DEPARTMENT OF THE AIR FORCE
Headquarters US Air Force
Washington, DC 20330-1030

QTP 4B051-3
20 March 2015
Certified Current on, 13 July 2022

AIR FORCE SPECIALTY CODE 4B051
BIOENVIRONMENTAL ENGINEERING

Occupational and Environmental Health (OEH)

Program Overview

QUALIFICATION TRAINING PACKAGE

Accessibility: ***Publications and forms are available on the e-publishing website at http://www.e-publishing.af.mil for downloading or ordering.***

Realeasability: ***There are no releasability restrictions on this publication.***

Table of Contents

STS Line Item 4.1.2.2: Conceptual Site Model

TRAINER GUIDANCE

Proficiency Code:	2b
PC Definition:	Can do most parts of the task. Needs help only on hardest parts. Can determine step-by-step procedures for doing the task.
Prerequisites:	None
Training References:	• AFMAN 48-154, *Occupational and Environmental Health Site Assessment*, Mar 2010 • AFTP 3-2.82, *Occupational and Environmental Health Site Assessment*, Apr 2012 • USAFSAM *Occupational and Environmental Health Site Assessment (OEHSA) Tech Guide*, 2011
Additional Supporting References:	4.1.2.4 Exposure Pathway Evaluation
CDC Reference:	4B051
Training Support Material:	• Occupational and Environmental Health Site Assessment - Stage 1 Template (ESOH Service Center) (https://hpws.afrl.af.mil/dhp/OE/ESOHSC/pages/index.cfm?id=657&admin) • DOEHRS-EH Reference Table: OEH Site Assessment Template Field for In-Garrison Surveys (https://hpws.afrl.af.mil/dhp/OE/ESOHSC/pages/index.cfm?id=657&admin)
Specific Techniques:	Conduct hands-on training and evaluation.
Criterion Objective:	Given a scenario and source documentation, complete a conceptual site model while completing all checklist items with limited trainer assistance on only the hardest parts.
Notes: Trainers must develop a scenario for trainees to complete a conceptual site model.	

TASK STEPS

1. Identify the five elements of an exposure pathway.[1]
2. Determine if exposure pathway is complete, partially complete or incomplete.[2]
3. Collect data from complete and partially complete exposure pathways.[3]
4. Compile data and populate CSM.[4]
5. Utilize OEHMIS (DOEHRS)

LOCAL REQUIREMENTS:

NOTES:

1. Five elements to an exposure pathway which must be considered.
   a. Source of an OEH threat release - Point or non-point origin of a health threat
   b. Environmental Media - Material an OEH threat can travel through/means by which human exposure occurs.
   c. Health Threat
   d. Route of Exposure - Mode the health threat enters or interacts with a human being
   e. Population at Risk (PAR) - Group of human beings whose health is potentially impacted by a health threat.

2. Exposure Pathways
   a. Complete exposure pathway – All five elements are present
   b. Potentially complete exposure pathway – one or more elements can't be eliminated due to an information gap.
   c. Incomplete – One or more of the elements are not present.

3. Complete the chart with the following information
   a. Source
   b. Environmental media
   c. Health threat
   d. Route of exposure
   e. Population affected
   f. Existing controls
   g. Frequency/duration
   h. Severity

CSM Hazard Severity Selection Information	
Selection	**Definition**
Catastrophic	Loss of ability to accomplish the mission or mission failure. Death or permanent disability.
Critical	Significantly degraded mission capability, unit readiness or personal disability.
Marginal	Degraded mission capability or unit readiness. Injury or illness of personnel.
Negligible	Little or no adverse impact on mission capability. First aid or minor medical treatment.

i. Probability

CSM Hazard Probability Selection Information	
Selection	**Definition**
Frequent	For individuals: Occurs very often, expected to occur several times during mission or operation. For all personnel: Occurs continually during a specific mission or operation.
Likely	For individuals: Occurs several times, expected to occur during a specific mission or operation. For all personnel: Occurs at a high rate, but experienced intermittently
Occasional	For individuals: Occurs over a period of time, may occur during a specific mission or operation, but not often. For all personnel: Occurs sporadically (irregularly, sparsely, or sometimes)
Seldom	For individuals: Occurs as isolated incident. Remotely possible, but not expected to occur during a specific mission or operation. For all personnel: Occurs rarely within exposed population as isolated incidents.
Unlikely	For individuals: Occurrence not impossible, but may assume will not occur during a specific mission or operation. For all personnel: Occurs very rarely, but not impossible.

j. Risk estimate

Hazard Severity	**Hazard Probability**				
	Frequent (A)	Likely (B)	Occasional (C)	Seldom (D)	Unlikely (E)
Catastrophic (I)	Extremely High	Extremely High	High	High	Moderate
Critical (II)	Extremely High	High	High	Moderate	Low
Marginal (III)	High	Moderate	Moderate	Low	Low
Negligible (IV)	Moderate	Low	Low	Low	Low

4. Populate CSM

Elements of an Exposure Pathway						**Obtained Through Interview/ Reconnaissance**	**Risk Estimate for Prioritization of Exposure Pathways**		
Source	**Env. Medium**	**Health Threat**	**Route of Exposure**	**Population Affected (#)**	**Existing Controls**	**Frequency/ Duration**	**Severity**	**Probability**	**Risk**
Burn Pit Emissions	Air	PM, PAHs	Inhalation	Tent City	None	16 hrs/day 7 days/wk	Marginal	Likely	Moderate
Burn Pit Runoff	Water	Water Contaminants	Ingestion/ Contact	Tent City	Water Treatment Plant	24 hrs/day 7 days/wk	Negligible	Unlikely	Low
Flight line	Air	Noise	Physical	Tent City	Distance/ Shielding	10 hrs/day 6 days/wk	Marginal	Frequent	High
Off-Site Industry	Air	TIC/TIM	Inhalation	Tent City	None	12 hrs/day 7 days/wk	Negligible	Seldom	Low
Barrel Dump	Soil	Soil Contaminants	Contact	Tent City	None	24 hrs/day 7 days/wk	Negligible	Unlikely	Low
Desert Env	Air	PM	Inhalation/ Ingestion	Camp	None	24 hrs/day 7 days/wk	Marginal	Occasional	Moderate

TRAINEE REVIEW QUESTIONS

STS Line Item 4.1.2.2: Conceptual Site Model

1. What elements are needed for the conceptual site model? 1) 2) 3) 4) 5) 6) 7) 8) 9) 10)
2. How often do you update the conceptual site model?

