

Integrated Safety Management System

DO WORK SAFELY

Study Guide 9/13/2016

Study Guide Overview

- This Study Guide has been written to help TWPC Personnel get ready for the DOE Phase I Evaluation of the North Wind Solutions, LLC Integrated Safety Management System.
- The Study Guide is written for a two-sided slide format. Question on one side and answer on the other side.

ISMS Question No. 1

- What is ISMS?

ISMS Answer No. 1

- The concept of Integrated Safety Management System (ISMS) is that safety is included in every work activity we perform.
- The main objective of ISMS is to

DO WORK SAFELY

ISMS Question No. 2

- How does ISMS Work?

ISMS Answer No. 2

- ISMS is structured around five core functions and seven guiding principles to ensure that work will be performed **safely**.
(Hint – use your card to list the core functions and guiding principles)

Five (5) Core Functions

1. Define the scope of work
2. Analyze hazards
3. Hazard controls
4. Perform the work
5. Feedback and improvement

ISMS Answer No. 2

Seven (7) Guiding Principles

1. Line Management responsibility for safety
2. Clear roles and responsibility
3. Competence commensurate with responsibilities
4. Balanced priorities
5. Identification of safety standards and requirements
6. Hazard controls tailored to work
7. Operations Authorization

ISMS Answer No. 2

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ISMS Question No. 3

- Define and explain the 5 Core Functions of ISMS

ISMS Answer No. 3

- **Define the Scope of Work** – know what the expectations and priorities are and the resources to do the work safely.
- **Analyze Hazards** – know the hazards associated with our work and understand the significance and concerns associated with each hazard.
- **Hazard Controls** – know how to control the identified hazards and to use applicable controls.
- **Perform the Work** – know what is needed, when we are ready to perform work safely and that work does not start until authorized.
- **Feedback and Improvement** – understand what went well, what needs improvement, and make the changes to improve our work the next time.

ISMS Question No. 4

- Define and explain the 7 Guiding Principles of ISMS.

ISMS Answer No. 4

- **Line Management Responsibility for Safety** – Line management is responsible for the safe and efficient conduct of work. You are also responsible for your own safety.
- **Clear Roles and Responsibility** – Clear lines of authority and responsibility for ensuring safety is established and maintained at all organizational levels.
- **Competence Commensurate with Responsibilities** – All employees and subcontractors have the experience, knowledge, skills, and abilities that are necessary to do the work they are responsible for performing.
- **Balanced Priorities** – Priorities are balanced to effectively address safety, programmatic, and operational needs.
- **Identification of Safety Standards and Requirements** – Before work is performed, hazards are evaluated, and standards and requirements are established to protect the public, the workers, and the environment.
- **Hazard Controls Tailored to Work** – Administrative and engineering controls are identified and used to prevent and mitigate hazards.
- **Operations Authorization** – The conditions and requirements to perform work safely are agreed upon and work is authorized.

ISMS Question No. 5

- Why does DOE utilize four supplemental high-reliability principles for ISMS?

ISMS Answer No. 5

- DOE utilizes the four supplemental reliability principles listed below to help develop the appropriate environment for ISMS.
 - Individual Attitude and Responsibility for Safety
 - Operational Excellence
 - Oversight of Performance Assurance
 - Organizational Learning for Performance Improvement

ISMS Question No. 6

- Explain High-Reliability Principle No. 1 –
– Individual Attitude and Responsibility for Safety

ISMS Answer No. 6

- Each TWPC worker accepts personal responsibility and accountability for safe operations. Individuals should demonstrate a questioning attitude by challenging assumptions, and finding the facts for themselves. Attributes of this principle include:
 - Individuals understand safety expectations and demonstrate responsibility for safety on each job.
 - Individuals are actively involved in planning work and identifying potential hazards.
 - Individuals are comfortable raising and discussing questions or concerns; management is not defensive when issues are raised.
 - Individuals promptly report errors, accidents, and incidents without fear of retaliation.

