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NEW QUESTION: 1
Which of the following codes provide requirements and limitations for implementing RBI programs? (Select all that apply)
A. API 653
B. API 573
C. API 570
D. API 510
E. API 578
Answer: A,C,D (LEAVE A REPLY)
According to API 580, multiple API inspection codes include provisions for RBI. Section 4.3 of API 580 clearly states:
"The RBI methodology is recognized in the API inspection codes - API 510, API 570, and API 653 - as an acceptable method to determine inspection intervals." Each of these codes outlines both the requirements and limitations for using RBI in their specific contexts:
* API 510 - for pressure vessels
* API 570 - for piping systems
* API 653 - for aboveground storage tanks
On the other hand:
* API 573 is a recommended practice for the inspection of fired heaters and does not include formal RBI provisions.
* API 578 focuses on Positive Material Identification (PMI) and is unrelated to RBI methodologies or requirements.
Therefore, the correct selection includes:
##API 510
##API 570
##API 653
Reference: API 580, 2nd Edition (2016), Section 4.3

NEW QUESTION: 2
Which of the following statements is correct with regard to determining the probability of a specific consequence?
A. The events leading to it should be considered.
B. Other credible events that could lead to it need not be considered.
C. It usually increases with the severity of the incident.
D. It is independent of the probability of failure.
Answer: A (LEAVE A REPLY)
According to Section 11.2.1 of API 580:
"The probability of credible events leading up to the specific consequence should be factored into the probability of the specific consequence occurring." Additionally:
"It is important to understand this linkage between the POF and the probability of possible resulting incidents... The probability of a specific consequence is tied to the severity of the consequence and may differ considerably from the probability of the equipment failure itself." Option A is correct and emphasized directly in API 580.
Option B is incorrect because considering all credible events is essential.
Option C is incorrect: the probability of a consequence typically decreases with severity.
Option D is incorrect: the probability of consequence is linked to the probability of failure.
Reference: API 580, 2nd Edition (2016), Section 11.2.1 - Determination of the Probability of a Specific Consequence

NEW QUESTION: 3
FILL BLANK
_____ produces inspection and maintenance plans for equipment that should be implemented to provide _____
Answer:
RBI, reliable and safe operation

NEW QUESTION: 4
CORRECT TEXT
Rp 580 significantly targeted at the application of rbi in the.....and .....industry
Answer:
Hydrocarbon
and chemical process

NEW QUESTION: 5
Potential source of errors in rbi analysis regarding data quality are the following except
A. Ifthe original thickness notavailable,maximum utthickness readings may be used

B. If the base line thickness were not performed the nominal thickness may be used for the original thickness
C. If original thickness not available, averaged ut thickness readings may be used
Answer: B (LEAVE A REPLY)

NEW QUESTION: 6
The programme that focused on maintaining the mechanical integrity of pressure equipmentitems and minimizing the risk of loss of containment due to deterioration
A. Hazop
B. Rbi
C. Pha
D. Rem
Answer: B (LEAVE A REPLY)

NEW QUESTION: 7
The following are the risks identified by rbi assessment that may be managed by actions other than inspection. Except one
A. Chemical treatment of the process to reduce deterioration rates/susceptibilities
B. Identifying and detecting deterioration and predicting future deterioration states with advanced inspection technique(s)
C. Modification of the process to eliminate conditions driving the risk
D. Modification of operating procedures to avoid situations driving the risk
Answer: (SHOW ANSWER)

NEW QUESTION: 8
The probability of equipment item failure depends on the:
A. maximum likelihood of any given outcome of events that may occur.
B. likelihood that deterioration mechanisms will produce rupture.
C. suitability of the equipment within the operating conditions.
D. total risk determined by the likelihood and consequence of individual failure modes.
Answer: (SHOW ANSWER)
Per Section 5.5 of API 580:
"The mechanical integrity and functional performance of equipment depends on the suitability of the equipment to operate safely and reliably under the normal and abnormal (upset) operating conditions to which the equipment is exposed." Also, Section 9.4 confirms PoF depends heavily on: a) The damage mechanisms and deterioration rates under current operating conditions; b) The ability of inspection to detect these issues before failure.
Thus, the equipment's suitability within its current and anticipated operating environment directly affects its PoF.
Reference: API 580, 2nd Edition (2016), Sections 5.5 and 9.4.1

NEW QUESTION: 9
Probability of failure analysis shall address:
A. causes of failure such as operator errors, PMI inaccuracies, and design flaws.
B. only the damage mechanism that is most likely to cause failure.
C. situations in which equipment is susceptible to multiple damage mechanisms.
D. all damage mechanisms that may be present at a site.
Answer: C (LEAVE A REPLY)
According to Section 9.1 of API 580:
"The POF analysis shall address all credible damage mechanisms to which the equipment being reviewed is or can be susceptible. Further, it shall address the situation where equipment is or can be susceptible to multiple damage mechanisms (e.g. thinning and creep)." Thus, C is the most accurate and complete choice. Option D is incorrect because the analysis is focused on equipment-specific mechanisms, not the entire site.
Reference: API 580, 2nd Edition (2016), Section 9.1