PERFORMANCE CHECKLIST

STS Line Item 4.1.2.2: Conceptual Site Model

Proficiency Code:	2b
PC Definition:	Can do most parts of the task. Needs help only on hardest parts. Can determine step-by-step procedures for doing the task.

DID THE TRAINEE…		YES	NO
1. Identify the five elements of an exposure pathway?			
2. Determine if exposure pathway is complete, partially complete or incomplete?			
3. Collect data from complete and partially complete exposure pathways?			
4. Compile data and populated CSM?			
5. Utilize OEHMIS (DOEHRS)?			
Did the trainee successfully complete the task?			

TRAINEE NAME (PRINT)

TRAINER NAME (PRINT)

ANSWERS

1. What elements are needed for the conceptual site model?

   A:

   1) Source
   2) Environmental media
   3) Health threat
   4) Route of exposure
   5) Population affected
   6) Existing controls
   7) Frequency/duration
   8) Severity
   9) Probability
   10) Risk

   (Source: Career Development Course 4B051)

2. How often do you update the conceptual site model?

   A: When new information is obtained that will change the conceptual site model.

   (Source: Career Development Course 4B051)

STS Line Item 4.1.2.3: Exposure Assessment Strategies

TRAINER GUIDANCE

Proficiency Code:	2b
PC Definition:	Can do most parts of the task. Needs help only on hardest parts. Can determine step-by-step procedures for doing the task.
Prerequisites:	Training Module 4.1.2.2 Conceptual Site Model and Training Module 4.1.2.4 Exposure Pathway Evaluation
Training References:	• AFMAN 48-154, *Occupational and Environmental Health Site Assessment*, Mar 2010 • AFTP 3-2.82, *Occupational and Environmental Health Site Assessment*, Apr 2012 • USAFSAM *Occupational and Environmental Health Site Assessment (OEHSA) Tech Guide*, 2011
Additional Supporting References:	None
CDC Reference:	4B051
Training Support Material:	• Occupational and Environmental Health Site Assessment - Stage 1 Template (ESOH Service Center) (https://hpws.afrl.af.mil/dhp/OE/ESOHSC/pages/index.cfm?id=657&admin) • DOEHRS-EH Reference Table: OEH Site Assessment Template Field for In-Garrison Surveys (https://hpws.afrl.af.mil/dhp/OE/ESOHSC/pages/index.cfm?id=657&admin)
Specific Techniques:	Conduct hands-on training and evaluation.
Criterion Objective:	Given a scenario and source documentation, complete an exposure assessment strategy while completing all checklist items with limited trainer assistance on only the hardest parts.
Notes: Trainers should either develop a scenario or have the trainer perform the tasks at their current base.	

TASK STEPS

1. Identify pre-deployment/baseline activities.[1]
2. Identify site and sector appropriately.[2]
3. Perform interviews and reconnaissance.[3]
4. Compile data and populate a Conceptual Site Model.[4]
5. Perform an initial assessment.[5]
6. Determine need for special assessment.[6]
7. Identify requirement for reassessment.[7]
8. Utilize OEHMIS (DOEHRS)/Complete JS-OEHSA.

LOCAL REQUIREMENTS:

NOTES:

1. Pre-Deployment/Baseline activities
   a. Identify potential OEH threats on- and off-site prior to arrival and/or immediately upon arrival
   b. Generate a list of potential OEH threats to validate

2. Site Identification and Sectoring
   a. Identify the AOR (installation, GSU, forward operating base, etc)
   b. Divide the AOR into smaller, more manageable areas of concerns identifiable PARs (e.g. cantonment areas, industrial operations areas, housing, flight line operations)
   c. Provide framework to link sampling/survey results (potential OEH exposures) to PARs in support of LER

3. Interviews and Reconnaissance
   a. Interview military, host nation and local personnel
   b. Identify and validate/verify current OEH conditions in the AOR which could negatively impact the health of personnel
   c. Build upon what is known from pre-deployment/baseline activities
   d. Fill data/information gaps and identify other potential OEH threat sources
      1) Perform visual inspection – look for
         a) Stained soils
         b) Debris piles
         c) Lagoons
         d) Pits
         e) Ponds
         f) Unnatural topography
         g) Stressed vegetation
         h) Sick animals
         i) Drums
         j) Local resident info
      2) Potential hazardous facilities w/in 20 mile radius
         a) Industrial manufacturing
         b) Waste reclamation/disposal
         c) Medical facilities

4. Build Conceptual Site Model –
   a. Present a complete listing or pictorial display potentially or complete exposure pathways for OEH threats
   b. Link complete or potentially complete exposures pathways to PARs

Elements of an Exposure Pathway						**Obtained Through Interview/ Reconnaissance**	**Risk Estimate for Prioritization of Exposure Pathways**	
Source	**Env. Medium**	**Health Threat**	**Route of Exposure**	**Population Affected (#)**	**Existing Controls**	**Frequency/ Duration**	**Severity**	**Probability**
Burn Pit Emissions	Air	PM, PAHs	Inhalation	Tent City	None	16 hr/day 7 days/wk	Marginal	Likely
Burn Pit Runoff	Water	Water Contaminants	Ingestion/ Contact	Tent City	Water Treatment Plant	24 hr/day 7 days/wk	Likely	Unlikely
Flight line	Air	Noise	Physical	Tent City	Distance/ Shielding	10 hr/day 6 days/wk	Marginal	Frequent
Off-Site Industry	Air	TIC/TIM	Inhalation	Tent City	None	12 hr/day 7 days/wk	Negligible	Seldom
Barrel Dump	Soil	Soil Contaminants	Contact	Tent City	None	24 hr/day 7 days/wk	Negligible	Unlikely
Desert Env	Air	PM	Inhalation/ Ingestion	Camp	None	24 hr/day 7 days/wk	Occasional	Moderate

