



# HUMAN HEALTH RISK ASSESSMENT

Practical Approaches to Estimating Risk & Developing  
Site-Specific Cleanup Levels

Course I.D.: REM-402

The Northwest Environmental Training Center presents:

## Human Health Risk Assessment Workshop

Practical Approaches to Estimating Risk and Developing Site-Specific Cleanup Levels

Course ID: REM-402 ( 2 days )

September 10-11, 2009, 8:30 A.M. to 5 P.M.

Executrain

7251 Amigo Street

Las Vegas, Nevada, 89119

**Instructor:** Lynn Spence, PE,  
Spence Environmental Engineering

**Description:** Risk assessments are now being performed at almost all sites, whether part of a Risk-Based Correction Action (RBCA) analysis, to determine remediation strategies, or for litigation support and prevention. This class is hands-on, covering all the steps in a risk assessment. Emphasis will be placed on fate and transport modeling to estimate exposure point concentrations. RISC software will be used for classroom exercises, however the principles learned are readily applicable to other risk assessment software. Each participant will have their own computer workstation throughout the class.

### Course Topics:

- Overview of the risk assessment process
- Exposure assessment
- Principles of contaminant fate and transport modeling
- Assessment of vapor intrusion to indoor air with the Johnson and Ettinger Model
- Vadose zone and groundwater models
- Risk-Based Corrective Action (RBCA)
- Calculation of site-specific cleanup levels
- Using the RISC software for both fate and transport analysis and risk assessment
- Sensitivity analysis
- Risk issues with total petroleum hydrocarbons (TPH)

### After completing this course, participants will be able to:

- Understand the fundamentals of risk assessment protocols;
- Understand key fate and transport principles;
- Use and apply the RISC software;
- Complete technically defensible risk assessments;
- Provide peer reviews of risk assessments developed by others;
- Understand the RBCA process and how risk assessment fits in; and
- Distinguish between key input parameters and less important inputs for fate and transport models and risk assessment.

**About the Instructor:** Lynn Spence has 22 years experience in environmental engineering, risk assessments, contaminant transport modeling and remedial investigations. Lynn has developed several publicly available software programs including RISC, the API Decision Support System for risk assessments, and the API's TPH RBCA software. Lynn has taught many risk assessment short courses for both the private sector and for regulatory agencies.

**Intended Audience:** This course is designed for environmental professionals who need to perform risk assessments or apply RBCA protocols, environmental managers who need to understand key principles around risk assessment, and regulators reviewing risk assessment and RBCA submittals.

**Prerequisites:** A working knowledge of RBCA and knowledge of site characterization skills such as evaluating site analytical data and delineating a source.

**Education Level:** Intermediate

**Course Materials:** Participants will receive course proceedings and reference materials.

**Continuing Education Units:** 1.3

**What to Bring:** Calculator, pen or pencil, coffee mug, and a water bottle (to reduce waste). Also, please bring questions about current projects relating to risk assessment or fate and transport modeling. Please wear comfortable clothes appropriate for the prevailing weather. Lunch will be on your own. There are numerous restaurants within walking distance. Drinks and snacks will be provided each day.

**Registration: \$895 (\*\$795 reduced tuition is available for Native American tribes; government employees; nonprofits; students; and NAEP, NEBC, NWAEP members).** You may register via the link below or by calling the Northwest Environmental Training Center at 206-762-1976.

**Cancellation Policy:** Registration fees are fully refundable up to 30 days prior to the event and 50 percent refundable (or 100% credit) thereafter up to 3 business days prior to the event. No refunds are issued for cancellations occurring less than 3 business days before the start day. Course registration fees and cancellation policy are subject to change without notice.

**Disability Accommodations:** To request disability accommodations, please contact us at [info@nwetc.org](mailto:info@nwetc.org) or (206) 762-1976 at least 30 days prior to the event.

