

Building an Effective Training Management System

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Introduction

The word “train” has multiple definitions; one that from Webster’s New World Dictionary is “to instruct so as to make proficient” (Webster 1990). This definition is the foundation of SH&E legislative and industry requirements, OH&S Management System Standards and company business plans. The expression that an employee has been “trained” is often interchanged with “an employee has been deemed competent or qualified.”

The term “competent” is defined in the Alberta OHS Code as “in relation to a person, means adequately qualified, suitably trained and with sufficient experience to safely perform work without supervision or a minimal degree of supervision.”¹ By comparison, the term “qualified” is defined in the OH&S Regulations of British Columbia as, “being knowledgeable of the work, the hazards involved and the means to control the hazards, by reason of education, training, experience or a combination thereof.” Within other Canadian provinces, the terms “competent,” “train,” and “qualified” may be used alone or side by side in the regulations that have been enacted.

Regardless of the terminology that is used by regulators, industry groups or organizations, the same basic requirements need to be met to support that each employee has been instructed to a level of acceptable proficiency in the tasks that they perform. The methods or processes that are used to achieve these requirements, however, vary among organizations, industry groups and geographical regions. The standardization of the components needed to develop an effective management system for training activities has been a growing focus for SH&E professionals, as well as their organizations, which need to demonstrate that an acceptable return on investment is being achieved.

Legal Requirements for Training

Legislative requirements are a common driver of programs and processes that will be implemented within an organization. The requirements for SH&E training are embedded into the OHS regulations that are used throughout Canada and the United States; these requirements are often the starting point for the collection of activities that will form the first training management system used within a company.

Canadian legislation contains both “general duty” clauses and task-specific training requirements. An example of the general duty requirements include:

- **Alberta:** *OHS Regulations*—General protection of workers (Section 13), Duties of workers (Section 14), and Safety training (Section 15).
- **British Columbia:** *Workers Compensation Act*, Part 3, Division 3—General Duties of Employers, and the *OHS Regulations*, Part 3—Rights and Responsibilities (content of OHS Programs defined, New or Young Worker training identified, and so on).
- **Saskatchewan:** *OHS Regulations*, Part III—General Duties for employers, workers, young persons, contractors, and supervisors.
- **Manitoba:** Workplace Safety and Health Act, Section 4—Duties of Employers and Section 7—Workplace Safety and Health Programs.
- **Federal:** *Canada Labour Code Part II*, Section 125—Duties of Employers.

In addition to the general duty responsibilities that have been imposed by the Canadian provincial and federal governments, there are detailed training requirements for specific tasks or activities that may be performed by workers. Prescriptive training requirements have been identified for work activities that involve:

- Working at Heights
- Using Fall Protection or Respirators
- Confined Space Entry and Rescue
- Operation of Mobile Equipment
- Working with Electricity (Utility Workers, Electrofishing, and so on)
- Rigging/Hoisting/Winching
- Scaffold Erection
- Excavations
- Traffic Control

Within the United States, similar “general duty” requirements have been imposed by OSHA or an OSHA state-approved plan. The list of prescriptive training requirements is extensive and only a sample has been noted below:

- *Personal Protective Equipment, 1910.132(f)(2)*: Each affected employee shall demonstrate an understanding of the training . . . and the ability to use PPE properly **before** being allowed to perform work requiring the use of PPE.
- *Respiratory Protection, 1910.134(k)(1): Training and information*. The employer shall ensure that each employee can demonstrate knowledge of at least the following: (iv) How to inspect, put on and remove, use, and check the seals of the respirator;
- *Permit-required Confined Space Entry, 1910.146(k)(1)(iii)*: Each member of the rescue service shall practice making permit space rescues at least once every 12 months.
- *Powered Industrial Trucks, 1910.178(l)(2)(ii)*: Training shall consist of a combination of formal instruction (e.g., lecture, discussion, interactive computer learning, video tape, written material), practical training (demonstrations performed by the trainer and practical exercises performed by the trainee), and evaluation of the operator's performance in the workplace.
- *Resistance Welding, 1910.255(a)(3), Personnel*. Workmen designated to operate resistance welding equipment shall have been properly instructed and judged competent to operate such equipment.
- *PPE/Shipyard Employment, 1915.152(e)(2)*: The employer shall ensure that each affected employee demonstrates the ability to use PPE properly **before** being allowed to perform work requiring the use of PPE.

- *Cranes and Derricks in Construction, 1926.1430(g)(1)*: The employer must evaluate each employee required to be trained under this subpart to confirm that the employee understands the information provided in the training.

A detailed list of OSHA training requirements for general industry can be obtained on line at <http://www.oshatraining.com/osha-general-industry-training-requirements.php>, and for construction, <http://www.oshatraining.com/osha-construction-industry-training-requirements.php>.

With such a myriad of regulations and requirements to follow, there is a rapidly growing need within organizations to implement a system that can effectively manage the training requirements imposed, and efficiently coordinate the training activities that are needed. While the legislation in each jurisdiction of operation may provide guidance on what training is required, the actual “how do we meet these expectations” is often murky.