5. Initial Assessment (Pathway Screening)
   a. Determine if an exposure pathway is complete via professional judgment, literature research, similar installation review, direct reading instruments, sampling, etc.
      1) Complete pathways – No further action required
      2) Potentially complete pathway – Further analysis required
         a) Identify using criteria
         b) Professional judgment
         c) Physical evidence
         d) Literature search
         e) Similar installation review
         f) Sampling
         g) Direct reading instruments
            i. Photoionization detector (PID)
            ii. Flame ionization detector (FID)
            iii. Handheld assays (HHA)
            iv. Radiation detectors
            v. HAPSITE
            vi. Hazmat ID

   b. Determine Estimated Risk using the Hazard Severity and Hazard Probability

Hazard Severity	**Hazard Probability**				
	Frequent (A)	Likely (B)	Occasional (C)	Seldom (D)	Unlikely (E)
Catastrophic (I)	Extremely High	Extremely High	High	High	Moderate
Critical (II)	Extremely High	High	High	Moderate	Low
Marginal (III)	High	Moderate	Moderate	Low	Low
Negligible (IV)	Moderate	Low	Low	Low	Low

   c. Populate CSM

Elements of an Exposure Pathway						Obtained Through Interview/ Reconnaissance	Risk Estimate for Prioritization of Exposure Pathways		
Source	**Env. Medium**	**Health Threat**	**Route of Exposure**	**Population Affected (#)**	**Existing Controls**	**Frequency/ Duration**	**Severity**	**Probability**	**Risk**
Burn Pit Emissions	Air	PM, PAHs	Inhalation	Tent City	None	16 hr/day 7 days/wk	Marginal	Likely	Moderate
Burn Pit Runoff	Water	Water Contaminants	Ingestion/ Contact	Tent City	Water Treatment Plant	24 hr/day 7 days/wk	Negligible	Unlikely	Low
Flight line	Air	Noise	Physical	Tent City	Distance/ Shielding	10 hr/day 6 days/wk	Marginal	Frequent	High
Off-Site Industry	Air	TIC/TIM	Inhalation	Tent City	None	12 hr/day 7 days/wk	Negligible	Seldom	Low
Barrel Dump	Soil	Soil Contaminants	Contact	Tent City	None	24 hr/day 7 days/wk	Negligible	Unlikely	Low
Desert Env	Air	PM	Inhalation/ Ingestion	Camp	None	24 hr/day 7 days/wk	Marginal	Occasional	Moderate

6. Specialized Assessment
    a. Collect adequate data to fully assess (and document) the health risk of OEH threats and exposure pathways to a PAR and/or SEG
    b. Prioritize special surveillance items by risk estimate
        1) Determine exposure acceptability
            a) Acceptable exposure
            b) Uncertain of exposure
            c) Unacceptable exposure
        2) Run data quality objective (DQO) process
            a) Step 1 – State the problem
            b) Step 2 – Identify the decision or goal
            c) Step 3 – Identify information inputs to the decision
            d) Step 4 – Define the boundaries
            e) Step 5 – Develop the decision rules/analytical approach
            f) Step 6 – Performance or acceptance criteria
            g) Step 7 – Develop the detailed sampling plan
        3) Perform sampling

7. Reassessment
    a. Periodically reassess the OEH threats from a macro-level to update assessment progress and identify significant changes
    b. Completed within the first three months of new flight leadership. The template must be reviewed annually and presented to the OEHWG.

TRAINEE REVIEW QUESTIONS

STS Line Item 4.1.2.3: Exposure Assessment Strategies

1. What are the steps in the Data Quality Objective process?

PERFORMANCE CHECKLIST

STS Line Item 4.1.2.3: Exposure Assessment Strategies

Proficiency Code:	2b
PC Definition:	Can do most parts of the task. Needs help only on hardest parts. Can determine step-by-step procedures for doing the task.

DID THE TRAINEE…		YES	NO
6. Identified pre-deployment/baseline activities?			
7. Identified site and sector appropriately			
8. Perform interviews and reconnaissance?			
9. Compile data and populate a Conceptual Site Model?			
10. Performed an initial assessment?			
11. Determined need for special assessment?			
12. Identified requirement for reassessment?			
13. Utilized OEHMIS (DOEHRS)/ Complete JS-OEHSA?			
Did the trainee successfully complete the task?			

TRAINEE NAME (PRINT) TRAINER NAME (PRINT)

ANSWERS

1. What are the steps in the Data Quality Objective process?

   A:
   Step 1: State the problem
   Step 2: Identify the decision or goal
   Step 3: Identify information Inputs to the decision
   Step 4: Defined the boundaries
   Step 5: Develop the decision rules/analytical approach
   Step 6: Performance or acceptance criteria
   Step 7: Develop the detailed sampling plan

(Source: USAFSAM *Occupational and Environmental Health Site Assessment (OEHSA) Tech Guide*, 2011)

STS Line Item 4.1.2.4: Exposure pathway evaluation

TRAINER GUIDANCE

Proficiency Code:	2b
PC Definition:	Can do most parts of the task. Needs help only on hardest parts. Can determine step-by-step procedures for doing the task.
Prerequisites:	None
Training References:	• AFMAN 48-154, *Occupational and Environmental Health Site Assessment*, Mar 2010 • AFTP 3-2.82, *Occupational and Environmental Health Site Assessment*, Apr 2012 • USAFSAM *Occupational and Environmental Health Site Assessment (OEHSA) Tech Guide*, 2011
Additional Supporting References:	None
CDC Reference:	4B051
Training Support Material:	• Occupational and Environmental Health Site Assessment - Stage 1 Template (ESOH Service Center) (https://hpws.afrl.af.mil/dhp/OE/ESOHSC/pages/index.cfm?id=657&admin) • DOEHRS-EH Reference Table: OEH Site Assessment Template Field for In-Garrison Surveys (https://hpws.afrl.af.mil/dhp/OE/ESOHSC/pages/index.cfm?id=657&admin)
Specific Techniques:	Conduct hands-on training and evaluation.
Criterion Objective:	Given a scenario and source documentation, complete an exposure pathway evaluation while completing all checklist items with with limited trainer assistance on only the hardest parts.
Notes: Trainers must develop a scenario for trainees to complete an exposure pathway evaluation.	

TASK STEPS

1. Identify the source of an OEH threat release.[1]
2. Determine environmental media.[2]
3. Identify/analyze the health threat.[3]
4. Identify the route of exposure.[4]
5. Determine the population affected.[5]

LOCAL REQUIREMENTS:

NOTES:

Five elements to an exposure pathway which must be considered.