NEW QUESTION: 10
The following types of pressurized equipment and associated components covered by RBI
A. Turbines
B. Rotating equipment
C. Pressurized pumps
Answer: B (LEAVE A REPLY)

NEW QUESTION: 11
In RBI program discrimination between equipment items on the basis of significance of potential failures.
A. A&B
B. Consequence analysis
C. Determining failure modes
D. Failure analysis
Answer: (SHOW ANSWER)

NEW QUESTION: 12
_____ provides a consistent methodology for assessing the optimum combination of methods and
frequencies.
A. HAZOP
B. RBI
C. REM
D. PHA
Answer: (SHOW ANSWER)

NEW QUESTION: 13
The models are evaluated_____to provide both qualitativeand quantitative insights about the level of risk and to identify the design, site, or operational characteristics that are the most important to risk
A. Linearly
B. Logically
C. Statistically
D. Probabilistically
Answer: B (LEAVE A REPLY)

NEW QUESTION: 14
Who should be consulted to define the equipment deterioration mechanisms, susceptibility and potential failure modes?
A. A metallurgist only
B. Corrosion specialist only
C. A metallurgist and corrosion specialist
D. A metallurgist or corrosion specialist
Answer: D (LEAVE A REPLY)

NEW QUESTION: 15
What is a risk driver?
A. The primary contributor(s) responsible for a significant share of a risk value.
B. The primary identifier(s) used to assist in the acceptance or mitigation of found damage.
C. The primary element(s) to find, list, and characterize probability of failure.
D. The primary element(s) to find, list, and characterize consequence of failure.
Answer: A (LEAVE A REPLY)
API 580, in Section 5.1 and throughout the risk evaluation process, uses the term "risk driver" to refer to dominant contributors to the overall risk ranking or score. Specifically: "The expected outcome from the application of the RBI process should be the linkage of risks with appropriate inspection... The RBI process is capable of generating: ... identification of risk drivers." These risk drivers are the key parameters (such as a specific damage mechanism, operating condition, or component failure mode) that most significantly impact either the probability or the consequence component of the risk. Hence, the correct interpretation aligns with Option A.
Reference: API 580, 2nd Edition (2016), Section 5.1

NEW QUESTION: 16
Following are the non-inspection mitigation actions except one
A. Equipment redesign
B. Risk management by monitoring the deterioration

C. Maintenance of strict controls on operating conditions
D. Replacement or upgrade
Answer: (SHOW ANSWER)

NEW QUESTION: 17
Who can provide useful input (such as the spectrum of process conditions, injection points etc.) To aid materials specialists in the identification of deterioration mechanisms and rates
A. Inspection engineers
B. Asset integrity experts
C. Plant operation specialists
D. Process specialists
Answer: (SHOW ANSWER)

NEW QUESTION: 18
For qualitative rbi analysis it us important to establish a set of rules to assure consistency in
A. Ranking
B. Categorization or classification
C. Segregation
Answer: (SHOW ANSWER)

NEW QUESTION: 19
Risk assessment is defined as the:
A. process to find, list, and characterize elements of risk.
B. systematic use of information to estimate risk and conduct risk evaluation.
C. coordinated activities to direct and control risk in an organization.
D. process used to assign values to the probability and consequence of risk.
Answer: (SHOW ANSWER)
As defined in Section 3.1.59 of API 580:
"Risk assessment: The systematic use of information to estimate risk and conduct risk evaluation." Option A refers more closely to hazard identification, C is the definition of risk

management, and D describes part of the risk analysis process, but not the full definition of risk assessment.
Reference: API 580, 2nd Edition (2016), Section 3.1.59

NEW QUESTION: 20
A RBI analysis shares many of the techniques and data requirements with a _____.
A. QRA
B. PHA
C. HAZOP
D. Event tree
Answer: (SHOW ANSWER)

NEW QUESTION: 21
Which of the following would be the minimum expectations of contractors hired to implement an RBI program?
A. Certification in accordance with API RP 580
B. Documented training in damage mechanisms
C. Certification of corrosion/materials specialist to API RP 571
D. Documented training and suitably qualified personnel
Answer: D (LEAVE A REPLY)
API 580 Section 15.3.1 and 15.3.2 confirm:
"Contractors... should have a program of training and be able to document that their personnel are suitably qualified." While API 580 certification is beneficial, it is not required. Therefore, "Documented training and suitably qualified personnel" is the minimum expectation.
Reference: API 580, 2nd Edition (2016), Section 15.3.1-15.3.2
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NEW QUESTION: 22
Why is it important to understand the difference between RBI accuracy and RBI precision?
A. RBI precision is more important than RBI accuracy.
B. RBI accuracy cannot be fully achieved with qualitative RBI analysis.
C. Quantitative RBI methods are more accurate than qualitative methods.
D. The implied linkage between RBI accuracy and precision may not exist.
Answer: D (LEAVE A REPLY)
According to Section 5.4 of API 580:
"Risk presented as a precise numeric value (as in a quantitative analysis) implies a greater level of accuracy...
However, the implied linkage of precision and accuracy may not exist because of the element of uncertainty that is inherent with probabilities and consequences." This clearly

