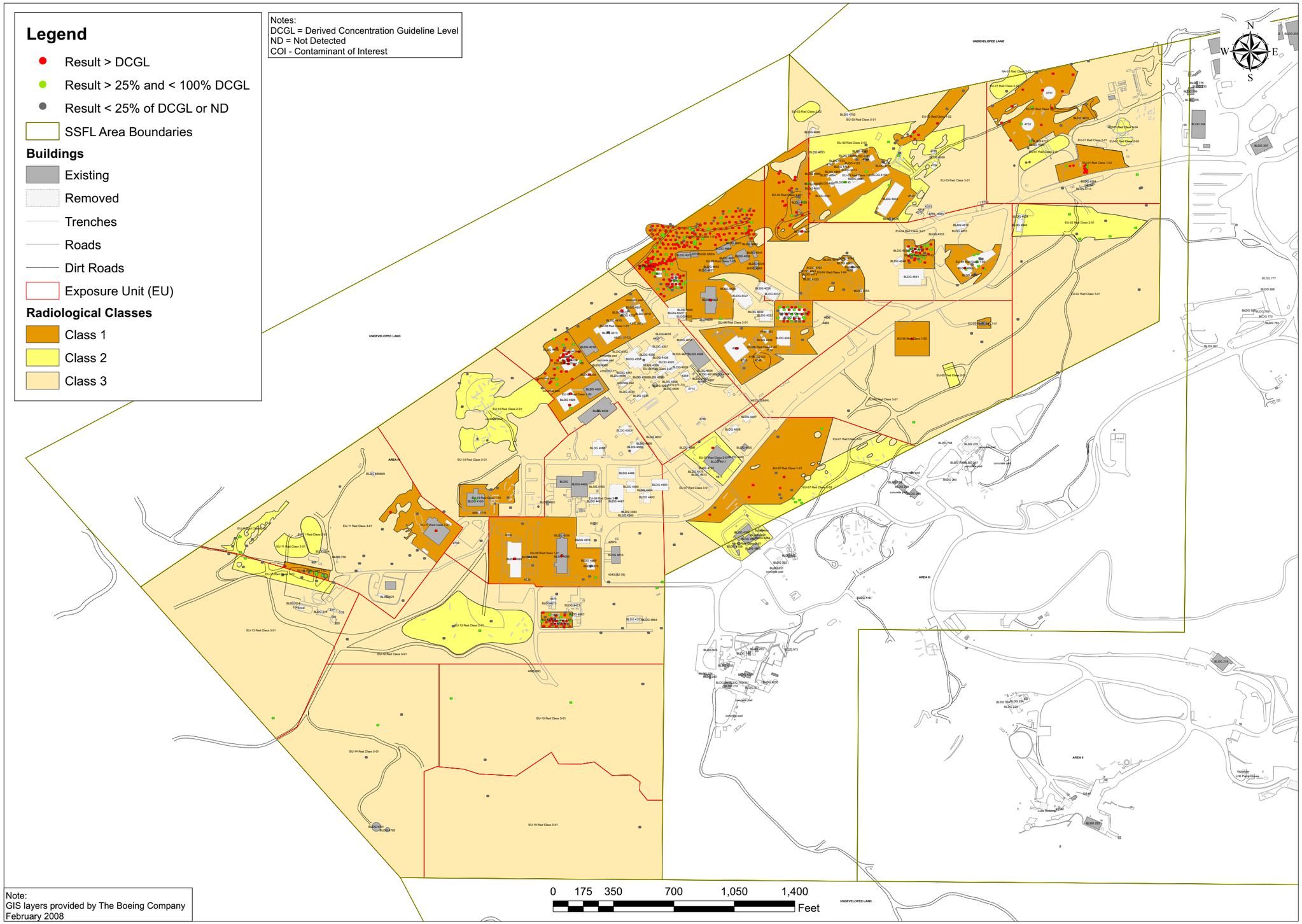

Note:
GIS layers provided by The Boeing Company
February 2008

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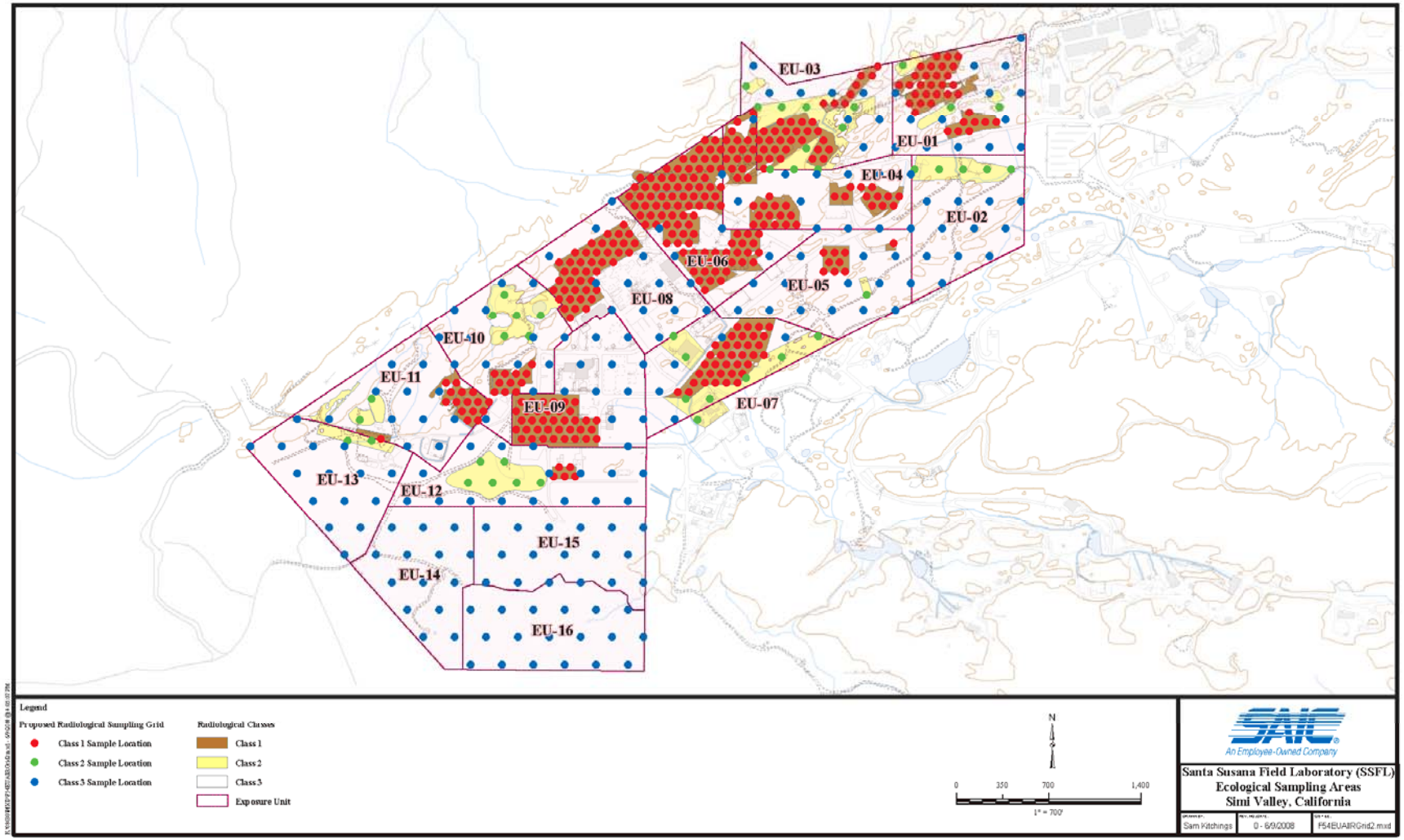
Figure 3-6
Location of Existing Radiological Samples

