

SAFETY IN THE SELECTION AND MANAGEMENT OF CONTRACTORS

February 27, 2007

WHAT SHOULD OUR EMPHASIS BE?

- ELIMINATION OF UNSAFE CONTRACTORS ?
 - Prevent from bidding on contracts
- SELECTION OF SAFE CONTRACTORS?
 - Through use of safety records, other indicators
- SAFE OPERATIONS AFTER SELECTION?
 - Management controls, process requirements, positive and negative rewards
- INCREASED EMPHASIS ON SAFETY CULTURE, LEADERSHIP ADVOCACY?
 - Owner Involvement, training, recognition
- SAFE END ITEM OR PRODUCT?
 - Design considerations, strong quality assurance

WHAT HAS THE ASAP SAID? (PARAPHRASED)

- Contract language should make contactors more accountable.
- NASA should ensure that policy includes best practices so that centers can merge their practices with what's recommended
- Writing global policy is complicated by range of contractors – from roofing to Shuttle processing
- NASA is making progress in use of lagging indicators but should consider and develop leading indicators
- Contractor safety management should be more integrated and transparent at the leadership, strategic and operational levels
- NASA should think about pre-qualifying vendors and understanding private sector approaches. The EMR should be < 1.0 for all contractors

WHAT HAVE WE DONE?

- REVIEWED PROCUREMENT REGULATIONS, POLICIES, PRACTICES
- REVIEWED AND COLLECTED BEST PRACTICES
 - REVIEWED CCI MATERIAL
 - VISITED CENTERS
 - DISCUSSED WITH CENTERS
 - REVIEWED NON-NASA GOVERNMENT ORGANIZATIONS
- INTERNAL POLICY DISCUSSIONS
 - PROCUREMENT, LEGAL, SAFETY, PROGRAMS
- DEVELOPMENT, PACKAGING AND DISSEMINATION OF INFORMATION
 - SAFETY MEETINGS AND FORUMS
 - ENGINEERING CONSTRUCTION INNOVATIONS COMMITTEE
 - (FACILITIES AND SAFETY COMMUNITY)
 - PROCUREMENT CONFERENCES
 - PRESENTED BEST PRACTICES AND RECOMMENDATIONS TO PROCUREMENT COMMUNITY

NASA FAR SUPPLEMENT

SOME SAFETY REFERENCES

- [1823.70](#) Prescription for NASA S&H clause
- [1852.223-70](#), Safety and Health Clause
- [1852.223-73](#), Safety and Health Plan Clause
- [1852.223-75](#), Major Breach of Safety or Security Clause
- [1815.304-70](#) NASA evaluation factors.
 - » Requirement for S&H Subfactor
 - » Requirement to evaluate safety in Past Performance
- [1815.305](#) Proposal evaluation.
 - » Evaluate programmatic risk to mission success including
- [1815.370](#) NASA source evaluation boards.
 - » S&MA as voting member
- [1815.404-471-4](#) Other considerations
 - » Consideration of safety in fee negotiation
- [1815.406-170](#) Consideration of safety and risk management in prenegotiation position
- [NPR 8715.3](#) NASA General Safety Program Requirements
 - » “Safety Manual”
 - » Sample Safety & Health Plans

SOME IMPORTANT SAFETY RELATED NASA POLICY DIRECTIVES AND REQUIREMENTS

- [NPD 8700.1C](#) NASA Policy for Safety and Mission Success
- [NPD 8700.2A](#) NASA Policy for Safety and Mission Assurance (SMA) for Experimental Aerospace Vehicles (EAV)
- [NPD 8700.3A](#) Safety and Mission Assurance (SMA) Policy for NASA Spacecraft, Instruments, and Launch Services
- [NPR 8705.3](#) Safety and Mission Assurance (SMA) Requirements for Experimental Aerospace Vehicles (EAV)
- [NPR 8705.4](#) Risk Classification for NASA Payloads
- [NPR 8705.5](#) Probabilistic Risk Assessment (PRA) Procedures for NASA Programs and Projects July
- [NPR 8705.6](#) Safety and Mission Assurance Audits, Reviews, and Assessments
- [NPD 8710.2D](#) NASA Safety and Health Program Policy
- [NPD 8710.5C](#) NASA Safety Policy for Pressure Vessels and Pressurized Systems
- [NPR 8715.1](#) NASA Occupational Safety and Health Programs
- [NPR 8715.5](#) Range Safety Program
- [NPR 8735.2](#) Management of Government Safety and Mission Assurance Surveillance Functions for NASA Contracts

More Agency SMA Requirements

Group I: OVERARCHING SMA PHILOSOPHY & POLICY (5)

Foundation Documents

Safety and Mission Success, NPD 8700.1B
 Safety Manual, NPR 8715.3 (by Chapter)
 Review and Assessment, NPR 8705.6
 Risk Management, NPR 8000.4
 Annual Operating Agreements - Center specific SMA "management contracts" (*Not included in the 47 auditable SMA Requirements*)

IFO/IPS

Group II: INSTITUTIONAL /OPERATIONAL SAFETY (IOS) GROUP (10)

Safety Implementation

Safety and Health Program, NPD 8710.2D
 Occupational Safety and Health Programs, NPR 8715.1
 Facility Safety, NASA-STD-8719.7
 Pressure Vessel Safety, NPD 8710.5B
 Ground Based Pressure Vessels, NPR 8715.4
 Underwater Facilities, NSS/WS-1740.10
 Lifting Devices, NASA-STD-8719.9
 Fire Protection, NASA-STD-8719.11
 Aircraft Operations Management Manual, NPR 7900.3A (*Code O=OPR*)
 Operational Readiness, NASA-STD-8719.1 Draft

IFO

Group III (A): PROGRAM IMPLEMENTATION (22)

Designing / Building / Testing / Operating / Retiring

Reliability, NPD 8720.1B PRA Doc, NPR 8705.5 Orbital Debris, NPD 8710.3B Orbital Debris, NSS-1740.14 S/W Eng Requirements, NPR 7150 S/W Assurance, NASA-STD-8739.8 S/W Formal Inspections, NASA-STD-2202.93 S/W Safety, NASA-STD-8719.13B S/W Documentation, NASA-STD-2100.91 Parts, NPD 8730.2B Metrology & Calibration, NPD 8730.1B Alerts, NPR 8735.1A Range Safety, NPR 8715.X Hydrogen, NSS-1740.16 Explosive, NSS-1740.12	SMA Functions for Contracts, NPR 8735.2 NASA Quality Policy, NPD 8730.5 Workmanship Standards for: Conformal Coating, NASA-STD-8739.1 Surface Mount Technology, NASA-STD-8739.2 Soldered Electrical Connections, NASA-STD-8739.3 Crimping, Cables, and Wiring, NASA-STD-8739.4 Fiber Optics, NASA-STD-8739.5
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IFO/IPS

Group III (B): Program Specific Implementation of SMA Requirements

Critical to Flow-down of SMA Baseline Requirements Set (*Not included in the 47 auditable SMA Requirements*)

Program & Project Management, NPD 7120.4 and NPR 7120.5B
 PCA

Program Plan
 Project Plan
 Project SMA Plan
 Level 0/1 Requirements

Chief Engineer = OPR

SMA Implementation within Contract / MOUs / Grants (e.g. Systems Effectiveness Plan or equivalent)
 {NASA FAR Supplement Requirements and Risk Based Acquisition Mgmt (RBAM) Implementation}