This question was posed by a Canadian utility company that had established numerous processes and layers of validation to ensure compliance requirements were being met, but who also recognized that the level of complexity imposed by their current training system could not be sustained. To address the issues and concerns raised by this company, a plan was developed to identify:

1. the gaps in the current training system based upon a standardized evaluation criteria;
2. improvement opportunities needed to make the training management system sustainable; and
3. current training initiatives and best practices being used to increase the effectiveness of training processes and offerings.

Management System Standards

The first phase of this project required the identification of standardized evaluation criterion for training management systems. A review of the current national and international management system standards was conducted to determine if the criteria within these documents could provide the framework and guidance needed to meet this requirement. The standards that were examined included:

- Occupational Health and Safety Management Systems—Requirements: OHSAS 18001:2007
- Criteria for Accepted Practices in Safety, Health & Environmental Training: ANSI Z490.1-2001
- Occupational Health and Safety Management: CAN/CSA- Z1000-06
- Occupational Health and Safety Management Systems: ANSI/AIHA Z10-2005
- Guidelines on Occupational Safety and Health Management Systems: ILO-OSH 2001
- Quality Management Systems—Requirements: ANSI/ISO/ASQ Q9001-2008

The project team came to the conclusion that each management system standard offered a variety of criteria that, if combined, would provide a comprehensive framework for evaluating a training management system. It was decided that a customized evaluation tool should be created that would incorporate the unique and highest level of requirements from each standard. ANSI Z490.1, *Criteria for Accepted Practices in Safety, Health & Environmental Training* (2009) was selected as the foundation framework on which the evaluation tool would be built.

Components of a Training Management System

To determine the evaluation questions that would need to be asked, the project team first had to identify the key components of a training management system. The second challenge was to determine how these components would fit together to create a solid foundation for managing the organization's training requirements and activities.

The project team identified a common set of training processes and requirements that were referenced in the OH&S legislation and management standards that were reviewed. It was agreed that the training phases in an employee training and competency development plan would also be the key components of a training management system. These would include:

- **Qualification and Selection:** Job requirements, job descriptions, position profiles
- **Orientation/Induction:** Initial and refresher
- **Skill training:** Who needs what and when; internal versus external providers
- **Competency Development:** Employee specific training plans; performance level criteria defined.
- **Competency Evaluation:** Progress and achievement of required performance levels
- **Competency Verification:** Required knowledge/skill levels and compliance with approved work practices verified.

The Evaluation Protocol and Criteria

The evaluation protocol that was developed followed the flow of assessment that is used within the management system standards that were previously identified. Each section of the protocol was then populated with the unique requirements noted in each standard that was reviewed, and with questions that would assess the processes needed to support the key components of a training management system.

The sections of the evaluation protocol, and a summary of the evaluation requirements detailed within each section, are provided below.

1. Identification of Training Needs and Competency Requirements

- Use of formal training needs and competency assessment for all personnel.
- Training requirements prioritized based upon risk level (liability, exposure, and so on).
- Corporate training policy, standards, procedures, guidelines established.

2. Planning

- Corporate strategic plan includes training needs and competency requirements.
- Goals & targets set for each area/level of the company.
- Program to measure progress and achievement.
- Formal change management process implemented.

3. Roles and Responsibilities

- Corporate, industry and regulatory roles and responsibilities for training defined.
- Include trainers and contractors.
- Include in training programs, products, offerings.

4. **Resource Management**

- Adequate people resources are available to support the implementation and completion of training/learning activities, and the achievement of goals/targets.
- Examine time commitments, training ratio (trainer to learners), qualification/skill level of training providers needed and availability of these resources, financial cost, and so on.

5. **Infrastructure**

- Infrastructure supports required training/learning activities so established goals/targets can be achieved.
- Examine training facilities, equipment, support services and products (classroom, practical sessions–demo/simulation scenarios, e-learning, and so on).

6. **Communication**

- Processes/methods to share information that is created and collected by the training management system are in place.
- A process/method for obtaining and responding to stakeholder feedback is established.

7. **Document and Record Management**

- Critical documents/records have been identified.
- Access, frequency of use, format, location/storage medium, retention, back-up, and disposal requirements defined.
- Legibility, version control, distribution and removal of obsolete information are checked.

8. **Implementation/Realization of Training Products and Services**

- Training/learning processes, products and services address training and competency requirements (corporate, industry, and regulatory).
- Qualification, orientation and skill training requirements/programs are identified.
- Training methods/ processes evaluated for effectiveness. Consider variations in language, literacy, personal ability, levels of responsibility, risk exposure, and organizational/cultural barriers.
- Methods to evaluate learning/training activities (by the trainee) are established.
- Competency verification methods/processes (task observation, demonstrations, performance reviews, review of work orders/project files, document audits, and so on) identified.
- Qualification/competency requirements for training providers identified.
- Process/method (i.e. spreadsheets, databases, custom software) to track and retain information on completed training/learning activities (historical data on each individual is tracked and accessible).