Proposed Distribution of Samples - Radionuclides



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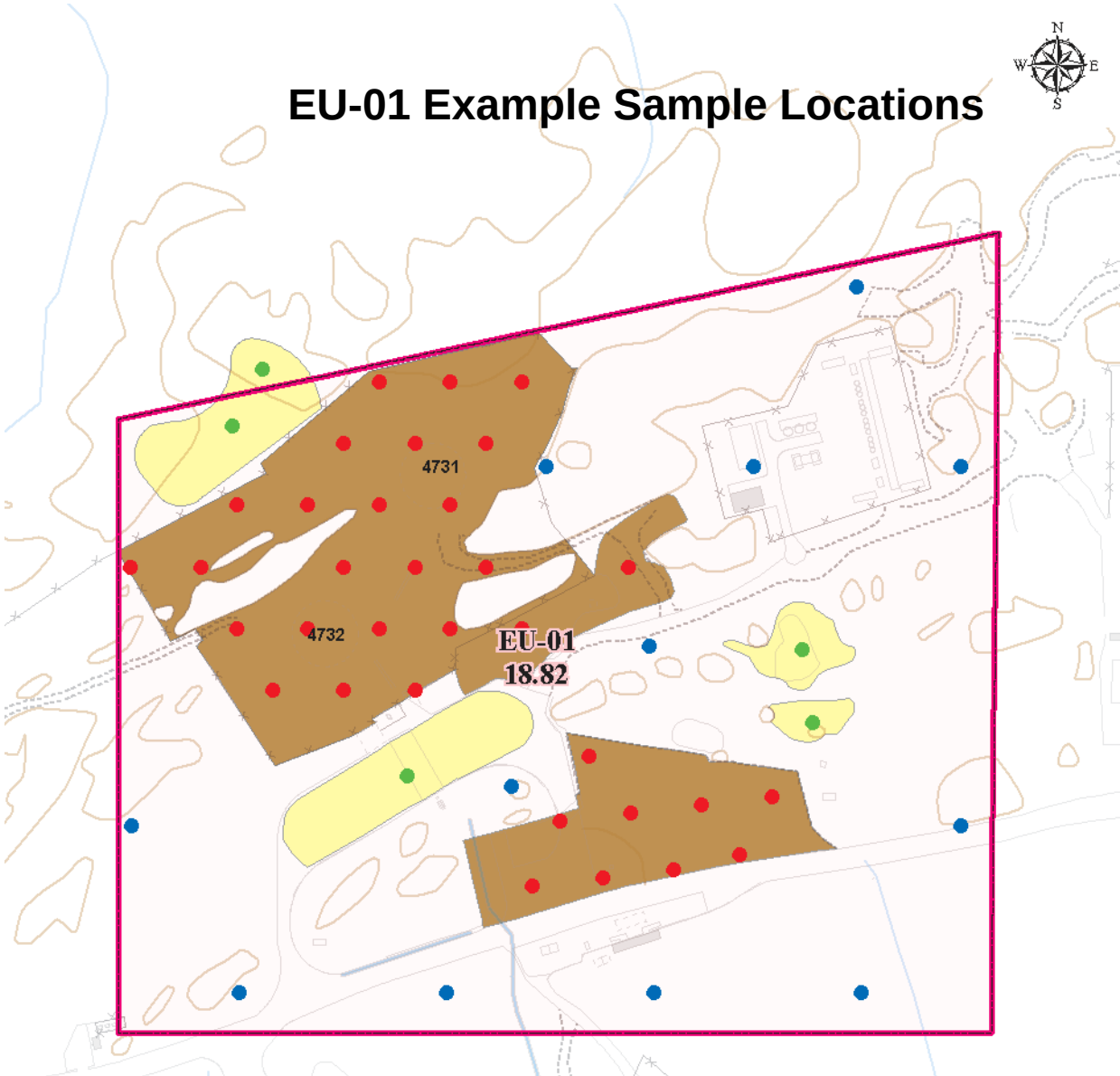
EU-01 Example Sample Locations



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Prior Gamma Walkover Survey Results