supports that Option D is correct. While quantitative methods appear precise, their accuracy may be affected by model limitations, uncertainty, and data variability. Therefore, understanding this distinction helps practitioners avoid overconfidence in the output of RBI tools.
Reference: API 580, 2nd Edition (2016), Section 5.4
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NEW QUESTION: 23
An iso-risk line on a risk plot is a line:
A. of constant risk.
B. of same-risk consequence.
C. showing direction of increasing risk.
D. of same-risk probability.
Answer: (SHOW ANSWER)
Section 11.6.3 of API 580 defines iso-risk lines:
"An ISO-risk line represents a constant risk level... All items that fall on or very near the ISO-risk line are roughly equivalent in their level of risk." This confirms that iso-risk lines plot constant risk across varying combinations of probability and consequence.
Reference: API 580, 2nd Edition (2016), Section 11.6.3 - Risk Plots

NEW QUESTION: 24
.....Is not a substitute for a process hazards analysis (pha) or hazop
A. Rem
B. Hazop
C. Rbi
D. Pha
Answer: D (LEAVE A REPLY)

NEW QUESTION: 25
_____may result in the calculated corrosion rate appearingartificially high or low.
A. Clerical error
B. Ut scanning
C. Measurement error
D. Inspector error
Answer: (SHOW ANSWER)

NEW QUESTION: 26
RBI is focused on a systematic determination of
A. Absolute risks
B. Total risks

C. Comparable risks
D. Relative risks
Answer: D (LEAVE A REPLY)

NEW QUESTION: 27
Loss of containment is
A. Loss of fluid to the external environment
B. Container loss at the port authority
C. Risk related to containers
D. B&C
Answer: A (LEAVE A REPLY)
Explanation

NEW QUESTION: 28
_____ delineate initiating events and combinations of system
A. Event trees
B. Fault trees
C. Logic trees
Answer: A (LEAVE A REPLY)

NEW QUESTION: 29
Who can provide useful input (such as the spectrum of process conditions, injection points etc.) To aid
materials specialists in the identification of deterioration mechanisms and rates
A. Process specialists
B. Plant operation specialists
C. Asset integrity experts
D. Inspection engineers
Answer: A (LEAVE A REPLY)
Explanation

NEW QUESTION: 30
A likely trigger for an RBI reassessment would be after:
A. API RP 580 Risk-Based Inspection has been updated.
B. a mitigation strategy has been implemented.
C. RBI team members have changed.
D. a sensitivity analysis on the risk determination has been conducted.
Answer: B (LEAVE A REPLY)
API 580 Section 14.3.3 clearly states:
"Once a mitigation strategy is implemented it is prudent to determine how effective the strategy was in reducing the risk to an acceptable level. This should be reflected in a

reassessment of the risk and appropriate update in the documentation." Thus, option B is correct. Updating standards or team members is not a listed reassessment trigger, and sensitivity analysis alone is a supporting tool, not a trigger.
Reference: API 580, 2nd Edition (2016), Section 14.3.3
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NEW QUESTION: 31
No deterioration found in the inspection program but still failure can occur under the following conditions.
A. As a result of change or process upset condition
B. All the above
C. During plant construction period
Answer: A (LEAVE A REPLY)

NEW QUESTION: 32
_____is usually not the primaryobjective of a rabiassessment, but it is frequently a side effect of optimization.
A. Increasing frequency of inspection programs
B. Reducing inspection costs
C. Increasing inspection costs
Answer: B (LEAVE A REPLY)

NEW QUESTION: 33
Damage mechanisms where deterioration rates are immeasurable or unknown are
A. Hydrogen induced cracking
B. Thinning
C. All of the above
D. Stress corrosion cracking
E. Both A and B
Answer: E (LEAVE A REPLY)

NEW QUESTION: 34

Effective inspection program can be derived for RBI from
A. Inspection frequency
B. All the above
C. Inspection coverage
D. Proper NDE method best suited for deterioration mechanism
Answer: B (LEAVE A REPLY)

NEW QUESTION: 35
The following assumption can bemade that significantly impactthe calculated corrosion rate early in the equipment life
A. Iftheoriginal thicknessnot available, maximum utthickness readings may be used
B. If the base line thickness were not performed the nominal thickness may be used for the original thickness
C. If original thickness not available, averaged ut thickness readings may be used
Answer: B (LEAVE A REPLY)