9. **Measurement and Analysis**

- Performance metrics to evaluate goals, objectives and targets established and collected.
- Corporate/management reviews include these metrics.
- Conformity/compliance with regulatory/industry requirements tracked.

10. **Improvement**

- Performance metrics for deficiencies, trends, OFIs and achievement evaluated.
- Action plan (annually) to address the results/outcomes developed.
- Evaluate implementation and effectiveness of actions taken.

Refer to Exhibit 1, which contains a sample of the evaluation protocol (checklist) that was developed and used by the project team to evaluate the utility company training management system.

Training Management System Evaluation Checklist

1 GENERAL REQUIREMENTS	D I O	Meets Requirements			Evidence Observed/Remarks/Findings/Concerns
		Yes	No	N/A	
<p>1.1 Has a formal training needs assessment been completed by the organization? Training requirements identified by:</p> <ul style="list-style-type: none"> • business unit, • organizational level and/or • position <p>Stakeholders:</p>					
<p>1.2 Has the organization determined the training and competency requirements for all types of personnel (employees, contractors, visitors, volunteers, students, etc.) used by the organization?</p> <p>Are legal and/or industry requirements for current business operations used in this determination?</p> <p>Stakeholders:</p>					
<p>1.3 Has the organization determined the training and competency requirements for organizational positions based upon the associated risk level encountered? (Definition of critical tasks: determine if critical tasks are identified.)</p>					

Exhibit 1. Training Management System Evaluation Criteria

Evaluation of the Training Management System

To prepare the organization for the in-depth evaluation that would be conducted on the existing training management system, key stakeholders were identified and discussions to prepare the participants were held. Through these discussions, the project team realized that while the evaluation protocol would identify gaps in the management system, deficiencies or duplications within the individual processes being used by each stakeholder may be overlooked.

The project team decided that a two-tiered approach would be required; this would include both a management system evaluation and a “current state” process assessment. It was determined that this dual approach would generate recommendations that could help management address system gaps at the corporate level, and would also provide area-specific action plans to the key stakeholders so they could begin to improve the training processes being used within their business units.

The “current state” process assessment used a combination of Swim Lane and Process mapping techniques. This allowed the evaluation team to identify common training activities conducted within each business unit, training initiatives that were unique to each stakeholder, and training process issues that were encountered. There were six core processes that were identified and evaluated; these aligned with the training management system key components that had been woven into the corporate evaluation protocol and are identified in Exhibit 2.

<p>PROCESS LABEL LEGEND</p> <p>Process 1 – Training Needs Analysis/Identification</p> <p>Process 2 – Hiring & Qualification</p> <p>Process 3 – Orientation, Skill & Certification Training</p> <p>Process 4 – Competency Development & Verification</p> <p>Process 5 – Record/Document Management</p> <p>Process 6 – Process Improvement Activities</p> <p>* Resources and communication activities are addressed within each sub-process as applicable.</p>

Exhibit 2. Process Label Legend

The Swim Lane Map gave management a high-level overview of the methods being used by each stakeholder to implement and achieve the process requirements that were expected to be met at the corporate level. A sample of this map is provided as Exhibit 3; process deficiencies are identified in red and process improvement activities (Process 6) are identified in blue. A Current State Process Map (Exhibit 4) was then generated for each participating business unit. This map provided detailed information to each stakeholder that focused on the specific training programs, methods and activities being conducted. The map also captured the issues, gaps or questions that needed to be addressed to increase the overall efficiency and effectiveness of the training processes being used. A sample of this map is provided as Exhibit 4.