Group IV: PROGRAM CLASS - REQUIREMENTS DOCUMENTS (10)

Unique To Specific Programs

Spacecraft, Instruments, and Launch Service, NPD 8700.3A
 Payload Classification, NPR 8705.4

Human Rating Requirements, NPR 8705.2

ELV SMA Roles & Responsibilities, NASA-STD-8709.2
 ELV/Payload Safety Review, NASA-STD-8719.8
 ELV Oversight, NPD 8610.23A (*Code M=OPR*)
 ELV Review, NPD 8610.24A (*Code M=OPR*)
 ELV Risk Mitigation, NPD 8610.7A (*Code M=OPR*)

IPS

Experimental Aerospace Vehicle SMA Policy NPD 8700.2A
 Experimental Aerospace Vehicle SMA Requirements NPR 8705.3

Group V: CONTINGENCY / RECOVERY / INVESTIGATION (1)

Preparing For & Responding To Incidents

Mishap Investigation, NPR 8621.1A

IFO/IPS

SAFETY BEST PRACTICES HOW TO IMPLEMENT

- WHICH BEST PRACTICES CAN BE STANDARDIZED AND REQUIRED TO BE USED?
 - Mature, broadly based
- WHICH BEST PRACTICES SHOULD BE USED UNDER CERTAIN CIRCUMSTANCES?
 - Specific to certain types of procurements or work
- WHICH BEST PRACTICES SHOULD BE PROVIDED AS MODELS, ENCOURAGED?
 - New, immature, “pushing the envelope”

POLICY from BEST PRACTICES

How Should We Apply It ?– Where Will it Have Best Impact?

- SHOULD WE LEVY GLOBAL REQUIREMENTS OR ALLOW FOR DIFFERENT CENTERS AND PROGRAMS FLEXIBILITY TO ACCOMMODATE DIFFERENT TYPES OF PROCUREMENTS AND VARYING CONDITIONS?
 - Construction vs. R&D
 - On-site vs. off-site
 - Service vs. supply

- WHERE SHOULD WE LEVY REQUIREMENT OR PROVIDE GUIDANCE FOR BEST PRACTICES
 - NASA FAR Supplement
 - NPD's, NPR's
 - Procurement Information Circular (PIC)
 - OTHER
 - Web site
 - Standards

SOME BEST PRACTICES in NASA

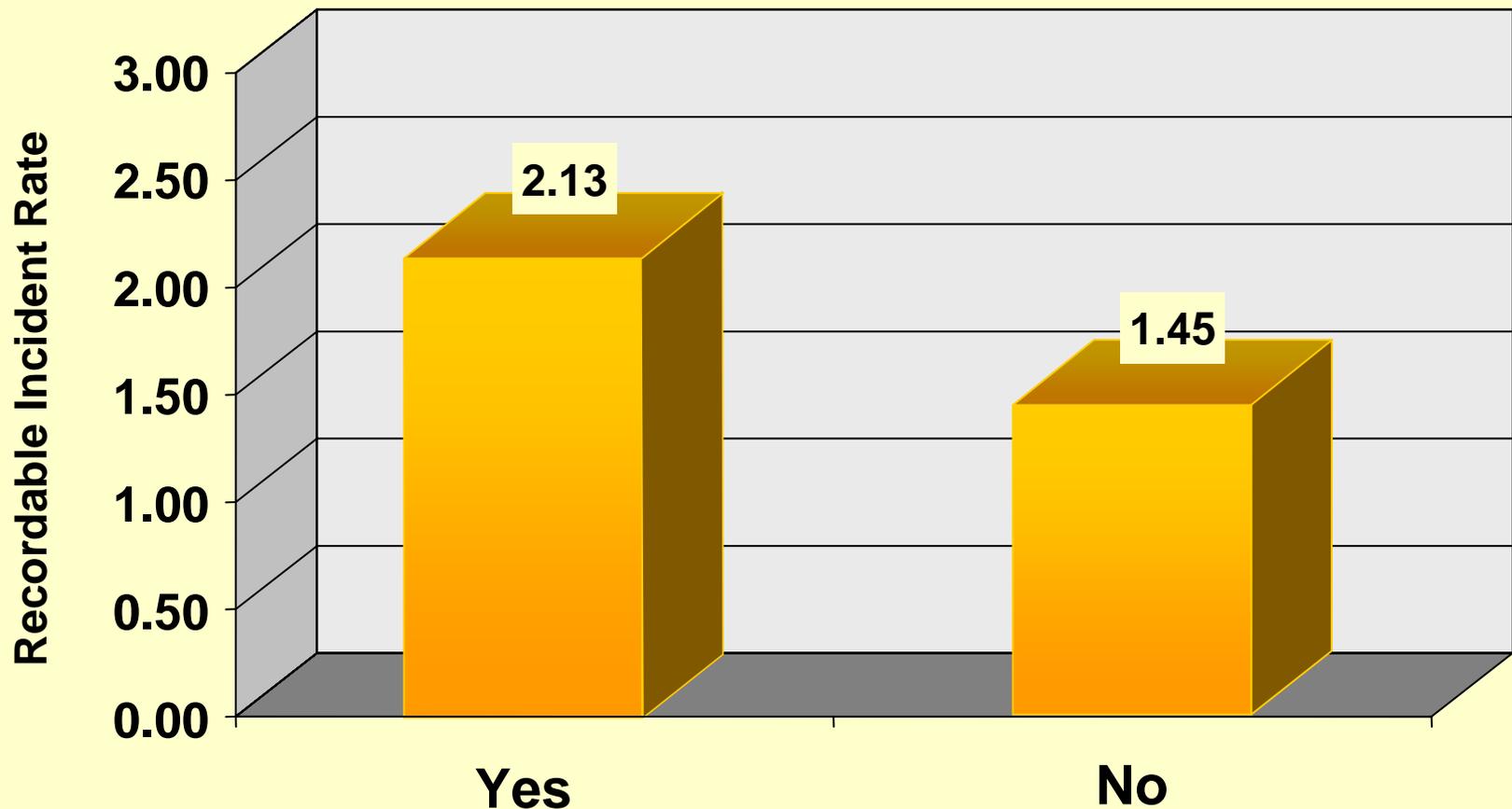
- **USE OF CONTRACTOR SAFETY RECORDS AND METRICS SUCH AS EMR, TRIR, DART AND DACR AS SELECTION DISCRIMINATORS IN BEST VALUE PROCUREMENTS**
- **USE OF TRAILING, LEADING, AND PROACTIVE INDICATORS IN CONTRACTOR SELECTION**
- **USE OF NOVEL SELECTION TECHNIQUES THAT MAXIMIZE SAFETY AS A DISCRIMINATOR AND PRESERVE SOME OF THE SIMPLICITY AND SPEED OF SEALED BIDDING**
 - **PRICE/PERFORMANCE TRADE FOR MEDIUM TO LARGE CONSTRUCTION PROJECTS**
 - **USED ON KSC VAB**
 - **BEST VALUE KEYING ON PRICE AND PERFORMANCE RISK**
 - **MULTIPLE AWARD ID/IQ**
- **USE OF TRAILING AND LEADING SAFETY INDICATORS IN CONTRACTOR PERFORMANCE EVALUATIONS**
- **USE OF MONETARY INCENTIVES SPECIFIC TO SAFETY PERFORMANCE**
- **WORKER ORIENTATION SPECIFIC TO CENTER AND JOB SITE; GOVERNMENT AND CONTRACTOR PARTICIPATE**
- **S&H PLANS SPECIFIC TO SITE AND JOB**
- **ESTABLISHED WORK PERFORMANCE & TECHNICAL REQUIREMENTS SPECIFIC TO SAFE PERFORMANCE (WRITTEN INTO PERFORMANCE REQUIREMENTS OR SOW)**
 - **LICENSES, CERTIFICATIONS, PERFORMANCE STANDARDS**