1. Source of an OEH threat release - Point or non-point origin of a health threat
   a. Documentation should be specific
   b. Examples
      - Field of buried drums
      - Burn pit
      - Bulk chemical storage
      - Incinerator
      - Radio frequency emitters
      - Fugitive emission from off-site industries
      - On-site sanding/painting operations
      - Transportation route

2. Environmental Media - Material an OEH threat can travel through/means by which human exposure occurs.
   a. Examples
      - Air
      - Water
      - Soil
      - Other

3. Health Threat
   a. Definitive threat examples
      - Chemical (Trichloroethylene, JP-8, PM10)
      - Biological (E. coli bacteria)
      - Radiological (Cesium-137)
      - Physical agent with the potential to harm human health (Noise)
   b. Non-definitive threat examples
      - Paint
      - Volatile organic compounds
      - Combustion by-products

- Heavy metals

4. Route of Exposure - Mode the health threat enters or interacts with a human being

a. Examples
   - Inhalation
   - Ingestion
   - Skin Contact
   - Physical
   - Skin Absorption
   - Other.

5. Population at Risk (PAR) - Group of human beings whose health is potentially impacted by a health threat.

a. Scaled term/ranges from the entire base population to a SEG
b. Examples
   - Liquid fuel system maintainers
   - Flight line personnel
   - Adjacent shop workers
   - North cantonment area
   - Base housing
   - Daycare centers
   - Hangar 9
   - Entire installation.

TRAINEE REVIEW QUESTIONS

STS Line Item 4.1.2.4: Exposure pathway evaluation

1. What are the step-by-step-procedures to perform an exposure pathway evaluation?

PERFORMANCE CHECKLIST

STS Line Item 4.1.2.4: Exposure pathway evaluation

Proficiency Code:	3c
PC Definition:	Can do all parts of the task. Needs only a spot check of completed work. Can identify why and when the task must be done and why each step is needed.

DID THE TRAINEE…		YES	NO
14. Identify the source of an OEH threat release?			
15. Determine environmental media?			
16. Identify/analyze the health threat?			
17. Identify the route of exposure?			
18. Determine the population affected?			
Did the trainee successfully complete the task?			

TRAINEE NAME (PRINT)

TRAINER NAME (PRINT)

ANSWERS

1. What are the step by-step-procedures to perform an exposure pathway evaluation?

A:

1. Identify the source of an OEH threat release.
2. Determine environmental media.
3. Identify/analyze the health threat.
4. Identify the route of exposure.
5. Determine the population affected.

(Source: Career Development Course 4B051)

STS Line Item 4.1.2.7(a): Conduct predictive exposure assessments using data and intel (Mass/Volume Model)

TRAINER GUIDANCE

Proficiency Code:	2b
PC Definition:	Can do most parts of the task. Needs help only on hardest parts. Can determine step-by-step procedures for doing the task.
Prerequisites:	None
Training References:	*The Occupational Environment, 3rd Edition*, Chapter 10: Modeling Inhalation Exposure
Additional Supporting References:	AFI48-145, *Occupational and Environmental Health Program.*15 September 2011 AFMAN 48-146, Occupational and Environmental Health Program Management. 9 October 2012. AFMAN48-154, *Occupational and Environmental Health Site Assessment*. Certified current 22 March 2010 NIOSH Pocket Guide to Chemical Hazards http://www.cdc.gov/niosh/npg/ (or equivalent chemical reference)
CDC Reference:	4B051
Training Support Material:	• Calculator
Specific Techniques:	
Criterion Objective:	Given a process and information about chemical usage, process duration, and process location, calculate predictive exposure information using exposure modeling successfully completing checklist items with limited assistance on most difficult items.
Notes: Trainer should provide a process scenario in which a known volume of chemical (including % concentration), is used for a known amount of time, and is used in an area with known volume of air.	

TASK STEPS

1. Calculate mass from liquid density and volume.[1,2]
2. Set up Mass/Volume calculation equation.[3]
3. Calculate concentration in mg/m^3 using Mass/Volume calculation.

LOCAL REQUIREMENTS:

NOTES:

1. The mass/volume model assumes the mass of a contaminant (chemical) completely disperses evenly within the space it is released.
2. When evaluating a liquid chemical evaporating, the liquid volume must be converted to a mass (in mg) by the following equation. Dimensional analysis is necessary to convert the product from grams (g) to milligrams (mg).

   $M = V_{liq} * D$

   M = mass (mg)
   V_{liq} = volume of liquid (mL)
   D = specific density of chemical (g/mL)

3. $C = M/V_{room}$

   C = concentration (mg/m^3)
   M = mass (mg)
   V_{room} = volume of room (m^3)

TRAINEE REVIEW QUESTIONS

STS Line Item 4.1.2.7(a): Conduct predictive exposure assessments using data and intel (Mass/Volume Model)

1. How does utilizing predictive exposure assessments to estimate exposure support hazard characterization?
2. 4 L containing 50% by volume of a solvent (density 0.93 g/mL) is spilled and evaporates in a room that measures 15 m long x 10 m wide x 3m high. What is the resulting concentration using the Mass/Volume zero ventilation model?

PERFORMANCE CHECKLIST

STS Line Item 4.1.2.7(a): Conduct predictive exposure assessments using data and intel (Mass/Volume Model)

Proficiency Code:	2b
PC Definition:	Can do most parts of the task. Needs help only on hardest parts. Can determine step-by-step procedures for doing the task.

DID THE TRAINEE…		YES	NO
1. Calculate mass from liquid density and volume?			
2. Set up Mass/Volume calculation equation?			
3. Calculate concentration in mg/m³ using Mass/Volume calculation?			
Did the trainee successfully complete the task?			

TRAINEE NAME (PRINT)

TRAINER NAME (PRINT)

ANSWERS

1. How does utilizing predictive exposure assessments to estimate exposure support hazard characterization?

A: Additional data increases confidence in OEH hazard characterization.

(Source: Career Development Course 4B051)

2. 4 L containing 50% by volume of a solvent (density 0.93 g/mL) is spilled and evaporates in a room that measures 15 m long x 10 m wide x 3m high. What is the resulting concentration using the Mass/Volume zero ventilation model?