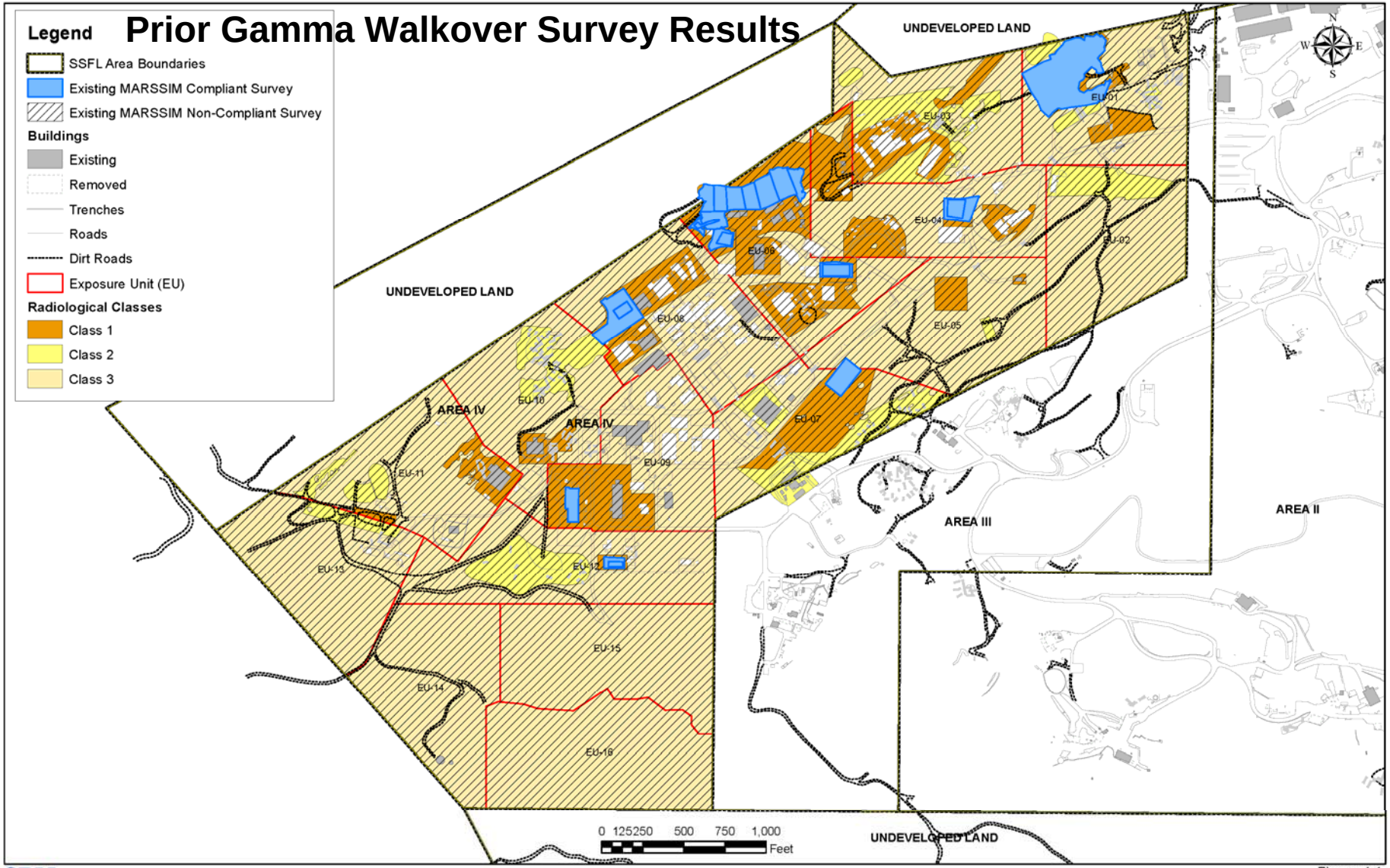

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Figure 4-1
Locations of Existing Gamma Walkover Surveys

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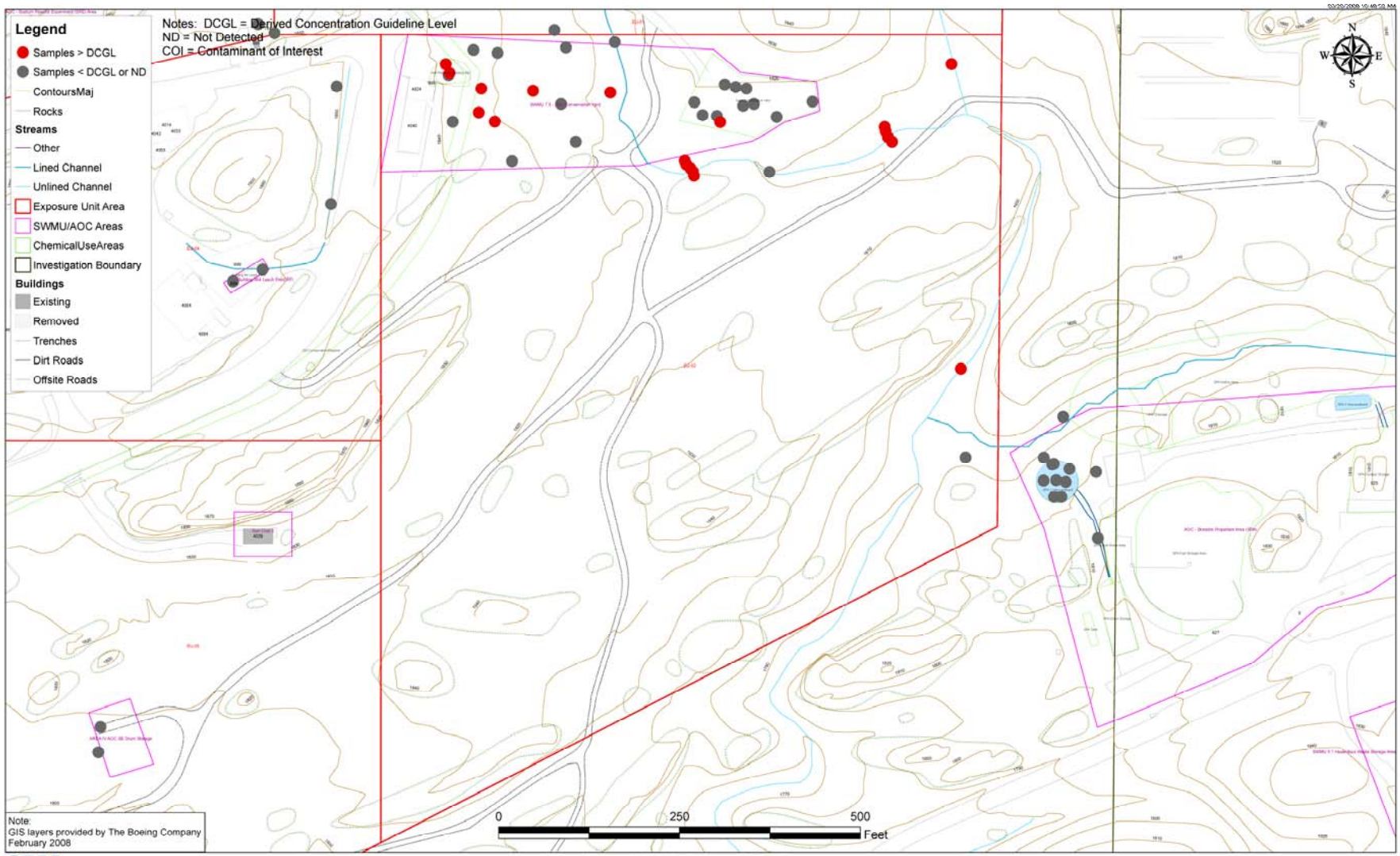
Chemical Analysis Graphics