WIDELY USED SAFETY METRICS

- **EMR**
 - **Experience Modifier Rate** - Rate used to calculate worker's compensation insurance premium. It is calculated by an advisory organization (also known as rating bureaus) such as the **National Council on Compensation Insurance** based on historic loss and payroll data of a particular insured.
- **TRIR - Total Recordable Incident Rate (OSHA)**
 - equates to injury mishaps NASA type D and above. Includes medical treatment, restricted duty, job transfer, days away, and higher. Excludes first aid and close calls.
- **DART - Days Away / Restricted (duty) / (job) Transfer**
 - Not quite same as NASA type C. Excludes medical treatment, first aid, and close calls. Value of this indicator is for case management evaluation purposes (e.g., return to work on restricted basis is good versus staying out until 100% "healthy" again.)
- **DACR**
 - **Days Away Case Rate** - DART minus restricted duty and job transfer. Equates to NASA type C and above. OSHA and NASA use this.

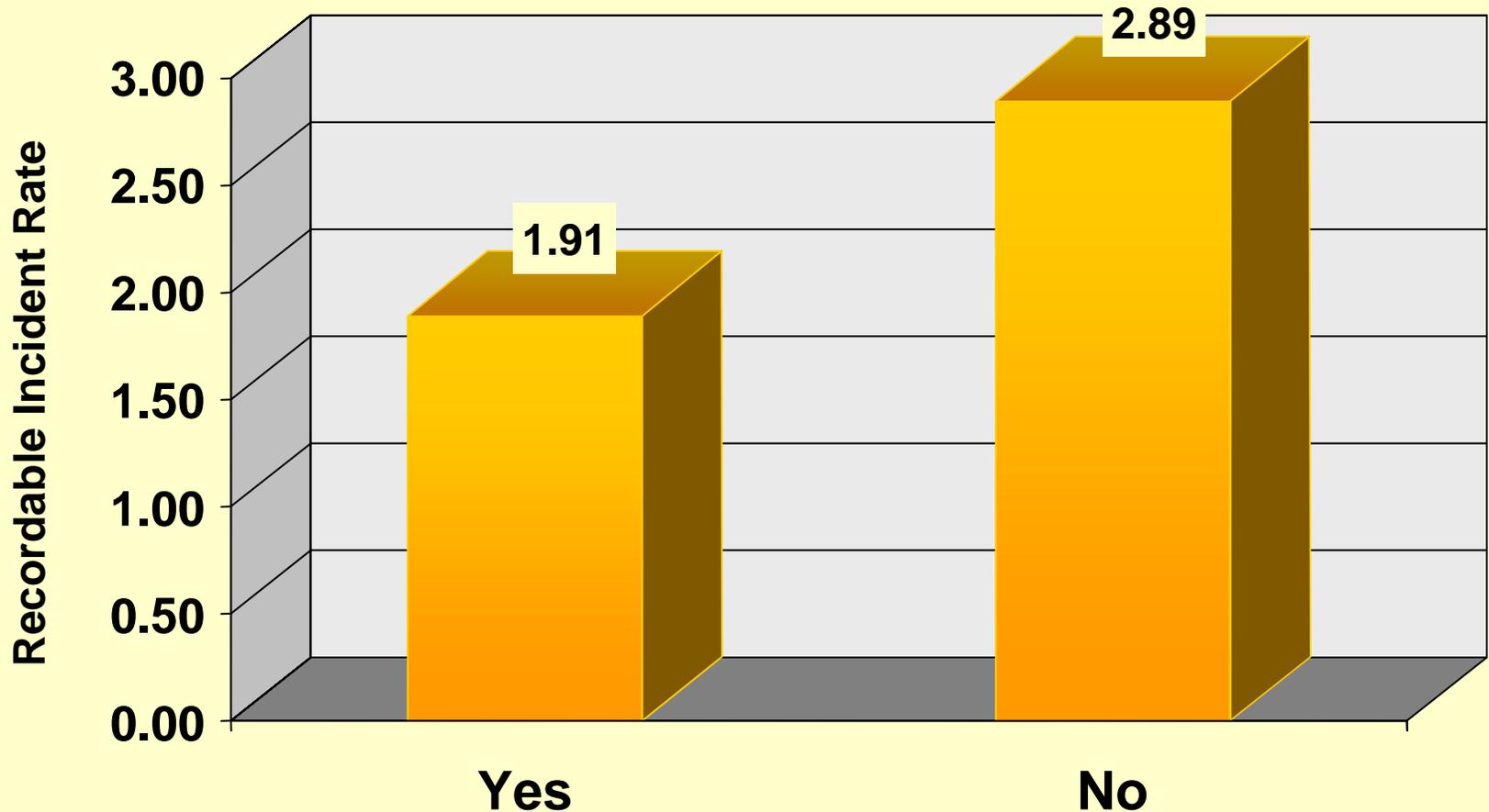
Selection of Safe Contractors
CCI and ECIC BEST PRACTICES COURSE

Is EMR only used to evaluate contractor Safety & Health performance?