A: Convert liquid volume to units of mL:

(4L) (1000mL/L) (50%) = 2000mL

Multiply spilled quantity by the density and convert to units of mg (Mass = Liquid volume x Density)

(2000mL) (0.93g/ml) (1000mg/g) = 1,860,000mg

Calculate volume of the air space:

15m x 10m x 3m = 450m^3

Solve for average room concentration:

1,860,000mg/450m^3 = 4,133mg/m^3

(Source: Steps 2 and 3 of this QTP)

STS Line Item 4.1.2.7(b): Conduct predictive exposure assessments using data and intel (C_{sat} Model)

TRAINER GUIDANCE

Proficiency Code:	2b
PC Definition:	Can do most parts of the task. Needs help only on hardest parts. Can determine step-by-step procedures for doing the task.
Prerequisites:	None
Training References:	*The Occupational Environment, 3rd Edition*, Chapter 10: Modeling Inhalation Exposure
Additional Supporting References:	AFI48-145, *Occupational and Environmental Health Program.*15 September 2011 AFMAN 48-146, Occupational and Environmental Health Program Management. 9 October 2012. AFMAN48-154, *Occupational and Environmental Health Site Assessment*. Certified current 22 March 2010 NIOSH Pocket Guide to Chemical Hazards http://www.cdc.gov/niosh/npg/ (or equivalent chemical reference)
CDC Reference:	4B051
Training Support Material:	• Calculator
Specific Techniques:	
Criterion Objective:	Given a process and information about chemical usage, process duration, and process location, calculate predictive exposure information using exposure modeling successfully completing checklist items with limited assistance on most difficult items.
Notes: Trainer should provide a process scenario in which a known volume of chemical (including % concentration), is used for a known amount of time, and is used in an area with known volume of air.	

TASK STEPS

1. Set up C_{sat} calculation.[1,2]
2. Solve for C_{sat}.

LOCAL REQUIREMENTS:

NOTES:

1. The C_{sat} model is based on a known mass of contaminant filling a known volume of space. It assumes no ventilation, the space volume is completely filled, and space is filled instantaneously.
2. $C_{sat} = (VP/P_{atm}) * 10^6$

   C_{sat} = concentration (ppm)
   VP = vapor pressure of the chemical (mm Hg)
   P_{atm} = atmospheric pressure at STP = 760 mm Hg

TRAINEE REVIEW QUESTIONS

STS Line Item 4.1.2.7(b): Conduct predictive exposure assessments using data and intel (C_{sat} Model)

1. A 10 L bottle of hexane (VP = 124 mm Hg) was spilled in a laboratory. What is the resulting concentration using the C_{sat} model?

PERFORMANCE CHECKLIST

STS Line Item 4.1.2.7(b): Conduct predictive exposure assessments using data and intel (C_{sat} Model)

Proficiency Code:	2b
PC Definition:	Can do most parts of the task. Needs help only on hardest parts. Can determine step-by-step procedures for doing the task.

DID THE TRAINEE…		YES	NO
1. Set up C_{sat} calculation?			
2. Solve for C_{sat}?			
Did the trainee successfully complete the task?			

TRAINEE NAME (PRINT)

TRAINER NAME (PRINT)

ANSWERS

1. A 10 L bottle of hexane (VP = 124 mm Hg) was spilled in a laboratory. What is the resulting concentration using the C_{sat} model?

A:

$$C_{sat} = (VP/P_{atm}) * 10^6$$

$$C_{sat} = (124 \text{ mm Hg}/760 \text{ mm Hg}) * 10^6$$

$$C_{sat} = 0.163157 * 10^6$$

$$C_{sat} = 163157 \text{ ppm}$$

(Source: Step 2 of this QTP)

STS Line Item 4.1.2.7(c): Conduct predictive exposure assessments using data and intel (Box Model)

TRAINER GUIDANCE

Proficiency Code:	2b
PC Definition:	Can do most parts of the task. Needs help only on hardest parts. Can determine step-by-step procedures for doing the task.
Prerequisites:	None
Training References:	*The Occupational Environment, 3rd Edition*, Chapter 10: Modeling Inhalation Exposure
Additional Supporting References:	AFI48-145, *Occupational and Environmental Health Program.*15 September 2011 AFMAN 48-146, Occupational and Environmental Health Program Management. 9 October 2012. AFMAN48-154, *Occupational and Environmental Health Site Assessment*. Certified current 22 March 2010 NIOSH Pocket Guide to Chemical Hazards http://www.cdc.gov/niosh/npg/ (or equivalent chemical reference)
CDC Reference:	4B051
Training Support Material:	• Calculator
Specific Techniques:	
Criterion Objective:	Given a process and information about chemical usage, process duration, and process location, calculate predictive exposure information using exposure modeling successfully completing checklist items with limited assistance on most difficult items.
Notes: Trainer should provide a process scenario in which a known volume of chemical (including % concentration), is used for a known amount of time, and is used in an area with known volume of air.	

TASK STEPS

1. Determine generation rate.[1,2]
2. Set up box model calculation.[3]
3. Solve for concentration.

LOCAL REQUIREMENTS:

NOTES:

1. The box model assumes the amount of contaminant coming out a "black box" of air is the same as what is going in to it. Assuming steady state conditions, the average concentration in the box stays the same. It assumes the contaminant is not absorbed onto the surfaces of the box; does not react or change composition within the box; and is mixed completely and instantaneously.
2. $G = M/t$

   G = generation rate of air (chemical) going into box (mg/hr)
   M = mass (mg)
   t = time (hr)

3. $C = G / [(Q * m) + k]$

   C = steady state concentration (mg/m^3)
   G = generation rate of air (chemical) going into box (mg/hr)
   Q = ventilation rate, rate of air leaving the box (m^3/hr)
   m = mixing factor = 0.3
   k = removal rate = 0.0

TRAINEE REVIEW QUESTIONS

STS Line Item 4.1.2.7(c): Conduct predictive exposure assessments using data and intel (Box Model)

3. 1 L of 90% Acetone (Density = 0.79g/mL) is applied every 30 minutes to clean equipment in a room with dilution ventilation exhaust measured at 200 cfm. Solve for the concentration using the Box Model.

PERFORMANCE CHECKLIST

STS Line Item 4.1.2.7(c): Conduct predictive exposure assessments using data and intel (Box Model)

Proficiency Code:	2b
PC Definition:	Can do most parts of the task. Needs help only on hardest parts. Can determine step-by-step procedures for doing the task.

DID THE TRAINEE…		YES	NO
1. Determine generation rate?			
2. Set up box model calculation?			
3. Solve for concentration?			
Did the trainee successfully complete the task?			

TRAINEE NAME (PRINT)

TRAINER NAME (PRINT)

ANSWERS

1. 1 L of 90% Acetone (Density = 0.79g/mL) is applied every 30 minutes to clean equipment in a room with dilution ventilation exhaust measured at 200 cfm. Solve for the concentration using the Box Model.