EU-02 Existing Data Distribution



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Chemicals Exceeding DCGL in Soils - EU-02 (0-2 ft bgs)

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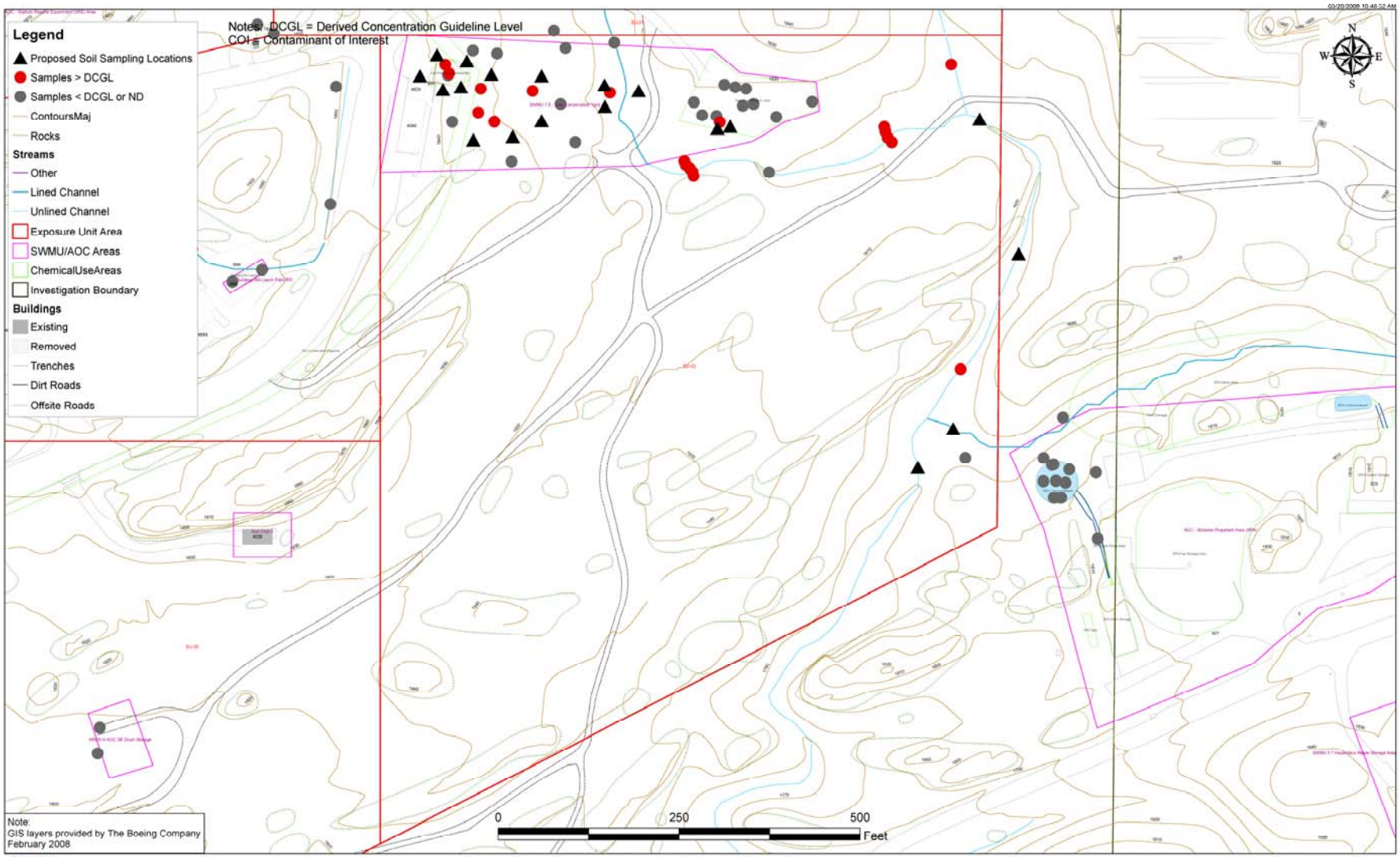
EU-02 Proposed Samples for Extent



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Chemicals Exceeding DCGL in Soils - EU-02
Showing Proposed Samping Locations