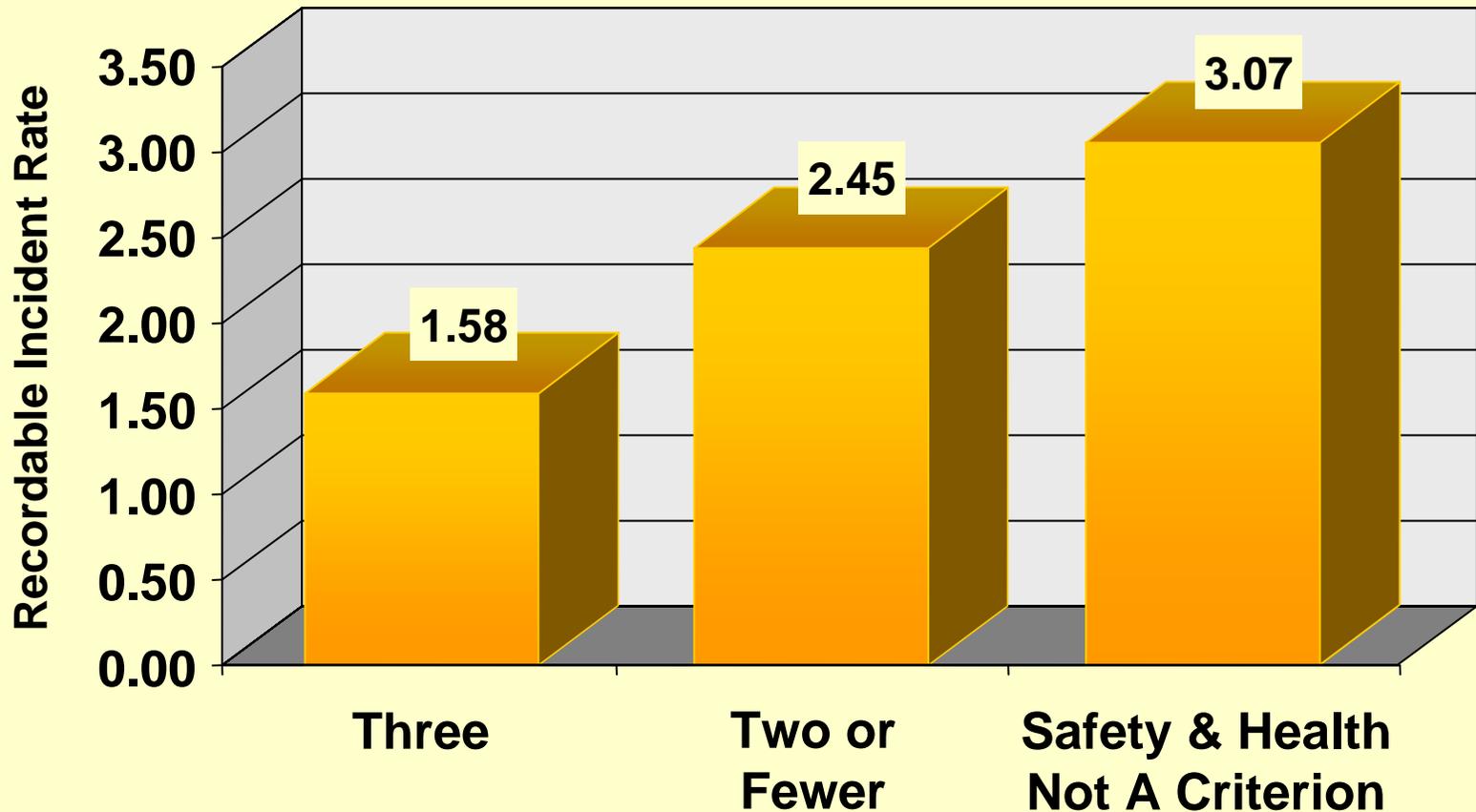
Selection of Safe Contractors
CCI and ECIC BEST PRACTICES COURSE

Is RIR used to evaluate contractor Safety & Health performance?



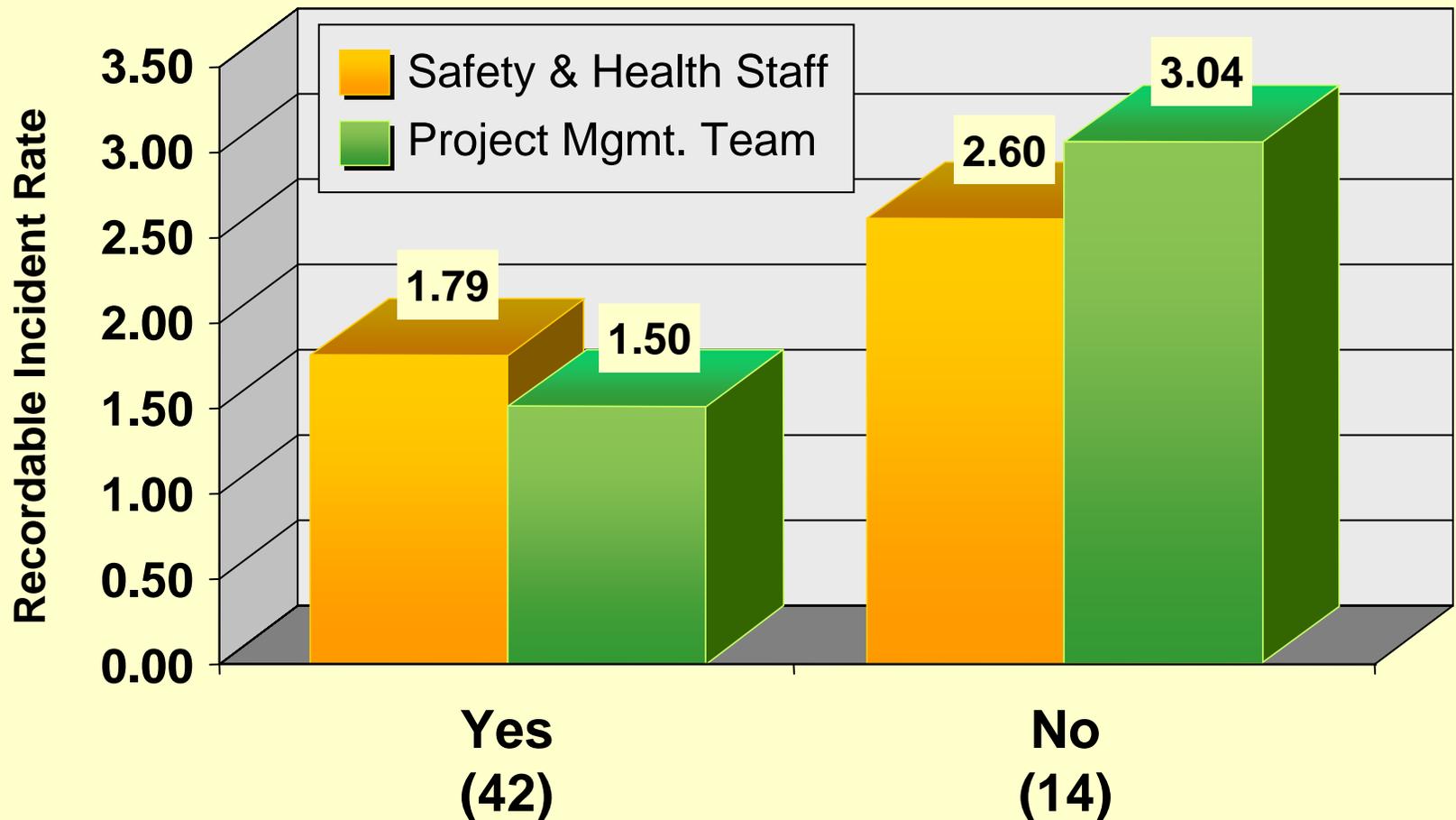
Selection of Safe Contractors
CCI and ECIC BEST PRACTICES COURSE

How many proactive criteria are used in contractor selection?



