Job Analysis Worksheet for Quality Assurance Functional Area Qualification

Task	Source	Importance	Frequency
a. Serve as or support the senior manager responsible for developing the organization's QA Program (QAP) consistent with the DOE QA Order, 414.1A and other customer requirements.	**Duties and Responsibilities**	5	1
b. Review and evaluate the organization's and the contractor's QAP, plans, and processes to verify compliance with applicable regulations, standards, and DOE Orders.	**Duties and Responsibilities**	4	2
c. Monitor and evaluate DOE and contractor implementation of QAPs, plans, and processes to verify adequacy, effectiveness, and compliance with applicable regulations, standards, and DOE Orders, including the evaluation of QA related award fee and performance based incentives.	**Duties and Responsibilities**	4	2
d. Lead/perform QAP implementation assessments, document results, prepare reports, and monitor resulting actions.	**Duties and Responsibilities**	5	2
e. Serve as an information source to the organization's management that is independent of line management responsibilities and or cost and schedule considerations.	**Duties and Responsibilities**	4	2
f. Support the organization's top management in DOE QA rule enforcement activities involving contractors.	**Duties and Responsibilities**	5	2
g. Provide QA support to accident/event investigations and perform appropriate analysis.	**Duties and Responsibilities**	2/3	1
h. Serve as the organization's subject matter expert and/or technical point-of-contact for QA activities.	**Duties and Responsibilities**	5	3/4
i. Interface with DOE Headquarters and Field elements, regulators, and stakeholders to ensure the organization's effective application of DOE QA documents.	**Duties and Responsibilities**	3	2

Importance Scale	Frequency
How important is this task to the job?	How often is the task performed?
0=Not Performed	0=Not Performed
1=Not Important	1=Every few months to yearly
2=Somewhat Important	2=Every few weeks to monthly
3=Important	3=Every few days to weekly
4=Very Important	4=Every few hours to daily
5=Extremely Important	5=Hourly to many times each hour

Job Analysis Worksheet for Competencies

Competency	Supporting Knowledge & Skills	Source	Importance	Need at Entry
A. QA Program Management **1.** QA personnel shall demonstrate a working level of knowledge of DOE QA policy, programs, processes, and regulatory requirements contained in: • DOE O 414.1A, Quality Assurance • 10 CFR 830, Subpart A, Quality Assurance • Office of Price-Anderson Enforcement Procedures and Guidance 10 CFR 820, Procedural Rules for DOE Nuclear Activities	**a.** Discuss the purpose and scope of the Price-Anderson Amendments Act and its applicability to the DOE's QA activities.	**Required Technical Competencies**	4	2
	b. Discuss the purpose, interrelationships, and importance of DOE Policy 450.4, Safety Management System Policy, DOE Policy 450.5, Line Environment, Safety and Health Oversight, DOE O 414.1A, Quality Assurance, and 10 CFR 830, Subpart A, Quality Assurance.			
	c. Discuss the DOE and contractor requirements and responsibilities for development, review, approval, and implementation of QAPs.			
	d. Discuss the process for obtaining an exemption to DOE O 414.1A, Quality Assurance and 10 CFR 830, Subpart A, Quality Assurance			
	e. Discuss the requirements of DOE O 414.1A, Quality Assurance and 10 CFR 830, Subpart A, Quality Assurance.			
	f. Referring to DOE Guide 414.1-2, Quality Assurance Management System Guide for use with DOE O 414.1A and 10 CFR 830, Subpart A, discuss the implementation of an effective Quality Assurance Program (QAP).			
	g. Referring to DOE G 414.1-2, discuss the shared attributes of quality and safety management systems and the methods for integrating the implementation of the DOE Safety Management System and QAP.			
	h. Discuss the purpose, benefits, and restrictions of the graded approach in the implementation of DOE quality assurance requirements.			
	i. Referring to DOE Guide G 450.4-1 discuss the objectives, requirements, and implementation of DOE O 414.1A, Attachment 2, "Safety Issue Corrective Action Process" for reporting, tracking,			