CURRENT COMPETENCY MANAGEMENT SYSTEM						
	Process 1	Process 2	Process 3	Process 4	Process 5	Process 6
Environment (Corporate)	INITIAL CORPORATE TRAINING NEEDS & REQUIREMENTS ANALYSIS COMPLETED – NOT COMPLETE FOR BU	BU HIRING AND QUALIFICATION REQUIREMENTS DEFINED. CORPORATE REGULATORY QUALIFICATIONS DEFINED.	BU PROVIDES ORIENTATION, SKILL/ CERTIFICATION TRAINING. CORE SKILL TRAINING PROVIDED ON LINE.	COMPETENCY REQUIREMENTS & DEVELOPMENT PROCESSES IMPLEMENTED. VERIFICATION METHODS NEED TO BE DEFINED.	BU TRACKS & MANAGES ENVIRONMENT TRAINING INFORMATION & RECORDS. MINIMAL LMS USE.	INTEGRATE TRAINING INFO INTO CENTRAL ELECTRONIC SYSTEM. METRICS FOR TRAINING EFFECTIVENESS PROF DEV. & SUCCESSION PLANNING NEEDED
First Line Response (Distribution)	BU SPECIFIC TRAINING NEEDS & REQUIREMENTS ANALYSIS INITIATED	BU HIRING & QUALIFICATION REQUIREMENTS BASED UPON ACCESS TO QUALIFIED INTERNAL STAFF – REVIEW REQUIRED.	TTC PROVIDES CORE ORIENTATION, SKILL/ CERTIFICATION TRAINING (OHS/ ENVIRO). BU SPECIFIC ORIENTATION & SKILL TRAINING PROVIDED.	COMPETENCY REQUIREMENTS & DEVELOPMENT PROCESSES IMPLEMENTED. VERIFICATION METHODS NEED TO BE DEFINED.	BU TRACKS & MANAGES APPLICABLE TRAINING INFORMATION & RECORDS. DUPLICATION WITH TTC MAY OCCUR. MINIMAL LMS USE.	CENTRAL ELECTRONIC SYSTEM TO MANAGE TRAINING INFORMATION METRICS FOR TRAINING EFFECTIVENESS COMPETENCY TRAINING FOR TRAINERS
Fleet Services (Distribution)	INITIAL BU SPECIFIC TRAINING NEEDS & REQUIREMENTS ANALYSIS COMPLETED	BU HIRING AND QUALIFICATION REQUIREMENTS DEFINED. CORPORATE REGULATORY QUALIFICATIONS DEFINED.	BU PROVIDES INTERNAL ORIENTATION, SKILL/ CERTIFICATION TRAINING. CORE OHS/ ENVIRO TRAINING THROUGH TTC IF NEEDED.	COMPETENCY REQUIREMENTS & DEVELOPMENT PROCESSES IMPLEMENTED. VERIFICATION METHODS NEED TO BE DEFINED.	BU TRACKS & MANAGES APPLICABLE TRAINING INFORMATION & RECORDS. DRIVER QUALIFICATIONS. MINIMAL LMS USE.	CENTRAL ELECTRONIC SYSTEM TO MANAGE TRAINING INFORMATION METRICS FOR TRAINING EFFECTIVENESS COMPETENCY TRAINING FOR TRAINERS
Health and Safety (Corporate)	INITIAL CORPORATE TRAINING NEEDS & REQUIREMENTS ANALYSIS COMPLETED – NOT COMPLETE FOR BU	BU HIRING AND QUALIFICATION REQUIREMENTS DEFINED. CORPORATE REGULATORY QUALIFICATIONS DEFINED.	BU PROVIDES CORE ORIENTATION, SKILL/ CERTIFICATION TRAINING REQUIREMENTS & INFORMATION THROUGH TTC.	COMPETENCY REQUIREMENTS & DEVELOPMENT PROCESSES IMPLEMENTED. VERIFICATION METHODS NEED TO BE DEFINED.	TTC TRACKS & MANAGES CORPORATE OHS TRAINING INFORMATION & RECORDS. MINIMAL LMS USE.	UPDATE OHS TRAINING REQUIREMENTS & INFORMATION (THA, ORIENTATION) METRICS FOR TRAINING EFFECTIVENESS PROF DEV. & SUCCESSION PLANNING NEEDED
Transmission & Network	INITIAL BU SPECIFIC TRAINING NEEDS & REQUIREMENTS ANALYSIS COMPLETED	BU HIRING AND QUALIFICATION REQUIREMENTS DEFINED	TTC PROVIDES CORE ORIENTATION, SKILL/ CERTIFICATION TRAINING (OHS/ ENVIRO). BU SPECIFIC ORIENTATION & SKILL TRAINING PROVIDED.	COMPETENCY REQUIREMENTS & DEVELOPMENT PROCESSES IMPLEMENTED. VERIFICATION METHODS NEED TO BE DEFINED.	BU TRACKS & MANAGES APPLICABLE TRAINING INFORMATION & RECORDS. DUPLICATION WITH TTC MAY OCCUR. MINIMAL LMS USE.	CENTRAL ELECTRONIC SYSTEM TO MANAGE TRAINING INFORMATION METRICS FOR TRAINING EFFECTIVENESS COMPETENCY TRAINING FOR TRAINERS