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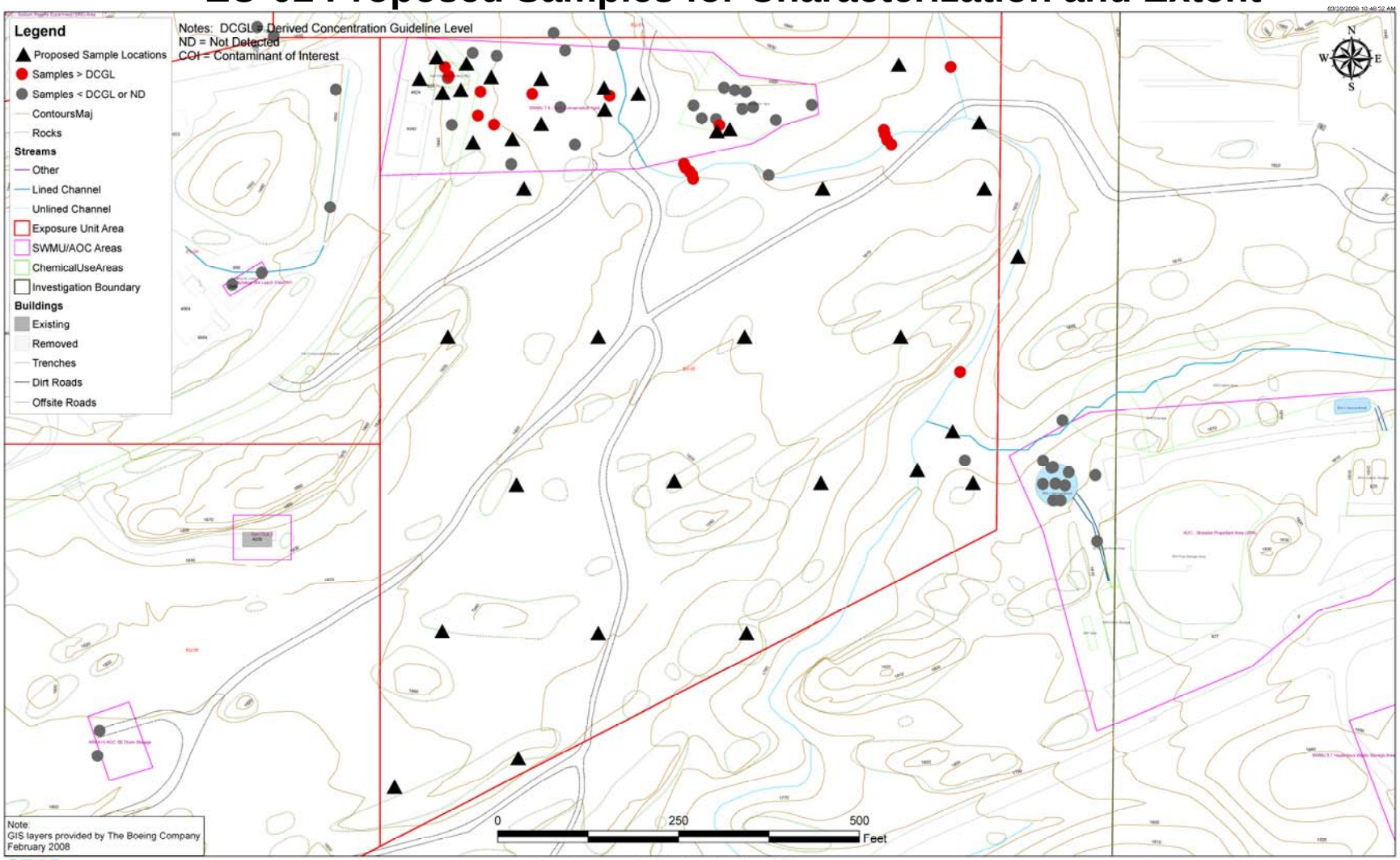
EU-02 Proposed Samples for Characterization and Extent



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Chemicals Exceeding DCGL in Soils - EU-02
With Proposed Sample Locations

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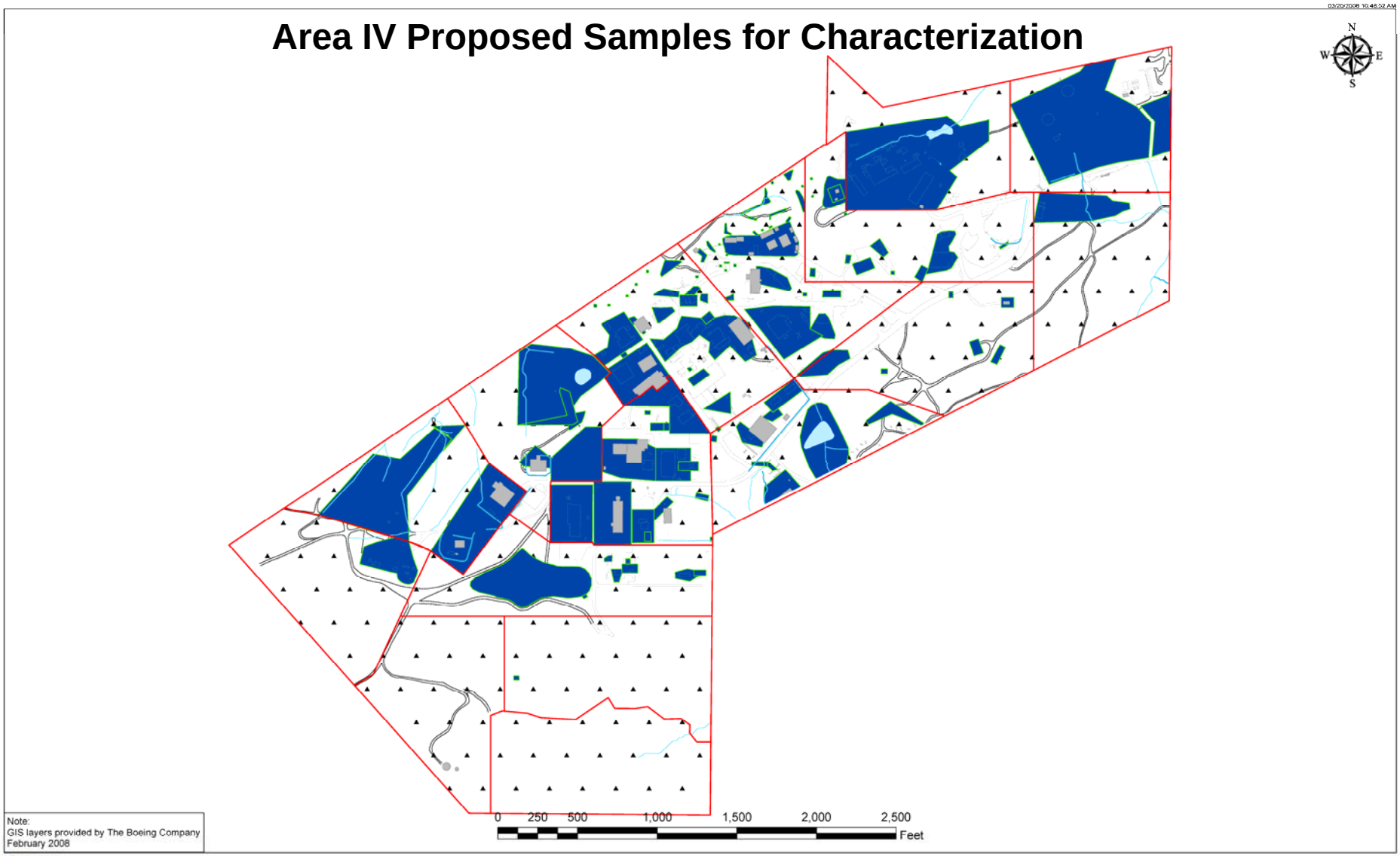
Area IV Proposed Samples for Characterization