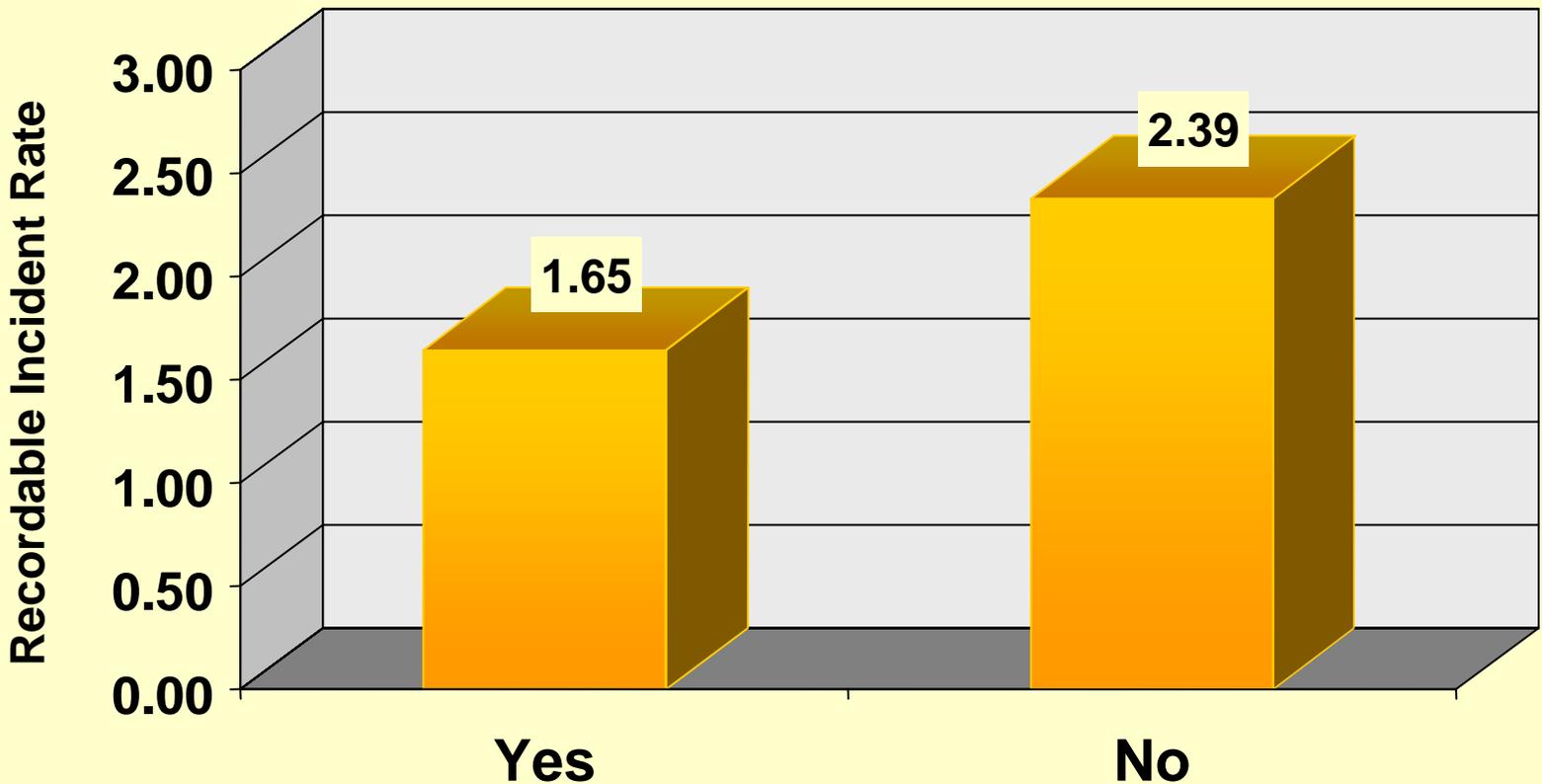
Selection of Safe Contractors
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Are personnel qualifications reviewed when contractor is evaluated?



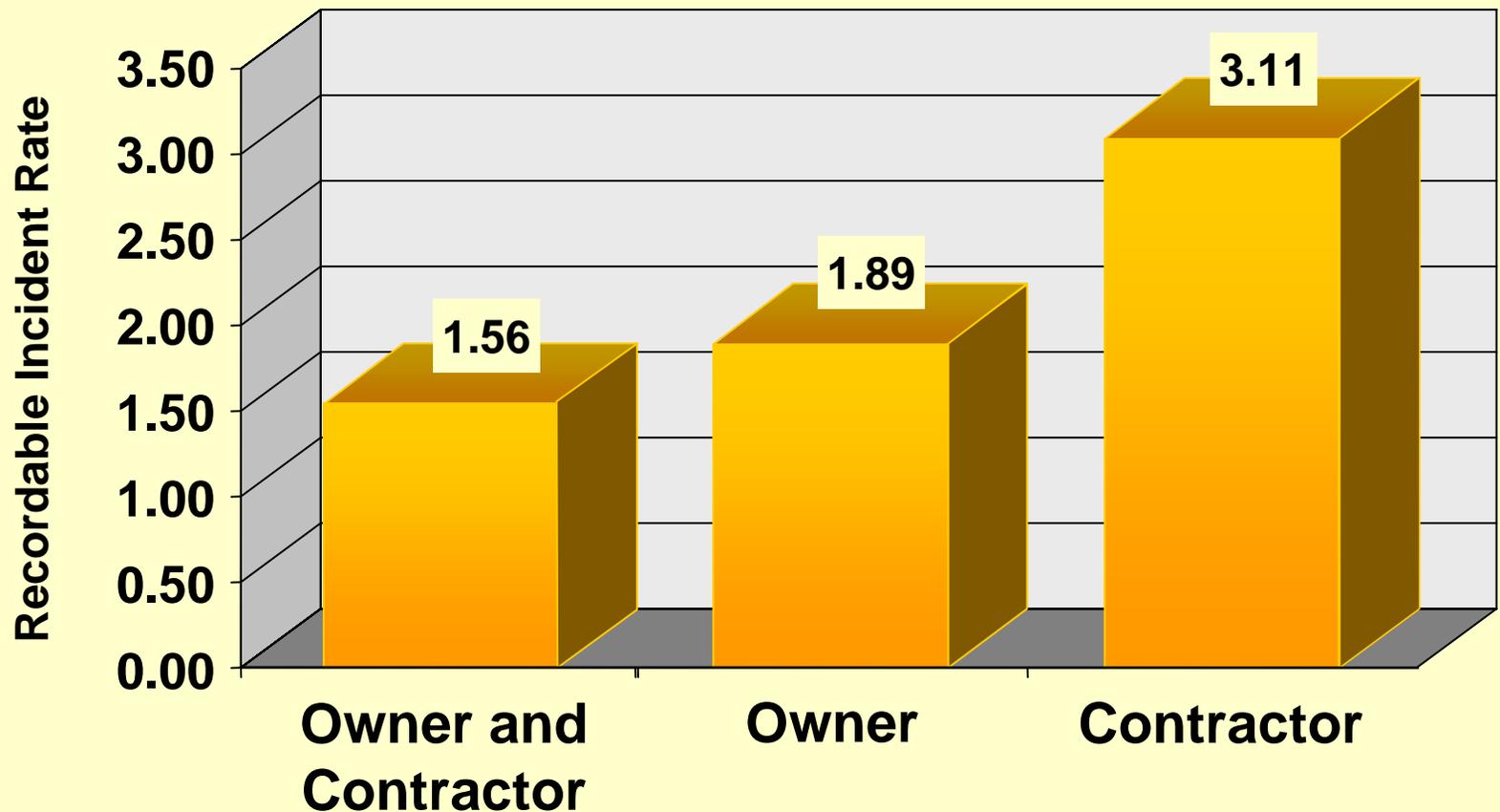
Management During Project Execution

Does the owner provide extra funds (outside the contract) to promote project Safety & Health?