**Northwest Environmental Training Center**

A nonprofit 501(c)(3) program of EOS Alliance  
650 S. Orcas Street, Suite 220, Seattle, Washington 98108  
Phone: (206)762-1976, Fax: (206)762-1979  
[www.nwetc.org](http://www.nwetc.org)



**Directions to:**

**Executrain**

7251 Amigo Street, Suite 160  
Las Vegas, Nevada, 89119  
800-305-3855  
<http://is.gd/sQB9>

**Accommodations | Course Catalog**

**Greyhound:** <http://www.greyhound.com>

**Amtrak:** <http://www.amtrak.com>

**Parking:** Complimentary on-site parking is available

**From McCarran International Airport (LAS):**

1. Head north on Wayne Newton Blvd 0.1 mi
2. Slight left toward Airport Connector S/Paradise Rd 0.7 mi
3. Take the ramp to Airport Connector S/Paradise Rd 246 ft
4. Keep right at the fork to continue toward Airport Connector S/Paradise Rd 0.1 mi
5. Keep left at the fork to continue toward Airport Connector S/Paradise Rd and merge onto Airport Connector S/Paradise Rd  
Continue to follow Paradise Rd 1.3 mi
6. Merge onto I-215 E via the ramp on the left to Henderson 1.1 mi
7. Take exit 9 for Warm Springs Rd 0.3 mi
8. Turn right at E Warm Springs Rd 0.3 mi
9. Turn right at Amigo St  
Destination will be on the left

**From the north and south (via I-15):**

From I-15 S or I-15 N  
Take the Sahara Ave Exit 40 to Convention Center  
Take the Sahara Ave West ramp  
Continue on W Sahara Ave / NV-589  
Make a U-turn at W Sahara Ave  
Arrive at 2411 W Sahara Ave

**From Henderson (via I-515):**

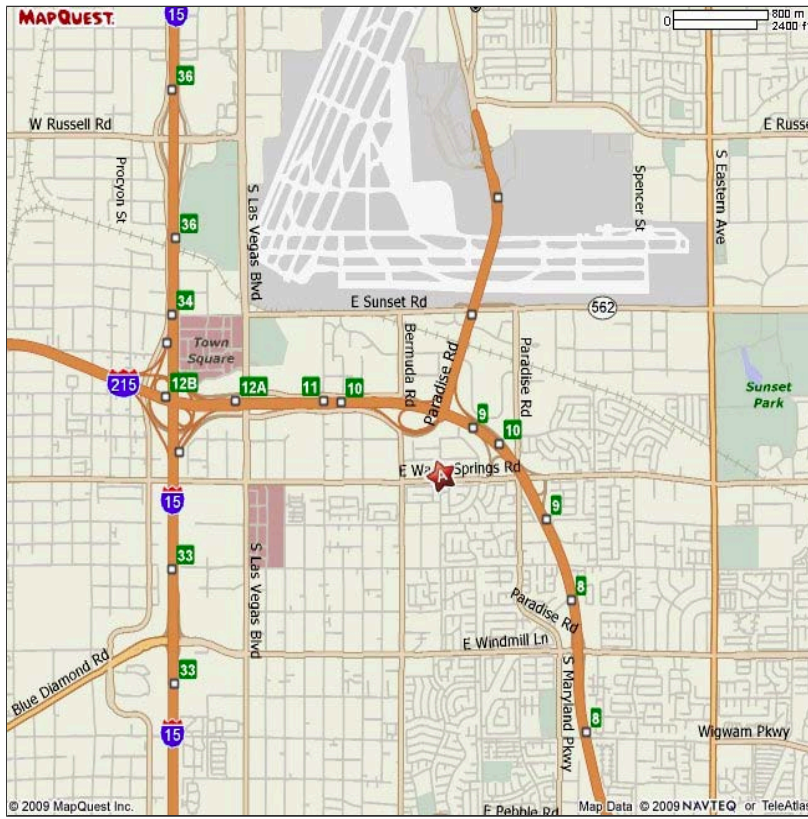
From I-515 northbound  
Merge onto I-15 S via Exit 76A toward Los Angeles  
Take the Sahara Ave exit - Exit 40  
Take the Sahara Ave West ramp  
Merge onto W Sahara Ave / NV-589 W  
Make a U-turn at W Sahara Ave  
Arrive at 2411 W Sahara Ave