NEW QUESTION: 36
Consequence analysis will aidin preparation of
A. To understand about equipment history
B. Risk ranking of equipment
C. To understand the probability of failures
Answer: (SHOW ANSWER)

NEW QUESTION: 37
_____Depict ways in which the system failures rep- resentedin the event trees can occur.
A. Fault trees
B. Event trees
C. Logic trees
Answer: B (LEAVE A REPLY)

NEW QUESTION: 38
What program is used when damage mechanisms are precipitated by short-term, event-driven operating changes?
A. Integrity Operating Windows
B. Process Hazards Analysis
C. Process Safety Management
D. Risk-Based Inspection
Answer: A (LEAVE A REPLY)
From API 580, Section 12.1:

"Some damage mechanisms precipitated by short-term event-driven operating changes can happen too fast to be monitored with normal inspection plans... hence the need for establishing and implementing a comprehensive program for Integrity Operating Windows (IOWs)..." IOWs are specifically mentioned as the mitigation framework for rapid damage mechanisms due to transient process changes.
Reference: API 580, 2nd Edition (2016), Section 12.1

NEW QUESTION: 39
In most consequence evaluations, a key element in deter-mining the magnitude of the consequence is
A. Amount of surface area exposed due to toxic release
B. Physical area impacted by release
C. The volume of fluid released
Answer: C (LEAVE A REPLY)

NEW QUESTION: 40
When in accurate or insufficient failure data exists on the specific equipment item for quantative probability of failure analysis then
A. Process hazard analysis failure data may be used
B. General industry, company or manufacturer failure data used
C. Process and toxic concentration analysis may be used
Answer: B (LEAVE A REPLY)

NEW QUESTION: 41
A Rbi analysis shares many of the techniques and data requirements with a_____.
A. Event tree
B. Hazop
C. Pha
D. Qra
Answer: (SHOW ANSWER)

NEW QUESTION: 42
If a qra has been prepared for a process unit, the analysis can borrow extensively from this effort.
A. Rbi probability
B. Rbi likelihood
C. Rbi consequence
Answer: A (LEAVE A REPLY)

NEW QUESTION: 43

An RBI assessment of new equipment or a new project may:
A. not be useful because there is no inspection history.
B. be needed in order to define the risk criteria to be used in service.
C. be conducted only after 1000 hours of operation to establish operating and inspection data.
D. yield useful information on potential future risks.
Answer: D (LEAVE A REPLY)
According to API 580, Section 6.2.8:
"An RBI assessment made on new equipment or a new project while in the design stage may yield important information on potential risks. This may allow potential risks to be minimized by design and have a RBI plan in place prior to actual installation." This statement confirms the value of performing RBI even in the absence of historical data, especially for forward-looking risk identification.
Reference: API 580, 2nd Edition (2016), Section 6.2.8

NEW QUESTION: 44
Thinning causes the loss of material from
A. External or internal surfaces
B. External surfaces only
C. Internal surfaces only
Answer: B (LEAVE A REPLY)

NEW QUESTION: 45
_____ is usually not the primary objective of arbiassessment, but it is frequently a side effect of optimization.
A. Increasing inspection costs
B. Reducing inspection costs
C. Increasing frequency of inspection programs
Answer: B (LEAVE A REPLY)

NEW QUESTION: 46
In quantitative POF analysis, when failure data for each piece of equipment is unavailable, general industry failure data can be used by what means?
A. Using engineering judgment to estimate the POF categories
B. Adjusting the data by qualified persons to make it more equipment specific
C. Multiplying it by numerical fractions obtained from applicable industry literature
D. Categorizing the probability of failure as high, medium or low with different orders of magnitude
Answer: (SHOW ANSWER)
API 580, Section 9.3.3 provides clear guidance:

"In the case [of] insufficient failure data... general industry, company, or manufacturer failure data is used.
This failure data should be adjusted and made specific to the equipment being analyzed... Qualified persons should make these modifications on a case-by-case basis." Therefore, the standard mandates expert-driven adjustments to general data for it to be useful and accurate for the specific context.
Reference: API 580, 2nd Edition (2016), Section 9.3.3

NEW QUESTION: 47
Following are some of the recognized risks which cannot be managed by inspection alone except one
A. Failure mechanisms (such as brittle fracture, fatigue) where avoidance of failure primarily depends on
operating within a defined pressure/temperature envelope
B. The suitability and current condition of the equipment within the current operating envelope will determine
the probability of failure (POF) of the equipment from one or more deterioration mechanisms
C. Consequence-dominated risks
D. Equipment nearing retirement
Answer: B (LEAVE A REPLY)