ISMS Question No. 7

- Explain High-Reliability Principle No. 2 –
– Operational Excellence

ISMS Answer No. 7

- The TWPC achieves sustained, high levels of operational performance in safety, productivity, quality and environmental protection. Managers and supervisors regularly and promptly communicate important operational decisions, their basis, expected outcomes and potential problems. High-reliability is achieved through open communication, deference to expertise, and systematic approach to eliminating accidents and errors. Attributes of this principle include:
 - Managers are in close contact with the front line.
 - Operational anomalies receive prompt attention and evaluation.
 - Candid dialogue, debate and a healthy skepticism exists and is encouraged; the messenger is not penalized for bringing forth an issue.
 - Periodic assessments are conducted and used as a basis for ISMS program adjustments and implementation improvements.

ISMS Question No. 8

- Explain High-Reliability Principle No. 3 –
– Oversight of Performance Assurance

ISMS Answer No. 8

- Competent and independent oversight is an essential source of feedback to management. The feedback verifies expectations are being met and identifies opportunities for improvement. Attribute of the principle include:
 - Performance Assurance programs are guided by plans which ensure a base level of relevant areas are reviewed.
 - Operating experience is highly valued. Lessons learned are shared across the organizational boundaries and within the DOE complex. The organization regularly examines and learns from operating experiences.
 - Efficient redundancy in monitoring is valued.
 - Organizational feedback is actively sought and valued.

ISMS Question No. 9

- Explain High-Reliability Principle No. 3 –
 - Organizational Learning for Performance Improvement

ISMS Answer No. 9

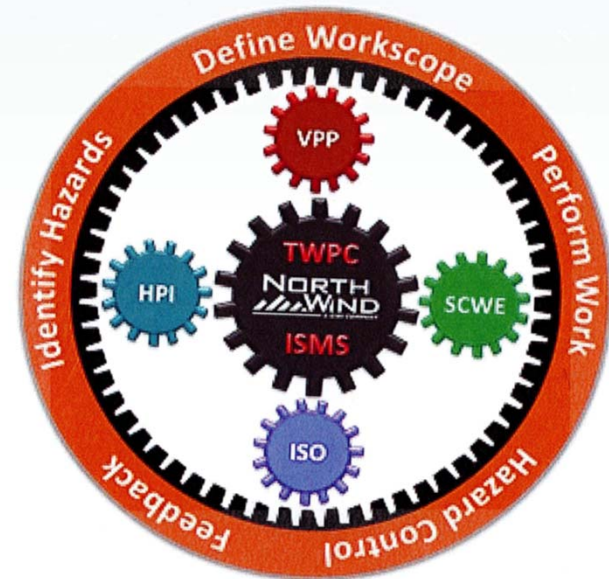
- The TWPC demonstrates excellence in performance monitoring, problem analysis, and solution implementation. The TWPC encourages continuous learning. Attributes of this principle include:
 - Performance is monitored through a variety of indicators, including, management walk-arounds, performance trends, benchmarking, and self-assessments.
 - Expertise in causal analysis is applied effectively to events.

ISMS Question No. 10

- What other programs has TWPC embraced to strengthen and support the implementation of ISMS?

ISMS Answer No. 10

- **DOE-Voluntary Protection Program (VPP)**
 - VPP tenets provide particular emphasis on employee involvement and management support expectations.
- **Human Performance Improvement Program (HPI)**
 - HPI provides tools and approaches that have been used extensively in the commercial nuclear industry to reduce human errors in the work place.
- **Safety Conscious Work Environment (SCWE)**
 - SCWE provides an approach for organizations to ensure that there is a free flow of information that is imperative to becoming a true learning organization.
- **ISO 14001 – Environmental Management System (ISO)**
 - ISO provides a systematic and structured approach for addressing the environmental consequences of an organization’s activities, products and services.