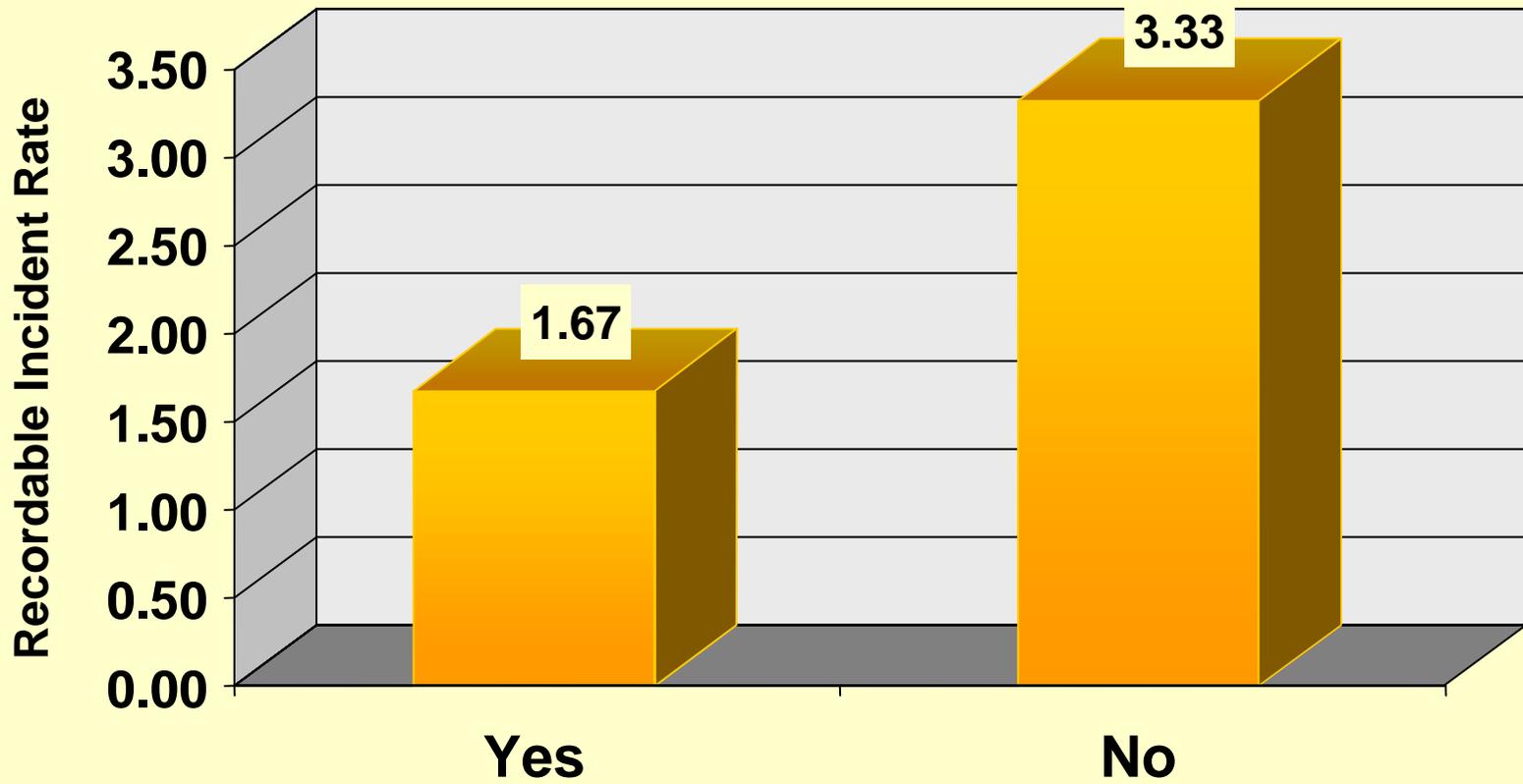
Management During Project Execution

Who participates in worker orientation?



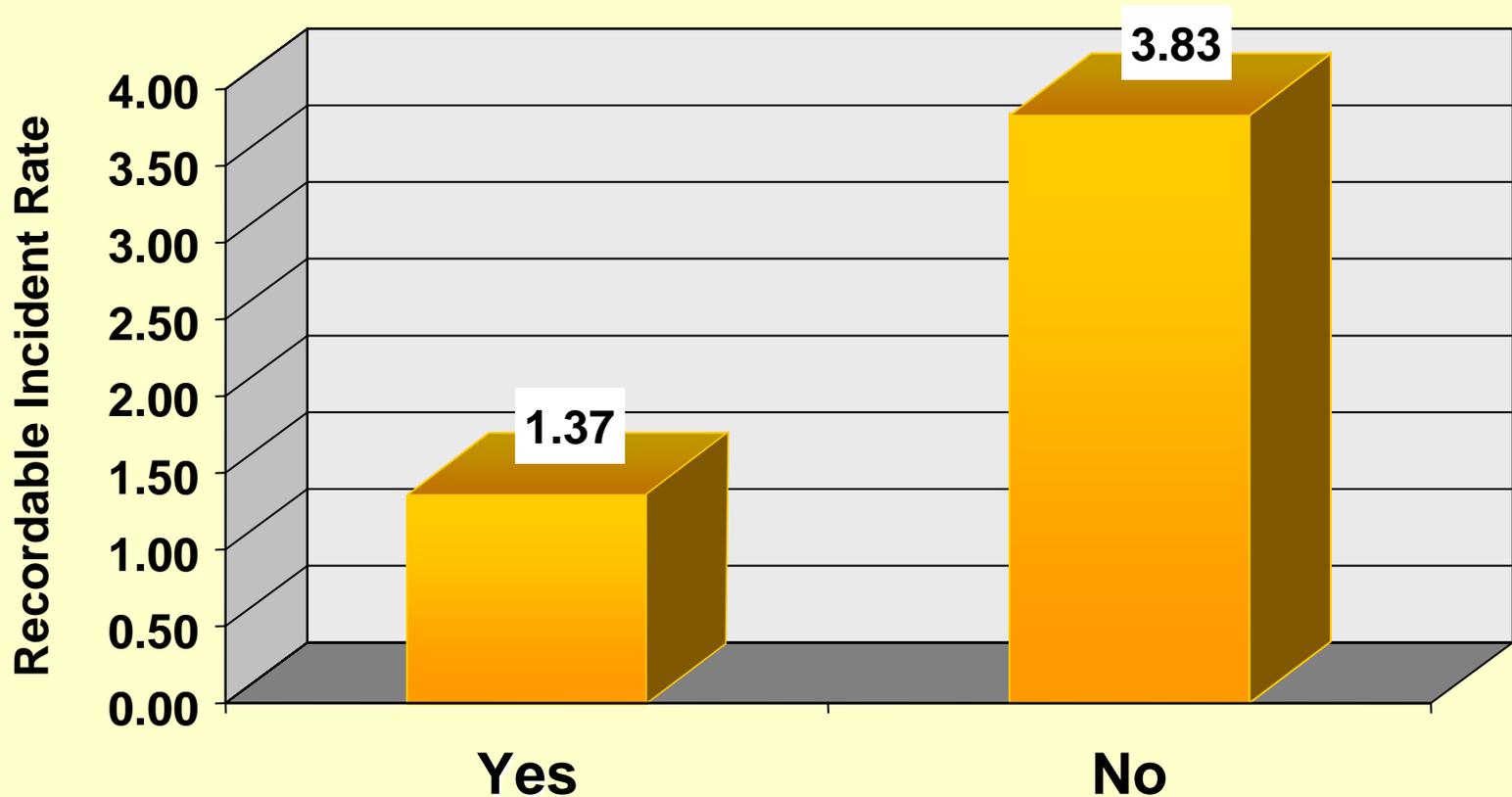
Management During Project Execution

Do owner's representatives participate in Safety & Health and/or toolbox meetings?