Exhibit 3. Current State Swim Lane Map

FIRST LINE RESPONSE (Distribution) : Training Process Flow

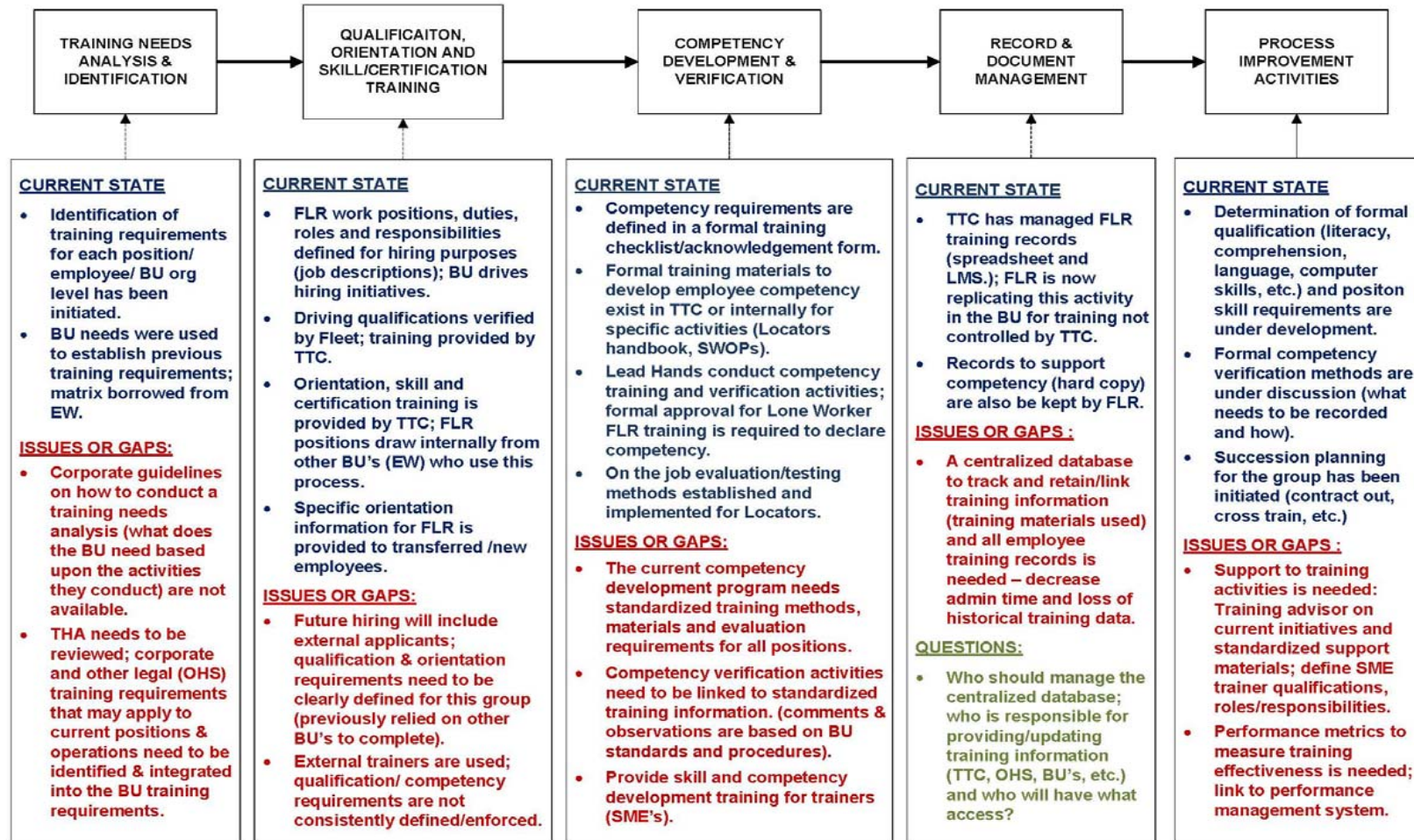


Exhibit 4. Current State Process Map – First Line Response

Gaps and Recommendations

The training management system assessment, using the customized evaluation protocol, identified 15 system gaps; these were broken into 13 major and 2 minor findings. The “current-state” process assessment generated 12 current state process maps. These provided detailed data on process effectiveness within the stakeholder business units, as well as work group-specific evidence to support the management system gaps that had been identified. A summary of the key recommendations that were generated from this two-tiered evaluation are listed below:

- Develop a corporate guidance document on how to conduct a training needs and competency requirement assessment.
- The Task Hazard Assessment documents and outcomes should be linked to the corporate and business unit training needs and requirements assessment.
- Establish a corporate governance/guidance document that defines the organizational training and competency requirements, processes, methods to be used, activities to be conducted/completed and responsibility for implementation.
- Strategic planning activities should include a review of training/competency requirements and initiatives that may affect the organization at the corporate and business unit level.
- Establish measurable goals, objectives and/or targets to move the current training and competency activities from fragmented processes to a consistent and standardized management system that is defensible, effective, and efficient.
- Review the current organizational design and placement of training resources; current levels of operational effectiveness, efficiency, and ability/authority to respond to internal and external demands should be examined.
- Assign positions, groups, and committees that have the authority to manage the requirements of the corporate training and competency system.
- Standardize communication processes/methods between business units and organizational levels (corporate to business unit communications).
- Standardize document and record management methods; centralize training information and records.
- Establish a performance metrics program that can evaluate the progress and achievement of strategic training goals/objectives and the effectiveness of training/ learning activities.

Implementation of a Training Management System

The implementation of the recommendations generated from the evaluation conducted for the utility company is still in progress. To illustrate the impact that a structured management-system evaluation can have on an organization, the key training initiatives implemented at another Canadian company are highlighted in this section.

Newsco International Energy Services Inc., located in Calgary, Alberta, has adopted the philosophy that, “safety training is not isolated from job specific training, ...all tasks and skills require a safety component to perform the job skill set required.”³

An initial health and safety management system audit, conducted in 2007, helped to emphasize the decision already made by the company to move beyond a training program. Senior management had recognized the need and “cost effectiveness” value that would be realized if a training management system was implemented. The corporate training structure that would provide the foundation of the training management system is presented in Exhibit 5.