NEW QUESTION: 48
Sec occurs when equipment is exposed to environments
A. Unbeneficial to certain cracking mechanisms
B. Conducive to certain cracking mechanisms
C. Unfavorable to certain cracking mechanisms
Answer: A (LEAVE A REPLY)

NEW QUESTION: 49
Qualitative assessment is done on the basis of
A. Knowledge of operating History

B. Inspection plans
C. Possible material deteriorations
D. All the above
Answer: A (LEAVE A REPLY)

NEW QUESTION: 50
If a very aggressive acid is carried over from a corrosion resistant part of a system into a downstream vessel that is made of carbon steel, the result would be
A. General corrosion over a period of time could result in metal loss
B. No deterioration will take place since carbon steel is resistant to aggressive acid
C. Rapid corrosion could result in failure in a few hours or days.
Answer: C (LEAVE A REPLY)

NEW QUESTION: 51
FILL BLANK
RP 580 significantly targeted at the application of RBI in the _____ and _____ industry
Answer:
hydrocarbon, chemical process

NEW QUESTION: 52
Some failures have potentially serious consequences, but if the probabilityof the incident is low, then
A. The risk may warrant appropriate mitigation action
B. The risk may not warrant immediate action
C. The risk may warrant immediate action
Answer: B (LEAVE A REPLY)

NEW QUESTION: 53
Hazard identification in a rbi analysis generally focuses on identifiable failure mechanisms in the equipment (inspectable causes) but does not explicitly deal with
A. Other potential failure scenarios resulting from events such as power S failures or human errors
B. Environmental impact caused due to toxic release
C. Other potential failure resulting from events such as flammable fire due to leak from equipment
Answer: A (LEAVE A REPLY)

NEW QUESTION: 54
Failure mode can primarily affects the
A. Consequences

B. A&B
C. Magnitude
Answer: C (LEAVE A REPLY)

NEW QUESTION: 55
Risk evaluation is defined as the process used to:
A. find, list, and characterize elements of risk.
B. select and implement measures to modify risk.
C. compare estimated risk against given risk criteria.
D. assign values to the probability and consequence of risk.
Answer: (SHOW ANSWER)
As defined in API 580, Section 3.1.59:
"Risk evaluation: The process used to compare the estimated risk against given risk criteria to determine the significance of the risk." This follows from the broader risk assessment process where risk identification and analysis occur first, followed by risk evaluation.
Reference: API 580, 2nd Edition (2016), Section 3.1.59

NEW QUESTION: 56
Is key to performing deterioration mechanism identification
A. Understanding equipment operation and its safety protective measures
B. Understanding equipment operation and the interaction with the chemical and mechanical environment
C. Understanding equipment operation and process upsets
Answer: B (LEAVE A REPLY)

NEW QUESTION: 57
One of the significant differences between qualitative and semi-quantitative COF analysis for RBI is that the results of a semi-quantitative analysis are usually:
A. numeric
B. estimated
C. probabilistic
D. alpha characters
Answer: A (LEAVE A REPLY)
Section 5.3.5 of API 580 explains the nature of semi-quantitative RBI analysis:
"Semi-quantitative... is geared to obtain the major benefits of the previous two approaches (e.g. speed of the qualitative and rigor of the quantitative)... The results are usually given in consequence and probabilitycategories or as risk numbers, but numerical values may be associated with each category to permit the calculation of risk and the application of appropriate risk acceptance criteria." Therefore, semi-quantitative assessments often produce risk values in a numeric format, allowing comparative decision-making. This

distinguishes them from purely qualitative assessments that rely on subjective categories like "High/Medium/Low." Reference: API 580, 2nd Edition (2016), Section 5.3.5

NEW QUESTION: 58
Hazard identification in a RBI analysis generally focuses on identifiable failure mechanisms in the equipment (inspectable causes) but does not explicitly deal with
A. Environmental impact caused due to toxic release
B. Other potential failure resulting from events such as flammable fire due to leak from equipment
C. Other potential failure scenarios resulting from events such as power S failures or human errors
Answer: C (LEAVE A REPLY)

NEW QUESTION: 59
Following are not the residual risk factors for loss of containment.
A. Natural disasters
B. Fundamental limitations of inspection method
C. Human error
D. Toxic fluid containment
Answer: D (LEAVE A REPLY)

NEW QUESTION: 60
An RBI assessment of new equipment or a new project may:
A. yield useful information on potential future risks.
B. be conducted only after 1000 hours of operation to establish operating and inspection data.
C. not be useful because there is no inspection history.
D. be needed in order to define the risk criteria to be used in service.
Answer: A (LEAVE A REPLY)
According to API 580, Section 6.2.8:
"An RBI assessment made on new equipment or a new project while in the design stage may yield important information on potential risks. This may allow potential risks to be minimized by design and have a RBI plan in place prior to actual installation." This statement confirms the value of performing RBI even in the absence of historical data, especially for forward-looking risk identification.
Reference: API 580, 2nd Edition (2016), Section 6.2.8