A:

Determine liquid volume in mL:

(1L) (90%) (1000mL/L) = 900mL

Determine mass in mg:

(900mL) (0.79g/mL) (1000mg/g) = 711,000mg

Determine generation rate in mg/hr:

(711,000mg/30min) (60min/hr) = 1,422,000mg/hr

Convert CFM to m^3/h. (1 cfm = $1.7 m^3/hr$)

(200 cfm) ((1.7 m^3/h)/cfm) = $340 m^3/hr$

Solve for concentration:

(1,422,000mg/hr) / (($340 m^3/hr$)* (0.3)) = 13941.2 mg/m^3

(Source: Steps 2 and 3 of this QTP)

STS Line Item 4.1.2.7: Conduct predictive exposure assessments using data and intel (Predict Concentration after Elapsed Time)

TRAINER GUIDANCE

Proficiency Code:	2b
PC Definition:	Can do most parts of the task. Needs help only on hardest parts. Can determine step-by-step procedures for doing the task.
Prerequisites:	None
Training References:	*The Occupational Environment, 3rd Edition,* Chapter 10: Modeling Inhalation Exposure
Additional Supporting References:	AFI48-145, *Occupational and Environmental Health Program.*15 September 2011 AFMAN 48-146, Occupational and Environmental Health Program Management. 9 October 2012. AFMAN48-154, *Occupational and Environmental Health Site Assessment*. Certified current 22 March 2010 NIOSH Pocket Guide to Chemical Hazards http://www.cdc.gov/niosh/npg/ (or equivalent chemical reference)
CDC Reference:	4B051
Training Support Material:	• Calculator
Specific Techniques:	
Criterion Objective:	Given a process and information about chemical usage, process duration, and process location, calculate predictive exposure information using exposure modeling successfully completing checklist items with limited assistance on most difficult items.
Notes: Trainer should provide a process scenario in which a known volume of chemical (including % concentration), is used for a known amount of time, and is used in an area with known volume of air.	

TASK STEPS

1. Set up Concentration after an Elapsed Time equation.[1,2]
2. Solve for concentration at elapsed time.

LOCAL REQUIREMENTS:

NOTES:

1. This model allows the ability to determine what a concentration will be at a future time given an initial concentration. Conversely, it can be utilized to determine an initial concentration (i.e. from a chemical spill earlier) from a current concentration known "now".

2. $C = C_0 e^{-(Q*m*t)/V}$

   C = concentration at elapsed time
   C_0 = initial concentration
   Q = ventilation rate (CFM)
   V = room volume (ft^3)
   m = mixing factor = 0.3
   t = elapsed time (min)

TRAINEE REVIEW QUESTIONS

STS Line Item 4.1.2.7: Conduct predictive exposure assessments using data and intel (Predict Concentration after Elapsed Time)

1. A spill in a 25 ft x 20 ft x 10 ft laboratory with a lab hood exhausting at 200 CFM results in an initial concentration of 300 ppm of solvent. What is the concentration in the lab 2 hours later?

PERFORMANCE CHECKLIST

STS Line Item 4.1.2.7: Conduct predictive exposure assessments using data and intel (Predict Concentration after Elapsed Time)

Proficiency Code:	2b
PC Definition:	Can do most parts of the task. Needs help only on hardest parts. Can determine step-by-step procedures for doing the task.

DID THE TRAINEE…		YES	NO
1. Set up Concentration after an Elapsed Time equation?			
2. Solve for concentration at elapsed time?			
Did the trainee successfully complete the task?			

TRAINEE NAME (PRINT)

TRAINER NAME (PRINT)

ANSWERS

1. A spill in a 25 ft x 20 ft x 10 ft laboratory with a lab hood exhausting at 200 CFM results in an initial concentration of 300 ppm of solvent. What is the concentration in the lab 2 hours later?
   A:
   Calculate volume of the air space:

   $V = 25 \text{ ft} \times 20 \text{ ft} \times 10 \text{ ft} = 5000 \text{ ft}^3$

   $Q = 200 \text{ CFM}$

   $t = 2 \text{ hrs} * (60 \text{ min}/1 \text{ hr}) = 120 \text{ mins}$

   $C_0 = 300 \text{ ppm}$

   Solve for concentration: $C = C_0 e^{-(Q*m*t)/V}$

   $C = 300 \text{ ppm } e^{-(200 \text{ CFM} * 0.3 * 120 \text{ mins})/5000 \text{ ft3}}$

   $C = 300 \text{ ppm } e^{-(7200 \text{ ft3})/5000 \text{ ft3}}$

   $C = 300 \text{ ppm } e^{-1.44}$

   $C = 300 \text{ ppm } (0.24)$

   $C = 71.08 \text{ ppm}$

(Source: Step 2 of this QTP)

STS Line Item 4.1.4.1: Collect data required in TIC/TIM vulnerability assessment

TRAINER GUIDANCE

Proficiency Code:	2b
PC Definition:	Can do most parts of the task. Needs help only on hardest parts. Can determine step-by-step procedures for doing the task.
Prerequisites:	None
Training References:	USAFSAM*, Toxic Industrial Chemicals/Toxic Industrial Materials Vulnerability Assessment Technical Guide*, July 2009, Updated September 2011
Additional Supporting References:	AFI48-145, *Occupational and Environmental Health Program.*15 September 2011 AFMAN48-154, *Occupational and Environmental Health Site Assessment*. Certified current 22 March 2010 *Bioenvironmental Engineering Field Manual*, November 2012
CDC Reference:	4B051
Training Support Material:	*TIC/TIM Vulnerability Assessment Technical Guide* • *Form 1-1: Stakeholders Listing* • *Form 1-2: Meteorological Data Worksheet* • *Form 1-3: Toxic Industrial Chemicals/Toxic Industrial Materials (TIC/TIM) Inventory* • *Form 1-4: Levels of Concern (LOCs) Table for TIC* • *Form 1-5: TIC/TIM Inventory Hazard Zones*
Specific Techniques:	
Criterion Objective:	With limited assistance, compile needed data to perform a TIC/TIM vulnerability assessment.
Notes: **Bolded items are exclusive to 5-levels within the overall process.**	