ISMS Question No. 11

- What are the Voluntary Protection Program (VPP) Tenets?

ISMS Answer No. 11

- **Tenet 1 – Management Leadership**
 - Provides the motivating force and the resources for organizing and controlling activities. Health and Safety is considered a fundamental value and is visibly supported.
- **Tenet 2 – Employee Involvement**
 - Provides the means through which all employees are encouraged to participate in developing and/or expressing their own commitment to HS protection.
- **Tenet 3 – Worksite Analysis**
 - Involves identification and evaluation of not only work site HS hazards but also conditions and operations in which changes might occur to create hazards; investigation of accident and near-miss incidents and provision of an employee concerns program.
- **Tenet 4 – Hazard Prevention and Control**
 - Indicates the alternative techniques to be used for eliminating, preventing or controlling the work site HS hazards in a timely manner.
- **Tenet 5 – Safety and Health Training**
 - Influences attitudes and knowledge of managers, supervisors and employees concerning their HS responsibilities; stimulates interest in HS and provides specific instructions concerning how to prevent on-the-job accidents and illnesses.

ISMS Question No. 12

- What are the five (5) Human Performance Improvement (HPI) Program Principles?

ISMS Answer No. 12

- **HPI Principle No. 1 – The Individual**
 - People are fallible, and even the best make mistakes
- **HPI Principle No. 2 – Error Traps**
 - Error-likely situations are predictable, manageable, and preventable.
- **HPI Principle No. 3 – The Organization**
 - Individual behavior is influenced by organizational processes and values.
- **HPI Principle No. 4 - Reinforcement**
 - People achieve high levels of performance because of the encouragement and reinforcement received from leaders, peers, and subordinates.
- **HPI Principle No. 5 – Continuous Improvement**
 - Events can be avoided through an understanding of the reasons mistakes occur and application of the lessons learned from past events or errors.

ISMS Question No. 13

- What are some of the attributes of a successful Safety Conscious Work Environment (SCWE)?

ISMS Answer No. 13

- Commitment
- Conservatism
- Problem Identification and Resolution
- Training
- Self-Assessment
- Trust
- Communications
- Free Flow of Information
- Alternative Avenues for handling personnel concerns
- Personnel Management
- Prevention of Retaliation

ISMS Question No. 14

- Describe how your work performance is essential for achieving SCWE.

ISMS Answer No. 14

- Perform your own work safely using the 5 core functions of ISMS.
 - Watch out for each other
 - Apply ALARA principles to any potentially hazardous task
 - If you aren't sure, pause and get it right
 - Stop Work for imminent safety hazards
 - Learn from both your successes and mistakes
 - Report to work fit for duty; fitness for duty is your responsibility

ISMS Question No. 15

- What are some expectations for implementation of ISMS that include behaviors that are essential for achieving a SCWE?

ISMS Answer No. 15

- Earn each other's trust by treating each other with dignity and respect.
- Comply with procedures. If a procedure can't be followed, step back (pause) and get clarification or correction before proceeding on that specific activity.
- Demonstrate a questioning attitude. If something doesn't seem right, it probably isn't. Bring it to the attention of your supervisor.
- Complete required training. Only perform tasks that you have been qualified and authorized to perform.
- Maintain a safe and well-kept work environment.
- Support VPP approaches to safety.
- Do not engage in or tolerate harassment, intimidation, retaliation or discrimination.
- Adhere to the Conduct of Operations requirements.

ISMS Question No. 16

- Compare the ISMS 5 Core Functions with the TWPC Work Control Process.

ISMS Answer No. 16

<u>ISMS Core Function</u>	<u>Work Control Process</u>
Define Scope of Work	Work Identification
Analyze the Hazard	Work Planning
Develop & Implement Hazard Controls	Develop AHA
Perform Work within Controls	Work Execution
Provide Feedback and Continuous Improvement	Work Planning, Execution, Closeout and Review

ISMS Question No. 17

(Analyze Hazards & Implement Hazards Controls)

- Describe how hazards are identified and analyzed at TWPC.