Competency	Supporting Knowledge & Skills	Source	Importance	Need at Entry
	and resolution of quality problems.			
2. QA personnel shall have a working level knowledge of the QAP requirements identified in their organization and the contractor's QA documents.	**a.** Describe the purpose and elements of an effective QAP. **b.** Discuss line management's responsibilities for the QAP. **c.** Describe the graded approach for application of quality requirements. **d.** Discuss stop work authority as it relates to: • Origin of stop work authority • Intended purpose • C Legal implications	**Required Technical Competencies**	4/5	2
3. QA personnel shall have a working level knowledge of the application of appropriate regulations, codes, and consensus standards to DOE QAP implementation.	**a.** Discuss the applicability of NRC and EPA QA regulations to the organization's activities. **b.** Describe the general relationship and applicability of the following documents (or the latest version) to DOE QA requirements: • American Society for Quality ASQ-E4, Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs; • ASME NQA-1, Quality Assurance Requirements for Nuclear Facility Applications; • ASQ Q9001, Quality Management Systems - Requirements; • DOE/RW/0333P, Quality Assurance Requirements and Description; • ISO 14001, Environmental Management System; and • DOE Nuclear Weapons QA Requirements QC-1. **c.** Describe the relationship of consensus standards adopted by DOE and contractor organizations to the DOE quality requirements and any enhancements to the standards that are necessary to meet DOE requirements.	**Required Technical Competencies**	3/4	3
4. QA personnel shall have a familiarity level knowledge of the DOE Regulations, Orders, and Standards generally applicable to DOE contracts, programs, and projects that affect QA. For example:	**a.** Discuss the applicability, purpose, scope and impact of the above DOE Regulations, Orders, and Standards. **b.** Discuss the authorities, roles, and responsibilities of QA personnel with regard to the above documents.	**Required Technical Competencies**	3	5

Competency	Supporting Knowledge & Skills	Source	Importance	Need at Entry
• 10 CFR 970, *Department of Energy Acquisition Regulations (DEAR), DOE Management and Operating Contracts* • DOE O 430.1, *Life-Cycle Asset Management* • DOE O 413.3, *Program and Project Management for the Acquisition of Capital Assets* • DOE 0 200.1, *Information Management Program* • DOE Notice 203.1, *Software Quality Assurance* • DOE O 250.1, *Directives System Order* • DOE O 360.1, *Federal Employee Training* • DOE O 425.1, *Startup and Restart of Nuclear Facilities* • DOE O 5480.19, *Conduct of Operations for DOE Facilities* • DOE O 433.1, *Maintenance Management Program For DOE Nuclear Facilities* • DOE-STD-1073, Parts I & II, *Guide for Operational Configuration Management Program* • DOE O 435.1, *Radioactive Waste Management* • DOE O 451.1B, *National Environmental Policy Act Compliance Program* • DOE O 460.2, *Departmental Materials Transportation and Packaging Management* • DOE O 470.1,				

Competency	Supporting Knowledge & Skills	Source	Importance	Need at Entry
Safeguards and Security Program • DOE O 151, *Comprehensive Emergency Management* • DOE O 442.1, *Department of Energy Employee Concerns Program* • DOE O 225.1, *Accident Investigation* • DOE O 232.1, *Occurrence Reporting and Processing of Operations Information* • DOE O 210.1, *Performance Indicators and Analysis of Operations Information* • DOE Guide 430.1-2, *Implementation Guide for Surveillance and Maintenance During Facility Transition and Disposition* • DOE Guide 430.1-3, *Deactivation Implementation Guide* • DOE Guide 430.1-4, *Decommissioning Implementation Guide* • DOE N 221.6, *Reporting Fraud, Waste, and Abuse* • DOE-STD-1082-94, *Preparation, Review, and Approval of Nuclear Safety Requirements =* • DOE-STD-1083-95, *Requesting and Granting Exemptions to Nuclear Safety Rules* • DOE-STD-7501-99, *The DOE Corporate Lessons Learned Programs*				