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Groundwater Graphics

Groundwater Conceptual Site Model

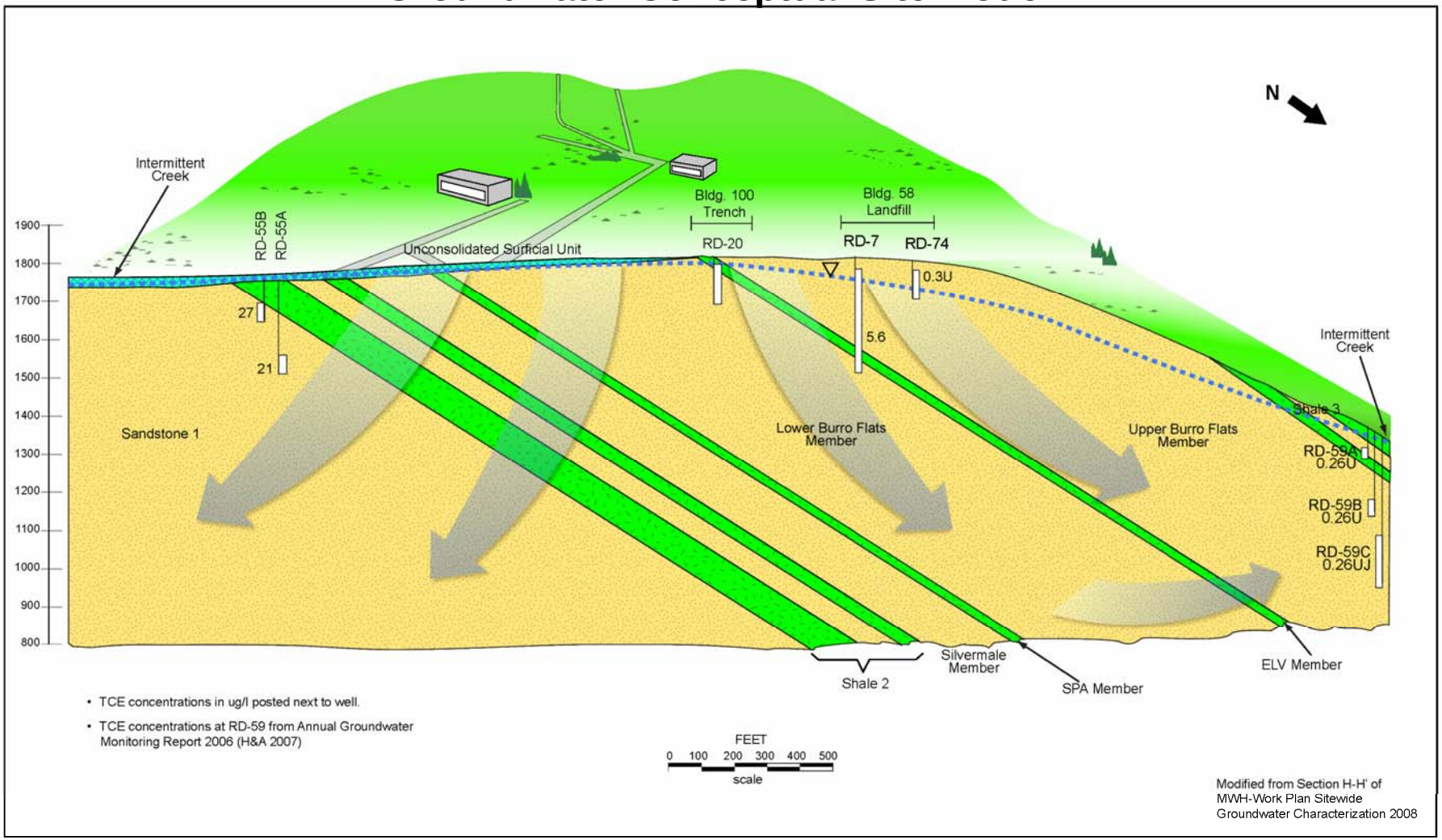

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Figure 4-1
Groundwater Conceptual Site Model

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Maximum Tritium Concentrations in Bedrock Groundwater

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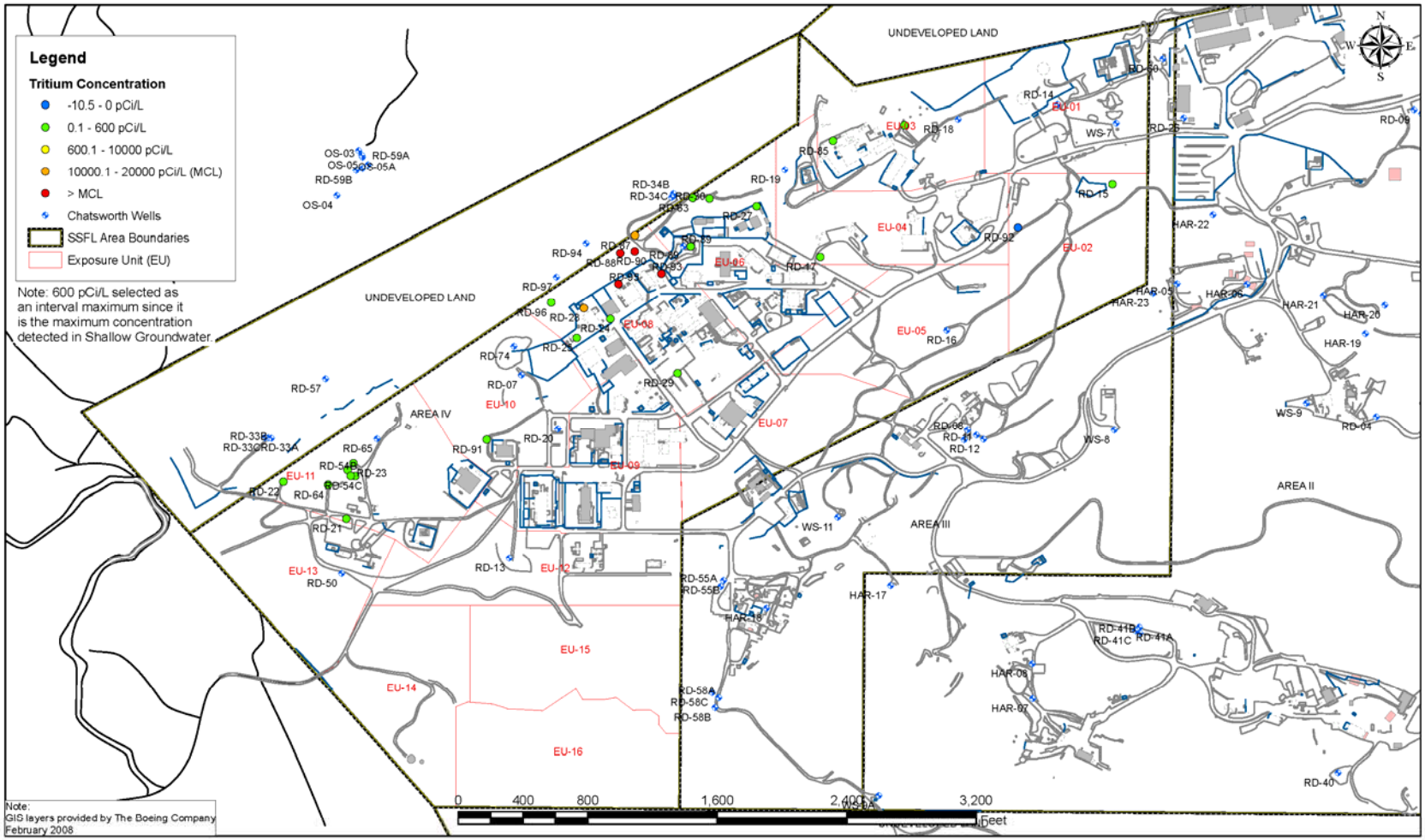