ISMS Answer No. 17

(Analyze Hazards & Implement Hazards Controls)

- Work is reviewed to define hazards that workers may be exposed to during performance of the work in accordance with CM-P-IS-007, *Activity Hazard Analysis*.
- The AHA describes the hazards and the controls used to eliminate or mitigate the hazards, or minimize worker exposure to hazards, for the work described in the applicable work control documents.

ISMS Question No. 18

(Analyze Hazards & Implement Hazards Controls)

- Describe AHA Development/Review

ISMS Answer No. 18

(Analyze Hazards & Implement Hazards Controls)

- AHAs are developed or reviewed by a team of departmental representatives who are familiar with the work activity and/or have specific technical knowledge of the relevant subject matter areas affecting the work activity being analyzed.
- Affected personnel who will be involved in performing the work activity are given the opportunity to provide input to the development and/or review effort.
- AHAs are developed and reviewed in accordance with CM-P-IS-007, *Activity Hazard Analysis*.

ISMS Question No. 19 (Implement Hazards Controls)

- What is the hierarchy of hazard controls?

ISMS Answer No. 19 (Implement Hazards Controls)

- The hierarchy of hazard controls listed in CM-P-IS-007, *Activity Hazard Analysis*, is as follows:
 - Elimination of the hazards where feasible and appropriate
 - Substitution of a less hazardous method/process where feasible and appropriate
 - Engineering controls where feasible and appropriate
 - Work practices and administrative controls that limit work exposures
 - Personal protective equipment (PPE)

ISMS Question No. 20

(Perform Work)

- Describe the purpose of the Pre-Job Briefing

ISMS Answer No. 20

(Perform Work)

- The purpose of the Pre-Job Brief is to ensure participants are prepared, the work scope and performance expectations are defined, hazards and environmental impacts are understood and controlled, and any last minute questions are answered. Participants clarify the task's objectives, personnel roles and responsibilities, tools and materials and resources needs. In addition, precautions, limitations, hazards, permits, critical steps, controls, hold points, post-maintenance testing, contingencies and previous Lessons Learned are addressed.

ISMS Question No. 21 (Perform Work)

- When and where should a pre-job brief be conducted?

ISMS Answer No. 21

(Perform Work)

- **When**

- Perform a pre-job brief prior to beginning a task each day the task is performed.

- **Where**

- As close to the job site as conditions permit
- The pre-job brief should be conducted in a work environment that fosters attention and participation.

ISMS Question No. 22 (Perform Work)

- Where is work scheduled and coordinated?

ISMS Answer No. 22

(Perform Work)

- Scheduling and coordinating work is accomplished using the Plan of the Day (POD) meeting.
- Scheduling and coordinating maintenance/operations work is discussed at the daily shift briefing at the Control Point.
- Scheduling and coordinating maintenance work is discussed at the daily maintenance pre-shift briefing in the Maintenance Office.

ISMS Question No. 23

(Perform Work)

- Who gives work start approval?

ISMS Answer No. 23

(Perform Work)

- Shift Superintendent

ISMS Question No. 24 (Perform Work)

- Who has STOP WORK authority?

ISMS Answer No. 24 (Perform Work)

- ALL PERSONNEL

ISMS Question No. 25 (Perform Work)

- What are the 3 levels of STOP WORK?

ISMS Answer No. 25

(Perform Work)

- **Step Back**
 - Per CM-I-AD-016, Technical Procedure Use and Adherence
- **Work Pause**
 - Per CM-P-AD-087, *Work Pause*
- **Work Suspension**
 - Per CM-P-AD-043, *Work Suspension and Restart*

ISMS Question No. 26 (Perform Work)

- When is a STEP BACK appropriate?