**From the northwest (via US-95 southbound):**

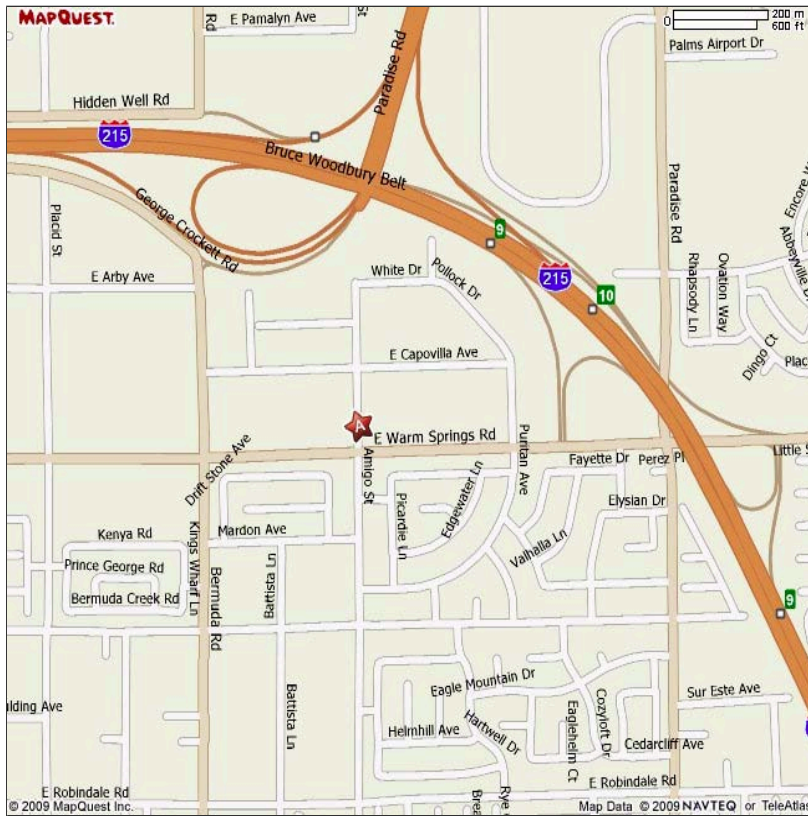
From US-95 S  
Take the Valley View Blvd Exit 78  
Bear right onto the S Valley View Blvd ramp  
Turn left at W Sahara Ave  
Arrive at 2411 W Sahara Ave

**Map your own route using MapQuest or Google Maps.**

**REGIONAL MAP:**



**CITY MAP:**



**STREET MAP:**





NORTHWEST ENVIRONMENTAL TRAINING CENTER

650 S Orcas Street, Suite 220, Seattle, Washington 98108

Ph: (206)762-1976, Fax: (206)762-1979

www.nwetc.org

## REGISTRATION FORM

Name: \_\_\_\_\_ Today's Date: \_\_\_\_\_

Agency/Organization: \_\_\_\_\_

Street Address: \_\_\_\_\_

Street Address (cont'd): \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Email: \_\_\_\_\_ Title: \_\_\_\_\_

### Human Health Risk Assessment Workshop

\$ \_\_\_\_\_

Course ID: REM-402 ( 2 days )

September 10-11, 2009, 8:30 A.M. to 5 P.M.

Executrain

7251 Amigo Street, Suite 160

Las Vegas, Nevada, 89119

**Registration: \$895 (\$795\*)**\*Reduced rates for Native American Tribes; nonprofits; government; students; and NEBC, NAEP and NWAEP members.

Payment Method: Check  PO  Credit Card (Visa Mastercard) Total: \$ \_\_\_\_\_

Credit Card or PO #: \_\_\_\_\_ Exp: \_\_\_\_\_

**Notes:** Please make checks payable to Northwest Environmental Training Center.

**Cancellation Policy:** Registration fees are fully refundable up to 30 days prior to the event and 50 percent refundable (or 100% credit) thereafter up to 3 business days prior to the event. No refunds are issued for cancellations occurring less than 3 business days before the start day.