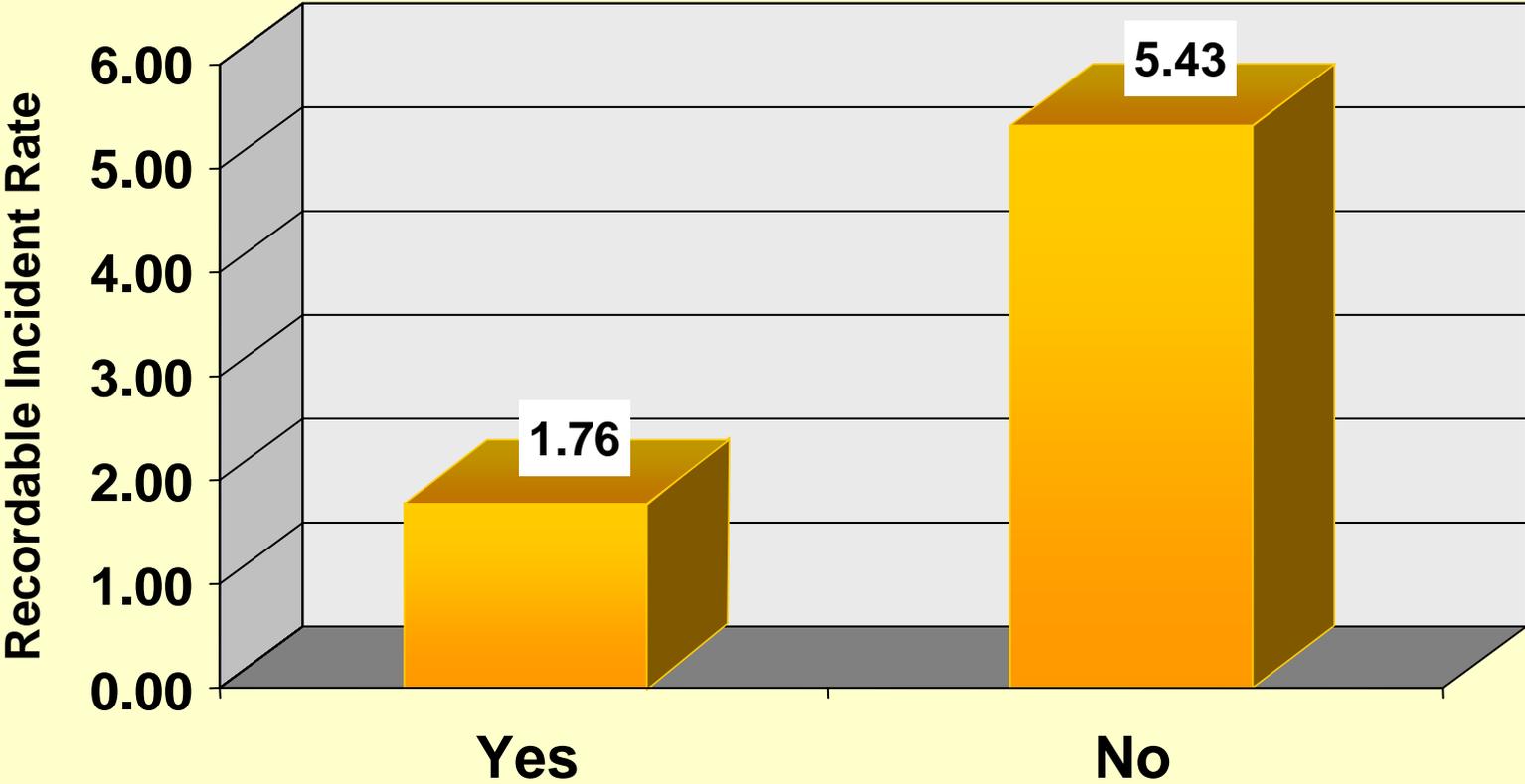
Subcontractor Management

- Are subcontractors required to submit site-specific Safety & Health plans?



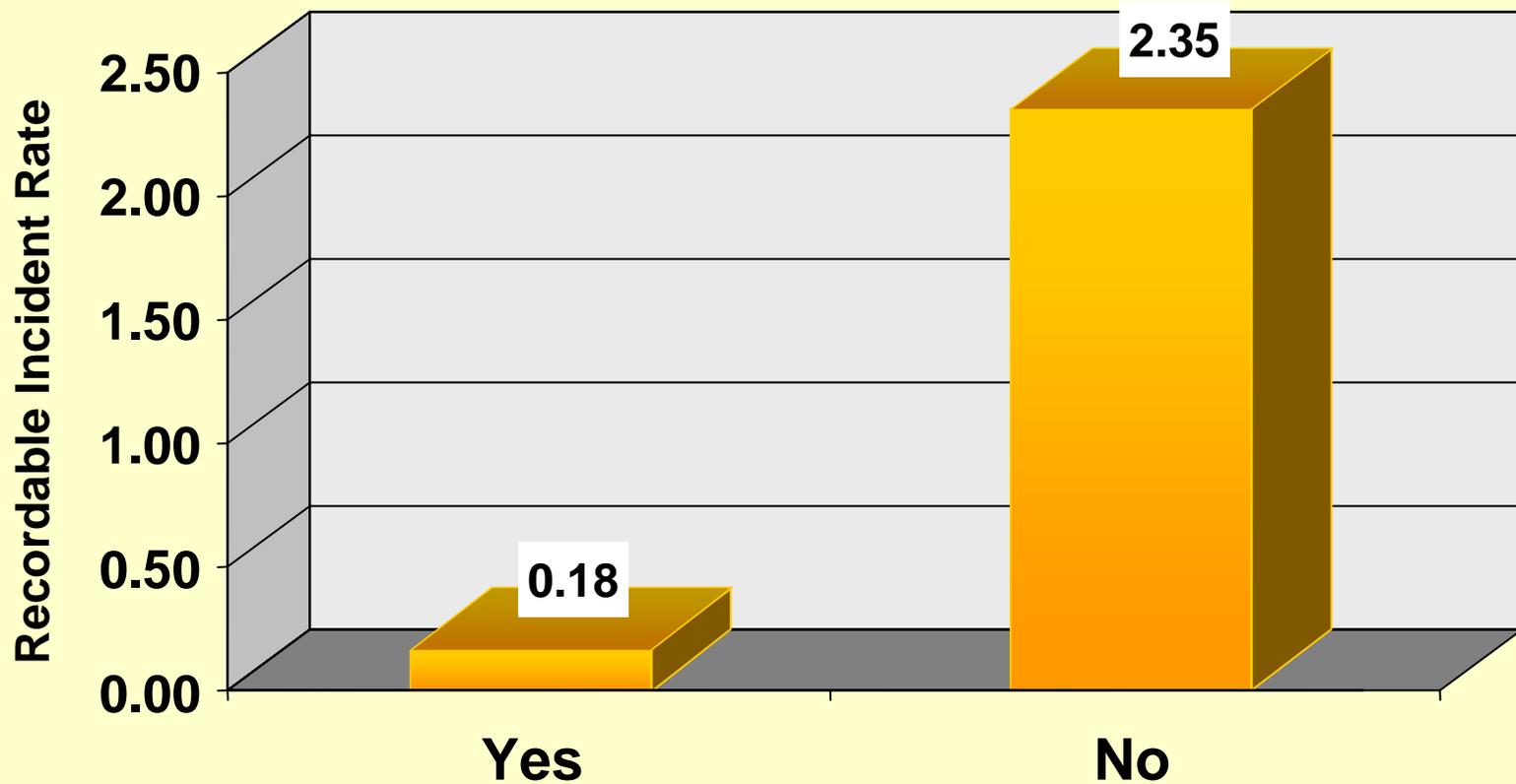
Safety Planning

- Site-specific safety program



Recognition and Rewards

- Do family members attend safety dinners?