TASK STEPS

1. Identify lead assessor[1]
2. Identify team members and assign roles and responsibilities[2]
3. **Develop list of stakeholders** [3]
4. **Identify TIC/TIM of concern**[4]
5. **Determine sources for collecting TIC/TIM data**
6. **Collect off-base TIC/TIM data**
7. **Collect transportation data**[5]
8. **Collect on-base TIC/TIM data**[6]
9. Verify data
10. Compile comprehensive TIC/TIM Inventory[7]
11. **Obtain base map**[8]
12. **Collect meteorological and terrain data**[9]
13. **Collect natural disaster and accident information**
14. **Collect data on TIC/TIM characteristics**[10]
15. Screen toxic substances to determine potential impact to base
16. **Develop location maps**[11]
17. Develop worst-case and alternative scenarios[12]
18. Determine the severity of each scenario
19. Delineate chemical and/or radiological hazard zones
20. Determine the severity rating[13]
21. Determine the probability of each scenario[13]
22. Assign a risk level to each scenario[13]
23. Develop report in classified and/or unclassified version(s)[14]
24. Utilize OEHMIS (DOEHRS or equivalent)

LOCAL REQUIREMENTS:

NOTES:

1. A lead assessor is necessary to coordinate and manage the assessment team. It is his/her responsibility to assign all tasks associated with the assessment and to ensure that the assessment is completed on schedule.
2. Individuals from various organizations that can support data collection requests are identified. The team members should have strong technical backgrounds and familiarity with TIC/TIM assessment methodology; Site-specific TICs/TIMs, including installation infrastructure, base operations, and off-base industries; TIC/TIM characteristics and health effects; and transport of contaminants via air (outdoors and indoors) and water.
3. Stakeholders, those with an interest in the outcome of the assessment, can include those organizations above with the addition of others not directly involved in the assessment. Collectively, they can include the following individuals, organizations and entities:
   - Bioenvironmental Engineering (BE)
   - Radiation Safety Officer (RSO)
   - Antiterrorism Officer (ATO)
   - Office of Special Investigations (OSI)/Intel
   - Security Forces
   - Civil Engineering (CE)
     - Hazardous Material Pharmacy Manager
     - Safety Office
     - Weather Office
     - Public Health
     - Contractor Support
     - Off-Base LEPC Representative(s)
     - Off-Base SERC Representative(s)
     - Railroad Company Environmental Safety Officer(s).

   Use *Form 1-1: Stakeholders Listing*, from the *TIC/TIM Vulnerability Assessment Technical Guide.*

4. It is recommended that the TIC of concern include toxic substances regulated under EPA Risk Management Plan (RMP) program and toxic chemicals for which NIOSH has determined Immediately Dangerous to Life or Health (IDLH) concentration values. The TIMs also include Toxic Industrial Biologicals (TIBs) and Toxic Industrial Radiologicals (TIRs).
5. The assessors should collect information about the various transportation routes (railway, highway, and waterway) near the base and evaluate each for the possibility of a TIC/TIM release. Railroad companies and trucking firms maintain records/manifests that list type, quantity, and frequency of shipments that could impact a site assessment.
6. The possible sources to contact may include the following:
   - HAZMART Pharmacy to obtain a list of hazardous materials (to include toxics) from the master chemical authorization database
   - Hazardous Waste Program Manager to obtain a copy of the latest hazardous waste stream inventory
   - Central Hazardous Waste Storage Facility Manager to obtain information on hazardous waste stored at the installation hazardous waste storage facility
   - Base Supply to obtain a list of any chemicals on base that are not obtained through HAZMART Pharmacy
   - CE Storage Tank Manager to obtain information on any storage tanks containing toxic chemicals (e.g., hydrazine, hydrochloric acid)
   - Installation Fire Department and/or EM to obtain information on response scenarios based on known chemicals on base
   - Installation Radiation Safety Officer (RSO) to obtain information on industrial radiation sources on base.
   - Medical Infection Control Officer to obtain a list of TIBs
7. Use *Form 1-3: Toxic Industrial Chemicals/Toxic Industrial Materials (TIC/TIM) Inventory,* from *TIC/TIM Vulnerability Assessment Technical Guide* to compile comprehensive TIC/TIM inventory.
8. The base map should be wide-ranging enough to include Zone 1 (an area where death may result), Zone 2 (an area where severe injuries and/or illnesses may result), and Zone 3 (an area where minor injuries and/or illnesses may result). The map should include at least a 20-mile radius around the base. Use the map for identifying location of TIC/TIM.
9. Wind speed, wind direction, and atmospheric stability are expressed using the Pasquill stability classes. Use *Form 1-2: Meteorological Data Worksheet*, from *TIC/TIM Vulnerability Assessment Technical Guide*
10. Use *Form 1-4: Levels of Concern (LOCs) Table for TIC* from *TIC/TIM Vulnerability Assessment Technical Guide*.
11. The following items should be included on these maps:
    - TIC/TIM identifiers and locations
    - Base facilities and critical assets

- Transportation assets, including roads, railroads, and base access points

12. *Form 1-5: TIC/TIM Inventory Hazard Zones* from the *TIC/TIM Vulnerability Assessment Technical Guide* can be used in determining each scenario.
13. The severity rating can be catastrophic, critical, moderate, or negligible. The probability rating is expressed as frequent (or likely), occasional, seldom, or unlikely. Use the Operational Risk Management (ORM) Risk Assignment Matrix to assign risk to each scenario. It is located on page 29 of USAFSAM*, Toxic Industrial Chemicals/Toxic Industrial Materials Vulnerability Assessment Technical Guide,* July 2009
14. Upon completion of the field assessment, the team should document and consolidate results. The report should include the following elements:
    - Executive Summary
    - Introduction
    - Methodology
    - Scope and Limitations
    - TIC/TIM Assessment and Inventory
    - Risk Assessment
    - Conclusion
    - References
    - Appendices (forms, maps/plots, weather data, comprehensive inventory)

    The report will typically be generated in classified and/or unclassified version(s). A classified version is stored on the Secret Internet Protocol Router Network (SIPRNET) and is available only to personnel with the proper security clearance.

TRAINEE REVIEW QUESTIONS

STS Line Item 4.1.4.1: Collect data required in TIC/TIM vulnerability assessment

1. From the choices below, choose which are considered stakeholders in the TIC/TIM vulnerability assessment process. Circle all that apply. Federal Laboratory Consortium Radiation Safety Officer Security Forces Legal Office Medical Group Public Health Off Base SERC Representative(s) Contracting Office Weather Office
2. What are some of the possible sources from which to collect TIC/TIM data on-base? Circle all that apply. Hazardous Waste Program Manager Fire Department Security Office Base Supply HAZMAT Pharmacy
3. What are the three types of TIC/TIM that need to be inventoried and/or evaluated?