Competency	Supporting Knowledge & Skills	Source	Importance	Need at Entry
5. QA personnel shall have a working level knowledge of channels to maintain communication with Headquarters, field elements, and the public.	**a.** Identify the various internal and external groups with whom quality assurance personnel must interface in the performance of their duties.	**Required Technical Competencies**	4	2/3
b.	**c.** Describe DOE's organization and discuss DOE's procedures for communicating between organizational elements.			
d.	**e.** Describe DOE's procedures and policies for communicating with regulatory agencies and other stakeholders.			
6. QA personnel shall demonstrate the ability to effectively communicate (both orally and in writing) with the contractor, stakeholders, and other internal and external organizations.	**a.** Demonstrate written communication skills as applicable in the development of: • Assessment reports • Technical reports • Technical papers • QAP • Work process documents (e.g., procedures)	**Required Technical Competencies**	3/4	2/3
	b. Demonstrate effective and appropriate communications skills during interactions with contractors.			
7. QA personnel shall demonstrate a working level knowledge of control of documents and records.	**a.** Describe the role of documents for prescribing processes, the specification of requirements, and the establishment of design.	**Required Technical Competencies**	2/3	3
	b. Define and explain the control of documents and records.			
	c. Describe implementation techniques and/or procedures for the development and control documents and records.			
	d. Discuss methods of record storage and retrieval requirements.			
	e. Discuss the definitions of "temporary records," "lifetime records," and permanent records." Identify the sources of requirements and describe how different types of records are maintained.			
	f. Discuss the management requirements contained in DOE O 200.1, Information Management Program.			
B. General Technical, Performance **1.** QA personnel shall demonstrate a working level	**a.** Describe the methods used to identify work to be performed and the associated hazards (e.g., FEOSH).	**Required Technical Competencies**	3	3/4

Competency	Supporting Knowledge & Skills	Source	Importance	Need at Entry
knowledge of the processes for performing work to established technical standards, administrative controls, and other hazard controls to meet regulatory or DOE requirements	**b.** Describe the methods for approving work process controls, such as procedures or instructions. **c.** Discuss the use of approved work process controls to conduct work.			
2. QA personnel shall demonstrate a working level knowledge of the processes for identification, marking, and control of items.	**a.** Discuss methods of identifying and controlling items that have been procured and accepted. **b.** Discuss methods for the control of items during handling, storage, and shipping. **c.** Describe methods for assuring that items remain properly identified throughout their life cycle.	**Required Technical Competencies**	3	3
3. QA personnel shall have a familiarity level knowledge of maintenance management practices. Reference DOE O 433.1, *Maintenance Management Program For DOE Nuclear Facilities*	**a.** Define **b.** each of the following maintenance-related terms and explain their relationship to each other. • Corrective • Planned • Preventive • Reliability-centered • Predictive • **c.** Describe the elements of an effective work control program and the documentation used to control maintenance. **d.** Discuss the relationship between maintenance and Conduct of Operations, QA, and Configuration Management. **e.** Discuss the storage and maintenance requirements for parts, materials, and equipment. **f.** Describe the difference between temporary and permanent repairs/work and the requirements and controls to prevent inadvertent modifications.	**Required Technical Competencies**	3	4
4. QA personnel shall demonstrate a familiarity level knowledge of the processes for design and engineering practices.	**a.** Describe methods of identifying and controlling design inputs, design processes, and design outputs. **b.** Discuss different methods of design analysis and design changes, and state how they are documented and controlled. **c.** Identify the methods of design verification and describe their relative advantages and disadvantages. d. Discuss the controls for computer software used to originate design solutions and design	**Required Technical Competencies**	2	3