NEW QUESTION: 61
_____are the primary inputs into the probability offailureevaluation.
A. Fluid toxicity and its concentration
B. Loss of containment f fluid

C. The deterioration mechanisms, rates and susceptibilities
D. Damage mechanisms and its severity
Answer: C (LEAVE A REPLY)

NEW QUESTION: 62
Process to find, list, and characterize elements of risk
A. Risk estimation
B. Risk evaluation
C. Risk identification
Answer: C (LEAVE A REPLY)

NEW QUESTION: 63
In RBI most of the probability assessment will be
A. Only quantity assessment
B. Blend of quality and quantity assessment
C. Only quality assessment
Answer: (SHOW ANSWER)

NEW QUESTION: 64
Most of the damage from thermal effects tends to occur in
A. None of the above
B. Wide range
C. Close range
D. Large distance
Answer: C (LEAVE A REPLY)

NEW QUESTION: 65
The governing inspection codes (such as API 510 and API 570) and jurisdictional regulations, if any, shall be reviewed to determine what?
A. A default maximum time periods for RBI reassessments
B. When the next turnaround must be scheduled
C. If the risk of continued operation is acceptable

D. When equipment that is deteriorating must be replaced
Answer: (SHOW ANSWER)
API 580 Section 14.3.2 clearly states:
"Users should set default maximum time periods for reassessments. The governing inspection codes (such as API 510, API 570, and API 653) and jurisdictional regulations, if any, shall be reviewed in this context." This means the codes and regulations are explicitly consulted to determine maximum allowable intervals between RBI reassessments. This ensures compliance with inspection frequency expectations across different jurisdictions and standards.
Reference: API 580, 2nd Edition (2016), Section 14.3.2

NEW QUESTION: 66
Establishing and operating within boundaries is:
A. key for assessing the likelihood of ignition of a release.
B. an important step in reducing unnecessary inspections.
C. fundamental to the validity of an RBI study.
D. necessary to minimize need for risk management.
Answer: C (LEAVE A REPLY)
As stated in Section 6.4.1:
"Operating within the boundaries is fundamental to the validity of the RBI study as well as good operating practice." Boundaries (both physical and operational) define the scope and assumptions of the RBI analysis. Without adherence to them, the analysis becomes invalid.
Reference: API 580, 2nd Edition (2016), Section 6.4.1

NEW QUESTION: 67
Why is it important to identify the risk drivers in the RBI process?
A. To enable development of effective risk mitigation strategies
B. To ensure that the most effective inspection plans are implemented
C. To avoid having any loss of containment that might have catastrophic results
D. To ensure that the right resources are applied for reducing consequences of risk
Answer: A (LEAVE A REPLY)
API 580 emphasizes the importance of identifying risk drivers as part of a systematic method to manage risks:
"Development of an appropriate inspection program to address key risk drivers. A method to systematically manage risks associated with the operation of process equipment."
Understanding risk drivers is necessary to target mitigation actions effectively and to ensure that resources are allocated based on what contributes most to the risk.
Reference: API 580, 2nd Edition (2016), Section 5.3.2
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NEW QUESTION: 68
Conducting more internal inspection than is called for by RBI:
A. reduces risk to the lowest practical level.
B. can result in inspection optimization.
C. may cause additional deterioration and risk.
D. will produce further risk reduction.
Answer: C (LEAVE A REPLY)
API 580, Section 12.4 and 12.6 emphasize that inspection should be optimized and risk-focused. Excessive inspections can increase exposure to damage mechanisms (such as mechanical or corrosion risks introduced during inspection activities), especially if not needed.
From Section 12.4:
"Organizations should be deliberate and systematic in assigning the level of risk management achieved through inspection and should be cautious not to assume that there is an unending capacity for risk management through inspection." Further, in risk-optimization contexts (Section 12.5):
"While there is a potential for reduction of inspection costs through utilization of RBI, increased equipment integrity and inspection cost optimization should remain the focus."
Therefore, excess inspections may be:
Unjustified
Economically wasteful
Risk-enhancing (e.g., opening equipment unnecessarily may lead to deterioration)
Reference: API 580, 2nd Edition (2016), Sections 12.4 and 12.6

NEW QUESTION: 69
_____uses logic models depicting combinations of events
A. Quantitative risk analysis
B. Qualitative risk analysis
C. Process hazard analysis
Answer: (SHOW ANSWER)

NEW QUESTION: 70
The primary audience for RP 580 is
A. Only inspection personnel
B. Only materials engineering personnel
C. Inspection and materials engineering personnel
D. Maintenance personnel
Answer: A (LEAVE A REPLY)

NEW QUESTION: 71
In RBI, operating conditions that should be considered include:

A. emergency shutdown and start-up
B. only those that could cause significant leaks
C. idle or out of service time
D. upset conditions
E. all possible operating conditions, even if unlikely
F. those considered an "act of God."
Answer: A,C,D (LEAVE A REPLY)
API 580 Section 5.5 outlines:
"The susceptibility of each equipment item should be clearly defined for the current and projected operating conditions including such factors as:
a) normal operation
b) upset conditions
c) normal start-up and shutdown
d) idle or out-of-service time
e) emergency shutdown and subsequent start-up."
Furthermore, API 580 stresses that these operational states impact deterioration and must be included in the RBI assessment.
Options A, C, and D are clearly included in the standard.
Option B and E are too restrictive or speculative.
Option F is not referenced and is not considered in RBI methodology.
Reference: API 580, 2nd Edition (2016), Section 5.5
-

NEW QUESTION: 72
The programme that focused on maintaining the mechanical integrity of pressure equipment items and minimizing the risk of loss of containment due to deterioration
A. Rem
B. Hazop
C. PHA
D. RBI
Answer: D (LEAVE A REPLY)

NEW QUESTION: 73
What does sensitivity analysis typically involve?
A. Checking the impact of having more than one damage mechanism progressing toward failure at the same time
B. Determining whether a flammable release is more likely to result in an explosion versus a fire versus safe dispersion
C. Reviewing some or all input variables to the risk calculation to determine the overall influence on theresultant risk value

D. Determining what effect the surrounding community may have on the total consequence of the release to the environment

Answer: C (LEAVE A REPLY)

As stated in Section 11.4 of API 580:

"Sensitivity analysis typically involves reviewing some or all input variables to the risk calculation to determine the overall influence on the resultant risk value." This process helps identify which input variables most significantly affect the final risk values. Such variables are prioritized for validation and refinement to improve the quality of the analysis.

Reference: API 580, 2nd Edition (2016), Section 11.4

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NEW QUESTION: 74

Termination of the ability of a system, structure, or component to perform its required function of containment

of fluid (Ie loss of containment)

A. Outcome

B. Risk

C. Failure

Answer: C (LEAVE A REPLY)

NEW QUESTION: 75

If a very aggressive acid is carried over from a corrosion resistant part of a system into a downstream vessel that is made of carbon steel, theresult would be

A. No deterioration will take place since carbon steel is resistent to aggressive acid

B. General corrosion over a period of time could result in metal loss

C. Rapid corrosion could result in failure in a few hours or days.

Answer: C (LEAVE A REPLY)

NEW QUESTION: 76

_____represents the next generation of inspection approachesand interval setting, recognizing that the ultimate goal of inspection is the safety and reliability of operating facilities

A. Pha

B. Rcm

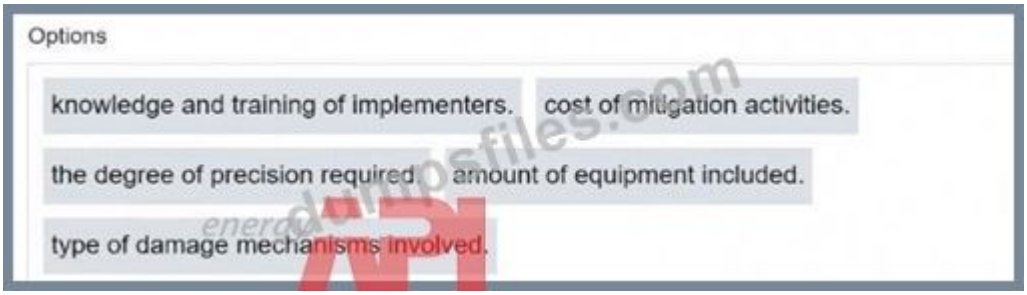
C. Rbi

D. Hazop

Answer: (SHOW ANSWER)

NEW QUESTION: 77

The resources and time required to implement an RBI assessment will vary widely between organizations depending on a number of factors including:



A. knowledge and training of implementers.
B. cost of mitigation activities.
C. the degree of precision required.
D. amount of equipment included.
E. type of damage mechanisms involved.

Answer: A,C,D (LEAVE A REPLY)

According to Section 6.6 of API 580 (2016), titled "Estimating Resources and Time Required," it is clearly stated:

"The resources and time required to implement an RBI assessment will vary widely between organizations depending on a number of factors including the following:

a) implementation strategy/plans.
b) knowledge and training of implementers.
c) availability and quality of necessary data and information.
d) availability and cost of resources needed for implementation.
e) amount of equipment included in each level of RBI analysis.
f) degree of complexity of RBI analysis selected.
g) degree of precision required."

This confirms the following are among the officially listed influencing factors:

A: Knowledge and training of implementers#
C: The degree of precision required#
D: Amount of equipment included#

However:

B: Cost of mitigation activities -#Not listed in Section 6.6 as a driver for time/resources during implementation.