PERFORMANCE CHECKLIST

STS Line Item 4.1.4.1: Collect data required in TIC/TIM vulnerability assessment

Proficiency Code:	2b
PC Definition:	Can do most parts of the task. Needs help only on hardest parts. Can determine step-by-step procedures for doing the task.

DID THE TRAINEE…		YES	NO
1. Identify lead assessor?			
2. Identify team members and assign roles and responsibilities?			
3. Develop list of stakeholders?			
4. Identify TIC/TIM of concern?			
5. Determine sources for collecting TIC/TIM data			
6. Collect off-base TIC/TIM data?			
7. Collect transportation data?			
8. Collect on-base TIC/TIM data?			
9. Verify data?			
10. Compile comprehensive TIC/TIM Inventory?			
11. Obtain base map?			
12. Collect meteorological and terrain data?			
13. Collect natural disaster and accident information?			
14. Collect data on TIC/TIM characteristics?			
15. Screen toxic substances to determine potential impact to base?			
16. Develop location maps?			
17. Develop worst-case and alternative scenarios?			

18. Determine the severity of each scenario?			
19. Delineate chemical and/or radiological hazard zones?			
20. Determine the severity rating?			
21. Determine the probability of each scenario?			
22. Assign a risk level to each scenario?			
23. Develop report in classified and/or unclassified version(s)?			
24. Utilize OEHMIS (DOEHRS or equivalent)?			
Did the trainee successfully complete the task?			

TRAINEE NAME (PRINT)

TRAINER NAME (PRINT)

ANSWER

1. From the choices below, choose which are considered stakeholders in the TIC/TIM vulnerability assessment process. Circle all that apply.

   Federal Laboratory Consortium
   Radiation Safety Officer
   Security Forces
   Legal Office
   Medical Group
   Public Health
   Off Base SERC Representative(s)
   Contracting Office
   Weather Office

A: Radiation Safety Officer, Security Forces, Public Health, and Weather Office.

(Source: USAFSAM, Toxic Industrial Chemicals/Toxic Industrial Materials Vulnerability Assessment Technical Guide, July 2009, Updated September 2010.)

2. What are some of the possible sources from which to collect TIC/TIM data on-base? Circle all that apply.

   Hazardous Waste Program Manager
   Fire Department
   Security Office
   Base Supply
   HAZMAT Pharmacy

A: Hazardous Waste Program Manager, Fire Department, Base Supply, and HAZMAT Pharmacy.

(Source: USAFSAM, Toxic Industrial Chemicals/Toxic Industrial Materials Vulnerability Assessment Technical Guide, July 2009, Updated September 2010.)

STS Line Item 4.1.8: Utilize the DOEHRS

TRAINER GUIDANCE

Proficiency Code:	3c
PC Definition:	Can do all parts of the task. Needs only a spot check of completed work. Can identify why and when the task must be done and why each step is needed.
Prerequisites:	None
Training References:	DOEHRS Student Guides https://doehrs-ih.csd.disa.mil/Doehrs/DisplayStudentGuides.do
Additional Supporting References:	• ESOH Service Center – DOEHRS Support (DOEHRS Technical Guides)
CDC Reference:	4B051
Training Support Material:	• Computer with DOEHRS access
Specific Techniques:	Conduct hands-on training and evaluation.
Criterion Objective:	Given OEH data, correctly input data into the DOEHRS IAW DOEHRS student guides and applicable local policy.

Notes:

This training module. 4.1.8 – OEH Program Overview, Utilize the DOEHRS, covers all OEH data entry into DOEHRS. Trainers can focus more attention to modules that support specific training requirements at their installation. Refer to the flight Master Training Plan for specific training requirements.

A DOEHRS Demo account is recommended if actual OEH data is not available for input.

TASK STEPS

1. Login to DOEHRS.
2. Enter correct module of DOEHRS and select shop.[1]
3. Add observations and notes.[1]
4. Update shop personnel roster.[1]
5. Add or update processes.[1]
6. Add personnel to the process.[1]
7. Add equipment to the process.[1]
8. Add hazmat to the process.[1]
9. Identify and add actual/potential OEH hazards to the process.[1]
10. Add controls to the process.[1]
11. Create a SEG.[1]
12. Verify accuracy of data.

LOCAL REQUIREMENTS:

NOTES:

1. Correctly input data into the DOEHRS IAW DOEHRS Guidance Document and applicable local policy.

TRAINEE REVIEW QUESTIONS

STS Line Item 4.1.8: Utilize the DOEHRS

1. What are the six types of data that are managed within DOEHRS?
2. Why is entering accurate data into DOEHRS for every Health Risk Assessment(HRA) important?
3. What kind of information is documented in the Observation and Notes section of DOEHRS?

PERFORMANCE CHECKLIST

STS Line Item 4.1.8: Utilize the DOEHRS

Proficiency Code:	3c
PC Definition:	Can do all parts of the task. Needs only a spot check of completed work. Can identify why and when the task must be done and why each step is needed.

DID THE TRAINEE…		YES	NO
1. Login to DOEHRS?			
2. Enter correct module of DOEHRS and select shop?			
3. Add observations and notes?			
4. Update shop personnel roster?			
5. Add or update processes?			
6. Add personnel to the process?			
7. Add equipment to the process?			
8. Add hazmat to the process?			
9. Identify and add actual/potential OEH hazards to the process?			
10. Add controls to the process?			
11. Create a SEG?			
12. Verify accuracy of data?			
Did the trainee successfully complete the task?			

TRAINEE NAME (PRINT) TRAINER NAME (PRINT)

ANSWERS

1. What are the six types of data that are managed within DOEHRS?

A:

1. Environmental health surveillance data.
2. Occupational personnel exposure information.
3. Workplace environmental monitoring data.
4. Personal protective equipment usage data.
5. Observation of work practices data.
6. Employee health hazard educational data.

(Source: Career Development Course 4B051)

2. Why is entering accurate data into DOEHRS for every Health Risk Assessment(HRA) important?

A: The HRA data in DOEHRS serves as the basis for recommendations to protect workers from health threats and risks. Additionally, DOEHRS maintains Longitudinal Exposure Records for individual workers throughout the Department of Defense.

(Source: Career Development Course 4B051)

3. What kind of information is documented in the Observation and Notes section of DOEHRS?

A: You can document all contacts with the shop (page 9 and 60), including follow-ups to compliance assessments (page 22), and details of the closing conference (page 37). You can also document unscheduled evaluations and requests like pregnancy evaluations, and OEH illness investigations (page 2 and 55).

(Source: DOEHRS Guidance Document)