ISMS Answer No. 26

(Perform Work)

- A procedure cannot be performed as written.
- Work conditions or hazards have changed from those described in the approved work document.
- An action level is met or exceeded that requires suspension of work (e.g., RWP or Heat Stress).
- The worker believes it is unsafe to continue.
- An unexpected result occurs.
- A procedure deficiency, inaccuracy, or conflict is identified.
- The user is unsure of the actions required.
- Concerns cannot be immediately and adequately addressed.

ISMS Question No. 27 (Perform Work)

- What actions should be taken when a STEP BACK is performed?

ISMS Answer No. 27

(Perform Work)

- **Worker**
 - Ensure reasonable actions are taken to place the activity into a safe configuration.
 - Notify the Supervisor/Lead
- **Supervisor/Lead**
 - Evaluate STEP BACK situations for the proper path forward.
 - If situation can be easily resolved and Worker agrees, then go back to work.
 - If circumstances warrant a work pause, then:
 - Suspend work activities
 - Notify the SS

ISMS Question No. 28

(Perform Work)

- When is a WORK PAUSE appropriate?

ISMS Answer No. 28

(Perform Work)

- An unexpected event took place without a simple explanation of the cause (e.g., a pop and flash in the CPE).
- An unanalyzed hazard exists.
- A non-compliance was involved.
- The condition or event was a near-miss.
- There was a TSR violation.
- The initiator of the concern has not had the issue addressed satisfactorily.

ISMS Question No. 29 (Perform Work)

- When is a WORK SUSPENSION appropriate?

ISMS Answer No. 29 (Perform Work)

- Formal work suspensions are issued when continued work would:
 - Pose an imminent danger to personnel safety
 - Have a potential for major damage to plant equipment
 - Violate a code of federal regulation
 - Jeopardize the TWPC mission
 - Be an instance of repetitive violations of requirements.

ISMS Question No. 30 (Feedback)

- What is the goal of the post-job brief?

ISMS Answer No. 30 (Feedback)

- The goal of the post-job brief is to improve the work planning and control processes and their implementation.
- A post-job brief ensures job participants capture lessons learned (positive or negative) and any deficiencies are identified for correction while the information is still fresh. The post-job brief allows an increased interaction between workers and supervision to exchange job-specific information and increase awareness of potential areas for improvement.

ISMS Question No. 31 (Feedback)

- What are some areas that should be covered and evaluated during a post-job brief?

ISMS Answer No. 31

(Feedback)

- Were procedures/documents used for job appropriate/adequate?
- Were additional hazards encountered that should be addressed?
- Were RWP(s), permits, and impairments adequate?
- Were inspections, including post maintenance testing, and data collection adequate?
- Were the controls appropriate and effective? Any changes required?
- Was additional training required?
- Were there any lessons learned for future jobs?

ISMS Question No. 32 (Continuous Improvement)

- Describe some methods used on the site to promote Continuous Improvement.

ISMS Answer No. 32 (Continuous Improvement)

- The site has several mechanisms in place to motivate and stimulate continuous improvement opportunities:
 - Management culture which encourages a questioning attitude
 - Proactive Safety Committee Program
 - Safety Culture Improvement Process (SCIP)
 - Disciplined approach to planning, scheduling and performing the appropriate assessments each year
 - Use of a formal issues management and corrective action tracking system to track progress
 - Integrated lessons learned program
 - Alternative and safe channels for employees to voice a concern or differing opinion on a project activity
 - Ongoing QA and Conduct of Operations (ConOps) reviews

ISMS Question No. 33 (Continuous Improvement)

- How does the Safety Culture Improvement Process (SCIP) assist with Continuous Improvement?

ISMS Answer No. 33 (Continuous Improvement)

- The use of the SCIP to identify deficiencies and areas for improvement and incorporating change based on a team approach improves worker involvement, ownership and willingness to embrace change.
- The SCIP process is a tool that, when used correctly, will decrease deficiencies and improve communication between organizations.