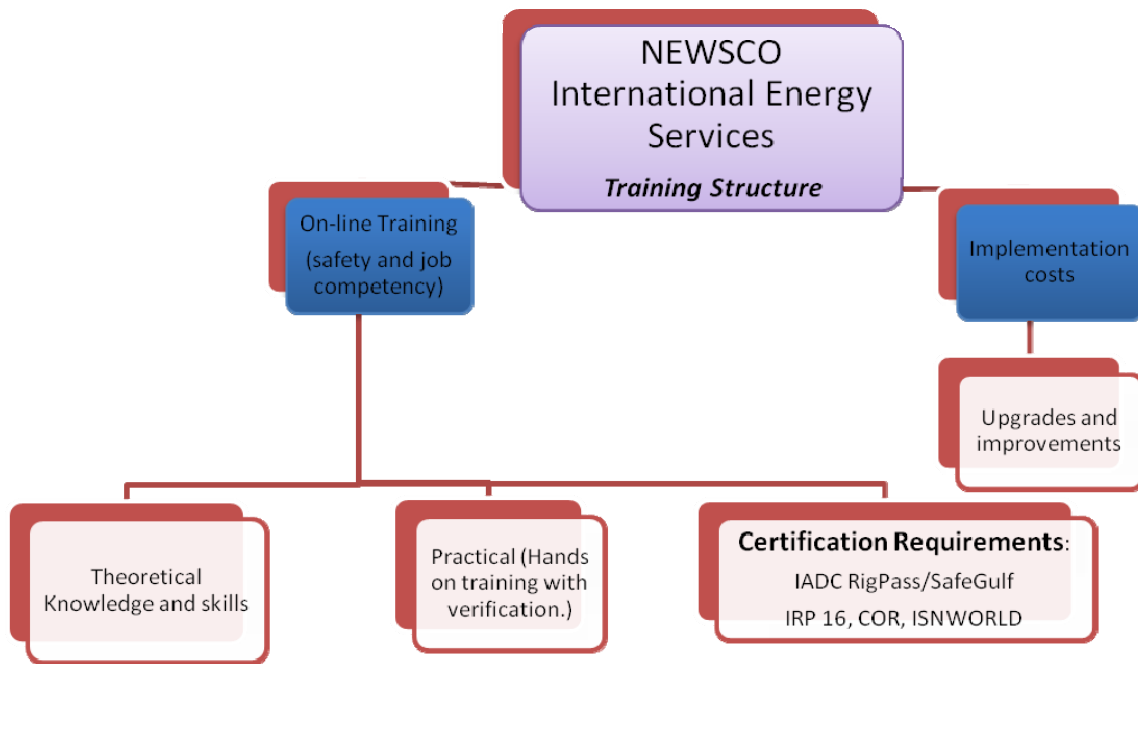


Exhibit 5. Newsco International Energy Services Training Structure

Newsco then developed a detailed training plan for each position employed within the corporate structure; refer to Exhibit 6, Training Plan by Position. Within each position, a competency requirement list was created that would provide the framework for the training programs, offerings, and activities that would need to be completed by every employee. This competency requirement list included legislative and industry-specific training requirements as well as company and client training specifications.

As an example, the Measurement While Drilling (MWD) position has been broken down into five specific job levels, and each level requires specific training modules and activities to be completed in a progressive manner. There are 392 distinct competencies that have been defined for this position; completion of all of these competencies will qualify an employee to the Independent/Lead Operator level. The training modules for this position are listed in Exhibit 7, Training Modules for the MWD Position and a sample of the MWD competency list can be found in Exhibit 8, MWD Competency Requirements.