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Figure 4-3
Maximum Tritium Concentrations
in Chatsworth Formation
2003-2007

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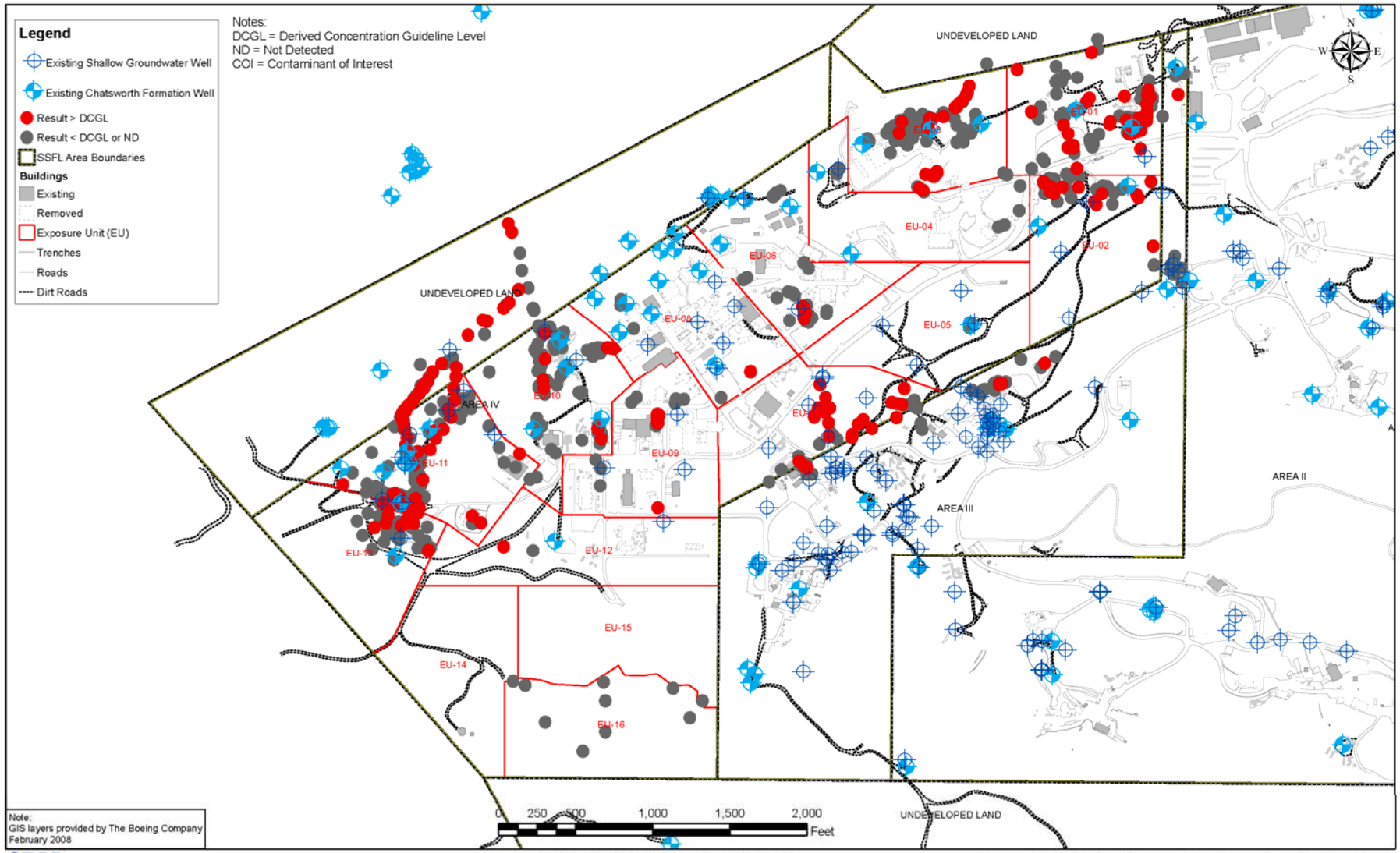
Potential Groundwater Contaminant Source Areas



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Non-Radiological COIs Exceeding DCGL in Soils (0-2 ft bgs)
Showing Shallow and Chatsworth Wells

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Proposed Groundwater Monitoring Well Locations