Competency	Supporting Knowledge & Skills	Source	Importance	Need at Entry
	verification.			
5. QA personnel shall demonstrate a familiarity level knowledge of the computer software quality assurance.	**a.** Discuss the objectives, applicability, requirements, and responsibilities prescribed in DOE Notice 203.1, Software Quality Assurance.	**Required Technical Competencies**	3	3/4
6. QA personnel shall demonstrate a familiarity level knowledge of the procurement processes.	**a.** Discuss the relationship between the organization with technical authority over the procurement (engineering) and: the organization that negotiates and executes the purchase (buyer); ESH&Q organizations; and, the receiving/storage organization.	**Required Technical Competencies**	3	3
	b. Discuss the importance of clearly specifying the contents (especially technical and quality requirements) of procurement documents.			
	c. Discuss the purpose and methods of supplier qualification during a typical procurement process, including the process approach used to evaluate the supplier.			
	d. Discuss the purpose and methods of supplier performance monitoring.			
	e. Discuss the methods for assuring that suppliers continue to provide acceptable items and services.			
	f. Discuss the purpose and importance of acceptance inspection(s) during a typical procurement process.			
	g. Discuss the purpose and importance of supplier documentation and controls.			
	h. Discuss the purpose and methods of commercial grade item dedication process for items important to safety.			
7. QA personnel shall have a working level knowledge of suspect/counterfeit items.	**a.** Discuss the suspect and counterfeit item controls and reporting requirements contained in DOE O 440.1, *Worker Protection Management* for DOE Federal and Contractor Employees.	**Required Technical Competencies**	3/4	2/3
	b. Discuss the suspect/counterfeit item notification and reporting requirements in DOE Order O 440.1, and guidance in G 440.1-6, *Implementation Guide for use with Suspect/Counterfeit Items Requirements of DOE O 440.1, Worker Protection Management; 10 CFR 830.120; and DOE 0 414.1A, Quality Assurance,* and DOE O 232.1, *Occurrence Reporting and Processing of Operations Information.*			

Competency	Supporting Knowledge & Skills	Source	Importance	Need at Entry
8. QA personnel shall have a working level knowledge of testing and inspection techniques and methods.	**a.** Describe the use of dimensional measurement devices (e.g., proper instruments used for degree of accuracy required, temperature, cleanliness, and calibration effects on instruments as well as work pieces).	**Required Technical Competencies**	3	4/5
	b. Discuss the basic operating principles of the following: • Nondestructive examination (NDE) methods such as visual, radiography, magnetic particle, liquid penetrant, ultrasonic, spectral analysis, hardness tests, and eddy current. Destructive examination methods such as tensile tests, compression tests, fatigue tests, bend tests, and metallurgical sectioning. • Control of non-conforming material and processes as the result of tests and inspections and in production settings.			
	c. Discuss the advantages, disadvantages, and inherent limitations of destructive and nondestructive examination methods.			
	d. Describe testing and inspection methods commonly used in the following areas: • Electrical • Mechanical • Chemical • Soil and concrete • Welding/fabrication • Computer software			
9. QA personnel shall have a working level knowledge of inspection and test planning methodology.	**a.** Discuss the criteria/logic used to determine critical characteristics that need to be verified through inspection (i.e., operational and design requirements) and testing.	**Required Technical Competencies**	3	4/5
	b. Describe the merits of inspection at source, receipt, in process, and final stages.			
	c. Compare the advantages and disadvantages of inspection by item attributes versus inspection of process variables.			
10. QA personnel shall have a working level knowledge of metrology and calibration systems.	**a.** Discuss the use of primary, secondary, and working standards.	**Required Technical Competencies**	3	4/5
	b. Discuss the purpose and application of calibration systems with respect to: • Process/product quality • Accuracy • Precision			
	c. Discuss the requirements for calibration programs contained in the following:			