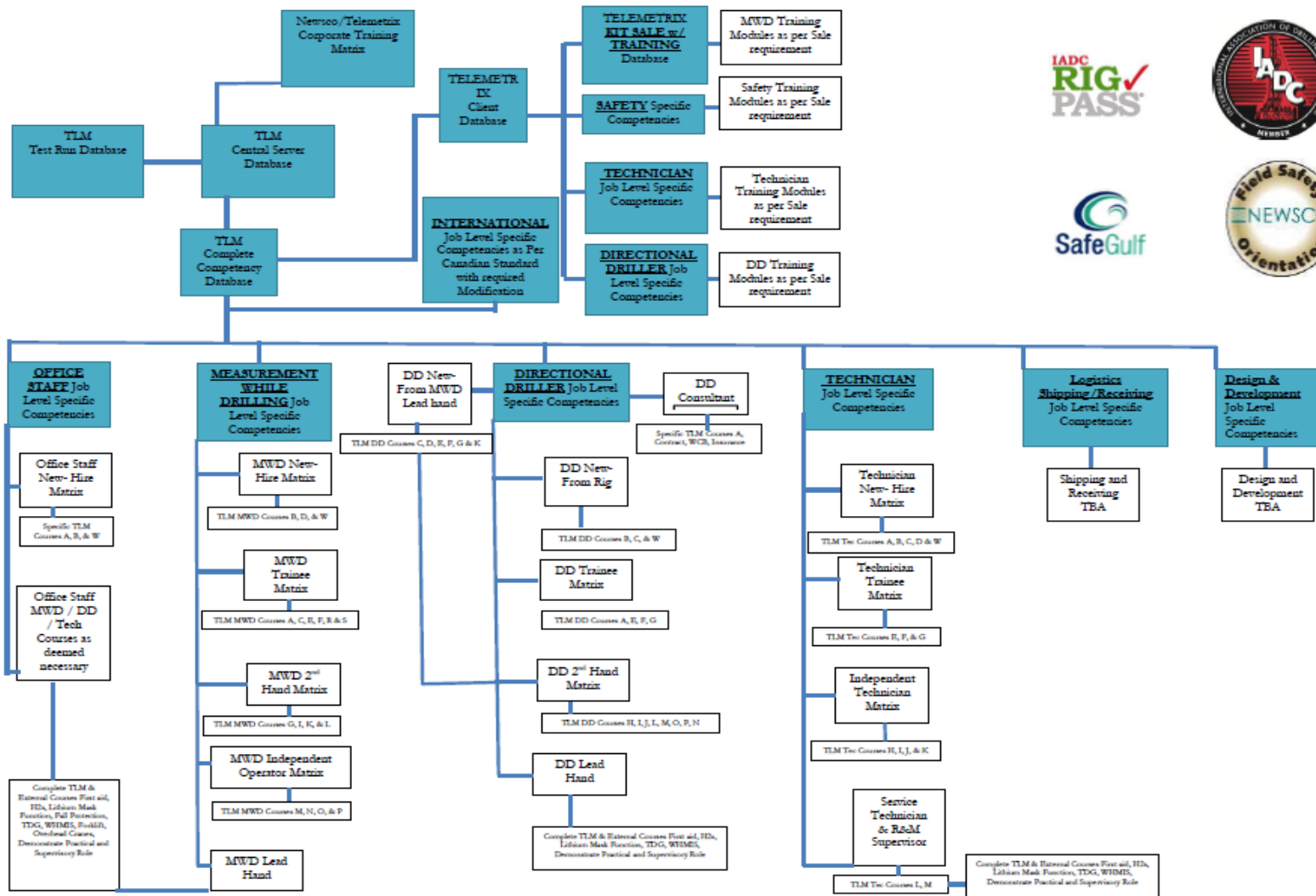


Exhibit 6. Training Plan by Position

Training Modules for the MWD Position

- A - Newsco Safety (83 Competencies)
- B - Upstream Industry (4 Competencies)
- C - Introduction to Directional Drilling (38 Competencies)
- D - Introduction to MWD (8 Competencies)
- E - Tool String Components (68 Competencies)
- F - Batteries (21 Competencies)
- G - BHA (15 Competencies)
- H - Assembly (21 Competencies)
- I - Rig-up and Rig Down (20 Competencies)
- K - Professionalism and Conduct (15 Competencies)
- L - Software (8 Competencies)
- M - Running a Job (28 Competencies)
- N - Servicing MWD System in the Field (21 Competencies)
- O - Trouble Shooting (7 Competencies)
- P - Paper work (7 Competencies)
- R - Computer Skills (7 Competencies)
- S - Newsco Vertical Azimuth Directional Electronic Recorder (16 Competencies)
- T - Resistivity (4 Competencies)

Exhibit 7. Training Modules for the MWD Position

MWD Competency Requirements

New Hire

- B1a: Exploration
- B2a: Geology
- D1a: Knows what MWD surveying is
- D1b: Understands MWD terms and glossary
- D1c: Understands the role of the MWD in the directional process
- D1e: Understands the official job description of the MWD operator
- D1f: Understands the field environment the MWD will have to work in
- D1g: Understands the relationship to the DD on a directional job
- D1h: Knows they report to the MWD coordinator
- W1b: Understands their rights under FOIPP to review their file

MWD Trainee

- A1a: Knows about the company safety policy
- A3b: Able to provide safe operations using the H2S Alive safety ticket
- A3g: Understands the requirements for confined and restricted space
- A4a: Knows what PPE is used in the field during work
- A7b: Understands special evacuation procedures for offshore rig
- A8b: Knows to apply special attention to working around transducer installation

A8c: Understands pinch points, overhead dangers and danger zones
A9d: Knows the muster stations assigned on the rig site
A10b: Understands the dangers and concern over lithium batteries
A11a: Understands Employer and Employee responsibilities according to Canadian Regulations and Codes (PART 1)
A11b: Understands Employer and Employee responsibilities according to Alberta OHS Regulations and Codes (PART1)
A12b: Hand Signals for Directing Vehicles
A12d: Knows how to use and maintain the North Respirator used in Lithium response situations
C6a: Knows about the under-balanced well situation and the unique role of the directional services
C7e: Knows the basics of hydraulics and pressure and how it applies to MWD
E1a: Knows the basic components of the Newsco MWD kit using the checklist
E6a: Knows the safety routine for batteries including safe storage and transport
S3c: Understands the NVADER tool control functions required to down load and save Data.