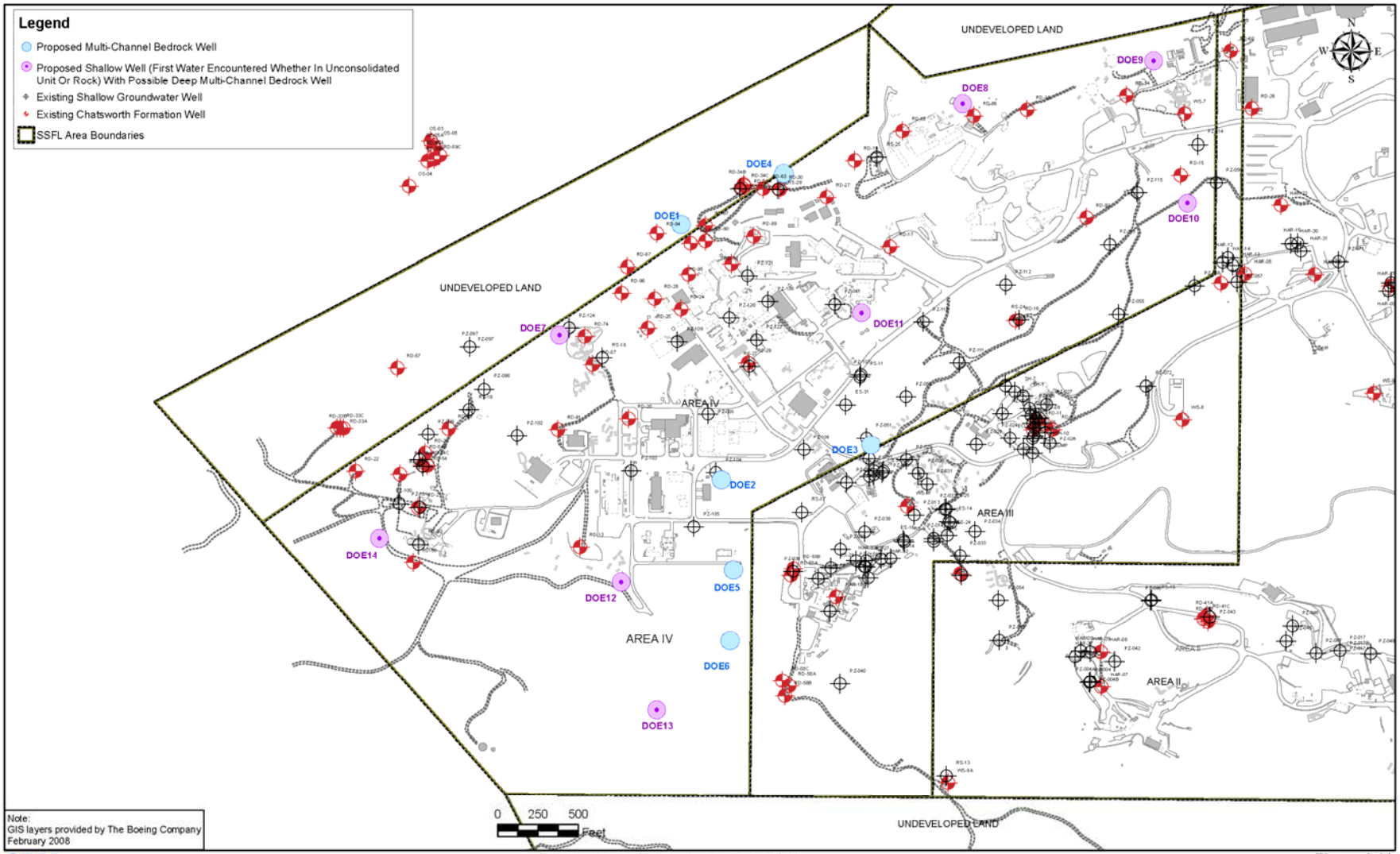

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Figure 4-14
Proposed Monitoring Well Locations

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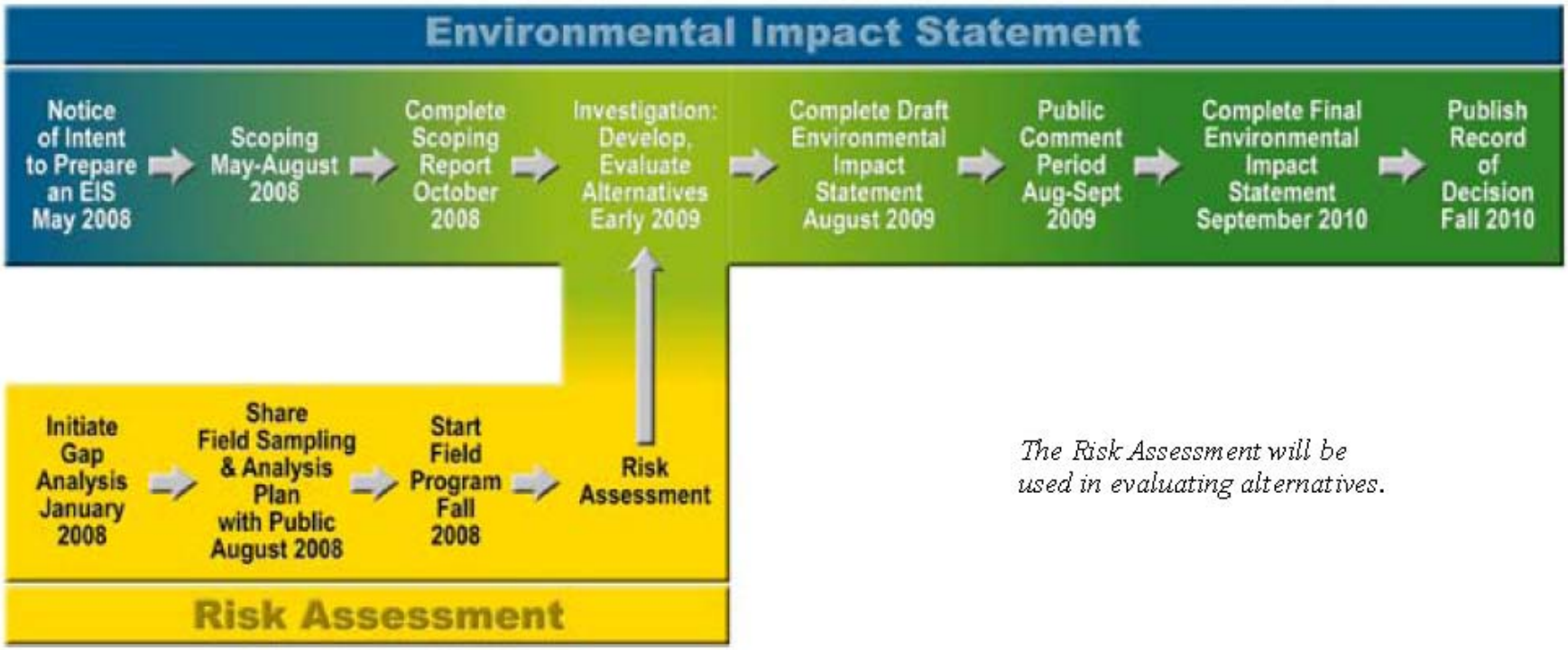
DOE Summary Graphics

The Risk Assessment: How It Fits into the EIS



The Risk Assessment will be used in evaluating alternatives.

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