Competency	Supporting Knowledge & Skills	Source	Importance	Need at Entry
	• 10 CFR 830, Subpart A, *Quality Assurance* • DOE O 414.1A, *Quality Assurance* requirements applicable to *Work Processes* and *Inspection and Testing,* regarding Control of measurement and test equipment • ASME NQA-1-2000, *Quality Assurance Requirements for Nuclear Facility Applications,* Basic Requirement 12 (with appropriate guidance), regarding control of measurement and test equipment. **d.** Discuss the components of an effective calibration recall system. **e.** Discuss the importance of calibration traceability. **f.** Discuss methods for determining a proper calibration interval.			
11. QA personnel shall have a familiarity level knowledge of statistical process control and sampling procedures for work processes, inspection/testing, and quality improvement.	**a.** Discuss the following statistical terms and their inter-relationships: • Mean • Median • Mode • Variance • Mean variance • Standard deviation **b.** Discuss in general, the following sampling procedures: • Simple random sampling • Stratified sampling • Cluster sampling • Systematic sampling • Acceptance sampling **c.** Discuss the terms "confidence interval" and "confidence limit." **d.** Discuss control charts and their relationship to statistical process controls.	**Required Technical Competencies**	2	4
C. Assessment, Oversight, and Improvement **1.** QA personnel shall demonstrate a working level knowledge of assessment principles and techniques. Reference DOE G 414.1-1, *Management Assessment and Independent Assessment*	**a.** Describe the assessment requirements applicable to DOE and contractor organizations. **b.** Explain the essential elements of assessments, the relationship and differences between management and independent assessments, and the role of quality assurance personnel relative to the two assessment types. **c.** Describe how the results of management assessments are used by management to improve their management processes **d.** Describe how the results of independent	**Required Technical Competencies**	4	2/3

Competency	Supporting Knowledge & Skills	Source	Importance	Need at Entry
	assessments are used by the management assessment process.			
	e. Describe the fundamental differences between performance and compliance based assessments.			
	f. Describe the contents of a typical assessment report.			
	g. Explain the essential elements and processes associated with the following assessment activities: • Plan and schedule • Management of the Assessment Team • Communicating team findings • Analyzing data and determination of overall performance • Conduct of exit interviews • Closure process, tracking to closure, and follow up • Corrective action implementation			
	h. Discuss the conduct of formal meetings between DOE management and senior contractor management to discuss results of quality assurance assessments.			
	i. Discuss the ethical responsibilities of quality assurance personnel when conducting assessments.			
2. QA personnel shall have a working level knowledge of quality improvement principles and processes. Reference DOE G 414.1-2, *Quality Assurance Management System Guide*.	**a.** Identification of quality problems (includes clearly defined variations from requirements).	**Required Technical Competencies**	4	2/3
	b. Resolution of quality problems.			
	c. Analysis and prioritization of quality problems to identify immediate, short-term and long term corrective as well as preventive measures.			
	d. Quality improvement including feedback, monitoring, method of measuring effectiveness, and programmatic adjustments.			
3. QA personnel shall have a working level knowledge of quality improvement methods including: problem analysis techniques used to identify problems/potential improvements; analysis tools to determine potential causes of problems; and systems to	**a.** Describe the application of effective problem analysis principles and techniques including the following: • Root cause analysis • Causal factor analysis • Change analysis • Barrier analysis • Management Oversight Risk Tree (MORT) Analysis	**Required Technical Competencies**	3/4	3

Competency	Supporting Knowledge & Skills	Source	Importance	Need at Entry
identify track and complete corrective action(s) or improvement opportunities. Reference G 414.1-1, G 450.4-1 and G 414.1-2.	•			
	b. Describe the application of root cause analysis processes in the establishment of corrective actions and improvement opportunities. • Event and causal factor charting • Root cause coding • Generation of recommendation(s)			
	c. Describe various data gathering techniques and the use of trending and history when analyzing problems.			
	d. Using event report information apply any problem analysis techniques to identify the problems and how they could have been avoided.			
4. QA personnel shall have a working level knowledge to trend performance.	**a.** Discuss the key process methodology used in the trending analysis of operations information.	**Required Technical Competencies**	3	3
	b. Using an actual list of performance measures, determine what type of assessments should be performed and in what areas.			
	c. Given a set of assessment report data for a specified period, analyze the information for quality trends or compliance problems.			
5. QA personnel shall have a working level knowledge of how to conduct independent assessments of the contractor's approved QAP implementation in accordance with all applicable QA requirements and standards. Reference G 414.1-1 and G 414.1-2.	**a.** Discuss the means for determining the adequacy and effectiveness of a work activity being assessed.	**Required Technical Competencies**	4	2/3
	b. Discuss some criteria that may be used by line management to determine the significance of issues or observations.			
	c. Describe possible assessment alternatives when actual work activities cannot be observed.			
	d. Discuss conventional assessment team member qualification requirements.			
	e. Describe the benefits of monitoring or surveillance of contractor activities.			
	f. Discuss how QA criteria are evaluated in a readiness review.			
	g. Discuss "performance-based" assessment method of a quality assurance program.			
6. QA personnel shall have a working level knowledge of how to oversee the effective implementation of appropriate QA criteria. Reference	**a.** Describe the goals, objectives, and methods used to conduct effective oversight of QA activities contained in 10 CFR 830, Subpart A, *Quality Assurance*, and DOE G 414.1-2, *Quality Assurance Management System Guide*.	**Required Technical Competencies**	4	2/3