E: Type of damage mechanisms involved -#Relevant to PoF modeling, but not a direct listed factor for estimating time/resources needed to implement the RBI.
Reference: API 580, 2nd Edition (2016), Section 6.6 - Estimating Resources and Time Required

NEW QUESTION: 78
Which mitigation system most effectively minimizes community exposure to a significant release of an acidic water-soluble vapor cloud?
A. Toxic scrubbers
B. Acid detectors
C. Blast resistance construction
D. Water curtain
Answer: D (LEAVE A REPLY)
API 580, Section 13.11 states:
"Water curtains mitigate water-soluble vapor clouds by absorption as well as dilution... Early activation is required to achieve significant risk reduction. The curtain should preferably be between the release location and ignition sources or locations where people are likely to be present." Toxic scrubbers are used for venting or building protection, but water curtains directly mitigate dispersion of water-soluble acidic clouds in open areas.
Reference: API 580, 2nd Edition (2016), Section 13.11
-

NEW QUESTION: 79
The ability to state the rate of deterioration precisely is affected by the following except
A. None of the above
B. Typeofdeteriorationmechanism, processand metallurgical variations
C. Inaccessibilityfor inspection, limitations ofinspection andtest methods
D. By equipment complexity
E. Lack of coverage of an area subject to deterioration
Answer: C (LEAVE A REPLY)

NEW QUESTION: 80
A process to assess risks, to determine if risk reduction is required and to develop a plan to maintain risks at an acceptable level
A. Risk control
B. Risk mitigation
C. Risk management
Answer: C (LEAVE A REPLY)

NEW QUESTION: 81

Qualitative consequence analysis of failure can be estimated separately for each unit, system, equipment group or individual equipment item.
A. No basis required since it is qualitative
B. On the basis of expert knowledge and experience
C. On the basis of available data
D. On the basis of process and environmental conditions
Answer: B (LEAVE A REPLY)

NEW QUESTION: 82
If multiple inspections have been performed, which inspection may best reflect current operating conditions?
A. Most recent inspection
B. Process conditions
C. Base line inspection survey
D. Corrosion survey
Answer: A (LEAVE A REPLY)

NEW QUESTION: 83
When equipment has low deterioration rates as an inspector what you decide in lieu of internal inspection.
A. On-stream inspection
B. Out of service inspection
C. External inspection
Answer: A (LEAVE A REPLY)

NEW QUESTION: 84
Risk acceptance is normally determined on the basis of criteria defined:
A. in the RBI software.
B. in API 580.
C. by regulatory authorities.
D. by individual companies.
Answer: (SHOW ANSWER)
Section 11.3.1 of API 580 explicitly states:
"Many companies have corporate risk criteria defining acceptable and prudent levels of safety, environmental and financial risks... Because each company may be different in terms of acceptable risk levels, risk management decisions can vary among companies."
This highlights that risk acceptance criteria are typically developed internally by organizations based on their own tolerance and business drivers-not by API or external regulations.
Reference: API 580, 2nd Edition (2016), Section 11.3.1

NEW QUESTION: 85
Hazard identification in a RBI analysis generally focuses on identifiable failure mechanisms in the equipment
(inspectable causes) but does not explicitly deal with
A. Other potential failure scenarios resulting from events such as power S failures or human errors
B. Other potential failure resulting from events such as flammable fire due to leak from equipment
C. Environmental impact caused due to toxic release
Answer: (SHOW ANSWER)
Explanation/Reference:

NEW QUESTION: 86
The reduction in the ability of a component to provide its intended purpose of containment of Fluids
A. Thinning
B. Damage
C. Degradation
D. Deterioration
Answer: D (LEAVE A REPLY)

NEW QUESTION: 87
One of the key elements of an inspection plan is:
A. probability of failure.
B. examination methods to be used.
C. repairs necessary to reduce risk.
D. consequence of failure.
Answer: B (LEAVE A REPLY)
API 580 outlines the required contents of an inspection plan in Section 12.3 and also in the "Output" section:
"The RBI inspection plan should include:
b) inspection methods that should be used;
c) extent of inspection (percent of total area to be examined or specific locations); d) inspection interval or next inspection date (timing)." Therefore, "examination methods to be used" is a fundamental part of the inspection plan, as explicitly stated.
Probability and consequence of failure are inputs to the risk analysis but not part of the inspection plan structure itself.
Reference: API 580, 2nd Edition (2016), Section 12.3 and Output (Inspection Plan)

NEW QUESTION: 88

Following is the unit of measure of consequence that is least developed among those currently used for rbi assessment

A. Safety

B. Cost

C. Affected area

D. Environmental damage

Answer: D (LEAVE A REPLY)

NEW QUESTION: 89

Most of the damage from thermal effects tends to occur in

A. Large distance

B. Close range

C. None of the above

D. Wide range

Answer: B (LEAVE A REPLY)