Exhibit 8. MWD Competency Requirements

To manage the training requirements and information developed for each position, a Learning Management System (LMS) was also implemented. These systems allow customized competency-based training modules to be created, which can incorporate applicable safety training requirements and programs. Applicable modules can then be selected to create a customized training plan for each company position. An LMS also allows e-learning courses, webinars, video and multimedia links to be integrated into the training database, as well as training plans for each position. The database also contains over 5000 test questions to verify that the main points covered in each module have been understood and a random number of questions can be drawn upon to allow for variation within each test scenario.

Measurements of Progress

Newsco International Energy Services Inc. has used a structured training management system for the past four years to expedite the training and verification process of its employees. The company has been able to demonstrate a significant reduction in operator errors, downtime and associated costs to the client as well as maintaining a “no lost time” and “no safety violation” record.

The company has maintained a three-year average of + 92% on the industry-sponsored OHS audit (ENFORM COR Audit Protocol) which is endorsed by the Government of Alberta and British Columbia through their Partners in Injury Reduction program. This audit protocol incorporates standardized industry and legislative evaluation questions that focus on the implementation and effectiveness of a company’s safety and training management system. An overall achievement of 80% on this audit allows a company to obtain a provincial Certificate of Recognition, as well as qualify for monetary incentives offered by the provincial Workers Compensation Boards in Alberta and British Columbia.

Conclusion

The Six Sigma Handbook (2001), written by Thomas Pyzdek, notes that training is often managed within a “silo” and training departments will use their assigned budget to pursue the special interests or agenda of this group. To create effective training opportunities requires an organization to tie their training plans to the current and future needs of their customers, both internal and external, and to view training as a business management system, not a special interest program.

The steps that are needed to create an effective training management system include:

- The identification of what training is needed by the organization (internal and external stakeholders);
- The development and use of an evaluation tool to measure the current state of the organizations training processes and activities;
- The development of a prioritized action plan to address the gaps that are identified within the evaluation; and
- An implementation plan that is periodically measured to determine progress and achievement.

"To know yet to think that one does not know is best;
Not to know yet to think that one knows will lead to difficulty."
- Lao Tzu, Philosopher and Father of Taoism, Sixth Century BC

Endnotes

¹ Government of Alberta, Canada. *Occupational Health and Safety Act – Occupational Health and Safety Code* (Edmonton: Alberta, Queen’s Printer, 2009), 1-6.

² Government of Alberta, Canada. 2008. *Occupational Health and Safety Regulation*, 1st ed. Edmonton, Alberta, Canada: HATSCAN, 125.

³ Rimke, Klaus. 2012. *Meeting or Exceeding Regulatory Requirements Using E-Learning*. Houston: IADC, 4.

Bibliography

- American National Standards Institute/American Society of Safety Engineers (ANSI/ASSE). 2009. ANSI/ASSE Z490.1-2009, *Criteria for Accepted Practices in Safety, Health and Environmental Training*. Des Plaines: ASSE.
- American National Standards Institute/American Industrial Hygiene Association (ANSI/AIHA). 2005. ANSI/AIHA Z10-2005, *Occupational Health and Safety Management Systems*. Fairfax, VA: AIHA.
- American National Standards Institute/International Organization of Standardization/ANSI/ISO/ASQ Q90001-2008, *Quality Management Systems – Requirements*. Milwaukee: ASQ, 2008.

- American Society of Safety Engineers, Consultants Practice Specialty. "OSHA Training Requirements: When Training Alone Will Not Suffice." OSHA Training Blog, 21 Sept. 2011. (<http://oshatrainingervices.blogspot.com/search?updated-max=2011-10-09T13:06:00-05:00&max-results=7>)
- British Standards Institution. 2007. OHSAS 18001:2007, *Occupational Health and Safety Management Systems – Requirements*. London: OHSAS Project Group Secretariat, BSI.
- Government of Manitoba. 2010. "Workplace Safety and Health Act." Winnipeg: Manitoba Queen's Printer.
- Human Resources and Social Development Canada. 2008. *Canada Labour Code, Part II*. Ottawa, Canada: Minister of Public Works and Government Services.
- International Labour Office. ILO-OSH 2001, *Guidelines on Occupational Safety and Health Management Systems*. Geneva, Switzerland: ILO, 2001.
- Pyzdek, Thomas. 2001. *The Six Sigma Handbook*. NY: McGraw-Hill.
- Rimke, Klaus. "Meeting or Exceeding Regulatory Requirements Using E-Learning", IADC Conference. Omni Hotel, Houston. 07-08 February. 2012
- Standards Council of Canada. 2006. CAN/CSA Z1000-06, *Occupational Health and Safety Management*. Mississauga, Canada: CSA.