Competency	Supporting Knowledge & Skills	Source	Importance	Need at Entry
G414.1, and P 450.5 Line ES&H Oversight.	**b.** Evaluate the organizational effectiveness in conforming to selected elements of the QAP such as: • Management assessment • Quality improvement • Actual performance to schedule • Performance of Corrective action			
	c. Discuss the reporting techniques for communicating evaluation results to DOE and contractor management.			

Importance Scale	Need At Entry Scale
How important is this competency for effective job performance?	When is this competency needed for effective job performance?
1=Not Important	1= Needed the first day
2=Somewhat Important	2=Must be acquired within the first 3 months
3=Important	3=Must be acquired within the first 4-6 months
4=Very Important	4=Must be acquired after the first 6 months
5=Extremely Important	5= Must be acquired prior to qualification

Job Analysis Worksheet For Task Competency Linkage

QA Program Management

Task Number	Competency						
	A-1	A-2	A-3	A-4	A-5	A-6	A-7
A	5	5	3	3	4	4/5	4
B	5	5	3	3	4	4	4
C	4	4	3	3	3	5	4
D	4	4	3	3	4	4	3/4
E	4	4	3	3	4	4	3/4
F	3/4	3	3	3	3	3	3/4
G	3	3	3	3	3	3	3/4
H	5	5	3	3	4	4	4
I	4	4	3	3	4	4	3/4

Linkage Scale

How important is this competency for effective task performance?

1=Not Important
2=Somewhat Important
3=Important
4=Very Important
5=Extremely Important
N/A= Not Applicable

Job Analysis Worksheet For Task Competency Linkage

General Technical Performance

Task Number	Competency										
	B-1	B-2	B-3	B-4	B-5	B-6	B-7	B-8	B-9	B-10	B-11
A	4	2	2	2	3	3	3	2/3	2/3	2/3	3
B	4	2	2	2	3	3	3	2/3	2/3	2/3	2
C	4	2	2	2	3	4	3	2/3	2/3	2/3	2
D	4	2	3	3	4	3	3	2/3	2/3	2/3	3
E	4	2	2	2	3	3	3	2/3	2/3	2/3	2
F	3	2	3	3	3	3	3	2/3	2/3	2/3	2
G	3	2	2	2	3	2/3	2/3	2/3	2/3	2/3	2
H	4	3	2	2	4	3	3	2/3	2/3	2/3	2
I	3	2	2	2	4	3	3	2/3	2/3	2/3	2

Linkage Scale

How important is this competency for effective task performance?

1=Not Important
2=Somewhat Important
3=Important
4=Very Important
5=Extremely Important
N/A= Not Applicable

Job Analysis Worksheet For Task Competency Linkage

Assessment, Oversight, and Improvement

Task Number	Competency					
	C-1	C-2	C-3	C-4	C-5	C-6
A	3/4	3/4	3/4	3/4	3/4	3/4
B	4	3/4	3/4	4	5	4
C	4	3/4	3/4	4	5	4
D	5	3/4	3/4	3	5	4
E	3/4	3/4	3/4	3/4	3/4	3/4
F	5	2/3	2/3	4	4	4
G	3	3	3	3	3	4
H	3/4	3/4	3/4	3/4	3/4	3/4
I	3/4	3/4	3/4	3/4	3/4	3/4

Linkage Scale

How important is this competency for effective task performance?

1=Not Important
2=Somewhat Important
3=Important
4=Very Important
5=Extremely Important
N/A= Not Applicable