BEST PRACTICES OUTSIDE THE AGENCY

- USE OF HISTORICAL SAFETY INDICATORS AS AN ELEMENT OF GOVERNMENT'S "RESPONSIBILITY DETERMINATION"
 - ARMY CORPS OF ENGINEERS
- REVIEW OF SUBCONTRACTOR SAFETY RECORDS AND HISTORICAL SAFETY INDICATORS AS PART OF PRIME EVALUATION AND LATER SUBCONTRACT CONSENT PROCESS
 - ARMY CORPS
- USE OF HISTORICAL SAFETY INDICATORS AS "PREQUALIFIERS" TO SUBMITTING A BID
 - DUPONT USE OF EMR
 - MODIFY USE AS "TECHNICAL REQUIREMENT" FOR GOVERNMENT USE
 - CAN USE ALSO USE OTHER PRACTICES THAT HAVE SIMILAR EFFECT

OTHER OBSERVATIONS AND COMMENTS FROM CENTER VISITS

- S&H PLANS ARE EVALUATED BUT SEEM TOO “CANNED”
 - THICK PLANS BUT MAY NOT BE SITE OR SITUATION SPECIFIC
- CONTRACTORS SHOULD HAVE TO FOLLOW CENTER’S DETAILED AND SPECIFIC POLICIES AND PROCEDURES
- SIGNIFICANT WEIGHT PUT ON SAFETY IN SELECTION BUT TECHNICAL/PROGRAM COMMUNITY OVERRIDES
- TRAILING (HISTORICAL) INDICATORS SOMETIMES DON’T TELL WHOLE STORY
 - NEED LEADING INDICATORS AND CORRECTIVE ACTIONS AND PLANS

RECOMMENDATIONS

Selection of Contractors

- **EMPHASIZE SAFETY AS PART OF RESPONSIBILITY DETERMINATION**
 - Use trailing indicators (EMR; OSHA TRIR, DART, logs, citations, reportable incidents)
 - Most useful for IFBs
 - Eliminates worst contractors
 - May have to create “Special Standard” in accordance with FAR 9-104-2 or use as “minimum technical requirement”
- **PAST PERFORMANCE**
 - Evaluate past contract efforts, past performance database, and widely accepted historical indicators (EMR, OSHA, etc.,)
 - Use **Price to Performance Trade** including EMR and TRIR and DART as part of Past Performance
 - One adjective rating difference can be discriminator in many procurements
 - Ensure Center safety org active in this process or in education of how to do
- **MISSION SUITABILITY**
 - Evaluate Safety and Health plan and other information specific to contract effort and
 - Use “trailing indicators” as trending or forward indicators here
 - Ask for and evaluate “leading” or “proactive” as part of management plan and/or understanding the requirement – may be able to count EMR and others here also
 - Ensure Center safety org active and influential in this process

RECOMMENDATIONS SELECTION OF CONTRACTORS (CONT)

- UTILIZATION OF MORE BEST VALUE PROCUREMENT
 - Allows more discrimination on safety related criteria
 - May be too labor intensive for numerous smaller construction procurements
 - **But could use Price to Performance Trade method in some cases**
- MOVE TOWARD MULTIPLE AWARD ID/IQ CONSTRUCTION AND MAINTENANCE CONTRACTS
 - Select and retain only the “best” contractors once every three to five years
 - Conduct quick mini-competitions among those for price and continued safety
 - Allows Gov to sort of “prequalify”
 - Must have enough work to meet all contract minimums
- ENSURE MANAGEMENT (SSOs, PMs) UNDERSTAND AND ACKNOWLEDGE AGENCY EMPHASIS ON SELECTION OF SAFE CONTRACTORS

RECOMMENDATIONS

SAFE OPERATIONS AFTER SELECTION

- SURVEILLANCE - Leverage through use of procurement surveys, IFO'S, CPSR'S
 - assess if processes exist to include appropriate requirements in contracts
 - assess if appropriate surveillance mechanisms exist
 - audit to determine if processes and surveillance mechanisms are being followed/used
 - follow audit thread through to prime contractor requirements for subcontractors
 - Have S&MA professional support Procurement Surveys; Procurement Professional support IFO Safety Audits
- S&H PLANS
 - Survey, audit content for base ops and construction contracts
 - Require contractors to include specific procedures or areas of emphasis
 - Make sure tailored to procurement and revised as necessary
- PERFORMANCE EVALUATION (AWARD FEE, AWARD TERM, PERFORMANCE FEE)
 - suggest (or direct) centers evaluate safety metrics (EMR, LWT, etc) in performance evaluations
 - Ensure Safety input into required yearly and contract close performance evaluation
 - “balanced scorecard” example
- OTHER MONETARY SAFETY INCENTIVES
- MANAGEMENT ATTENTION
 - S&MA and program/project personnel active involvement in contract management process and management education process
- TRAINING
 - Center specific training – Center-based training of all contractors working on site
 - Red badge ID of trained contractors

PAST PERFORMANCE

What Can We Do?

- **EMPHASIZE SAFETY AS PART OF PAST PERFORMANCE EVALUATION**
 - Collect and evaluate trailing indicators (EMR; OSHA TRIR, DART, logs, citations, reportable incidents) as part of evaluation
 - Put language in solicitation notifying contractors that indicators will be used in evaluation and allow explanation or mitigation for poor indicators
 - Legal has cautioned maximum limit of 3 years of historical data
- **ENSURE PAST PERFORMANCE DATABASES ARE UTILIZED**
 - Consider safety performance in input
 - Consider data in evaluation of Past Performance
- **UTILIZE SIMPLIFIED BEST VALUE METHODS THAT EMPHASIZE SAFE PERFORMANCE**
 - Air Force (and KSC) Price Performance Trade-Off *
- **ENSURE CENTER SAFETY ORGANIZATION INVOLVED**
 - Enlist help and support for developing templates, collecting data, developing levels of “goodness”

PRICE PERFORMANCE TRADE-OFF

- BEST VALUE PROCUREMENT WITH SIMPLIFIED EVALUATION PROCESS:
 1. DETERMINE TECHNICAL ACCEPTABILITY OF EACH OFFER (IF NECESSARY)
 - BINARY DECISION (PASS/FAIL)
 2. RANK TECHNICALLY ACCEPTABLE OFFERS BY EVALUATED PRICE
 - LOWEST PRICE RANKS #1., ETC.
 3. ASSESS PERFORMANCE RISK FOR EACH OFFEROR
 - 6 levels: high confidence; significant confidence; confidence; unknown confidence; little confidence; no confidence
 4. AWARD TO “BEST VALUE” OF PRICE VS PERFORMANCE RISK

- PERFORMANCE RISK IS BASED ON PAST PERFORMANCE
 - CAN INCLUDE PAST PERFORMANCE ON SPECIFIC CONTRACTS
 - CAN INCLUDE WIDELY USED AND ACCEPTED TRAILING INDICATORS
 - EMR; TRIR; DART

- HAS BEEN ADAPTED TO PROCUREMENT OF CONSTRUCTION

- COULD USE EMR, DART AND/OR TRIR AS MINIMAL TECHNICAL REQUIREMENT

METHODS FOR DIFFERENT CONTRACTING SITUATIONS

SEALED BIDDING

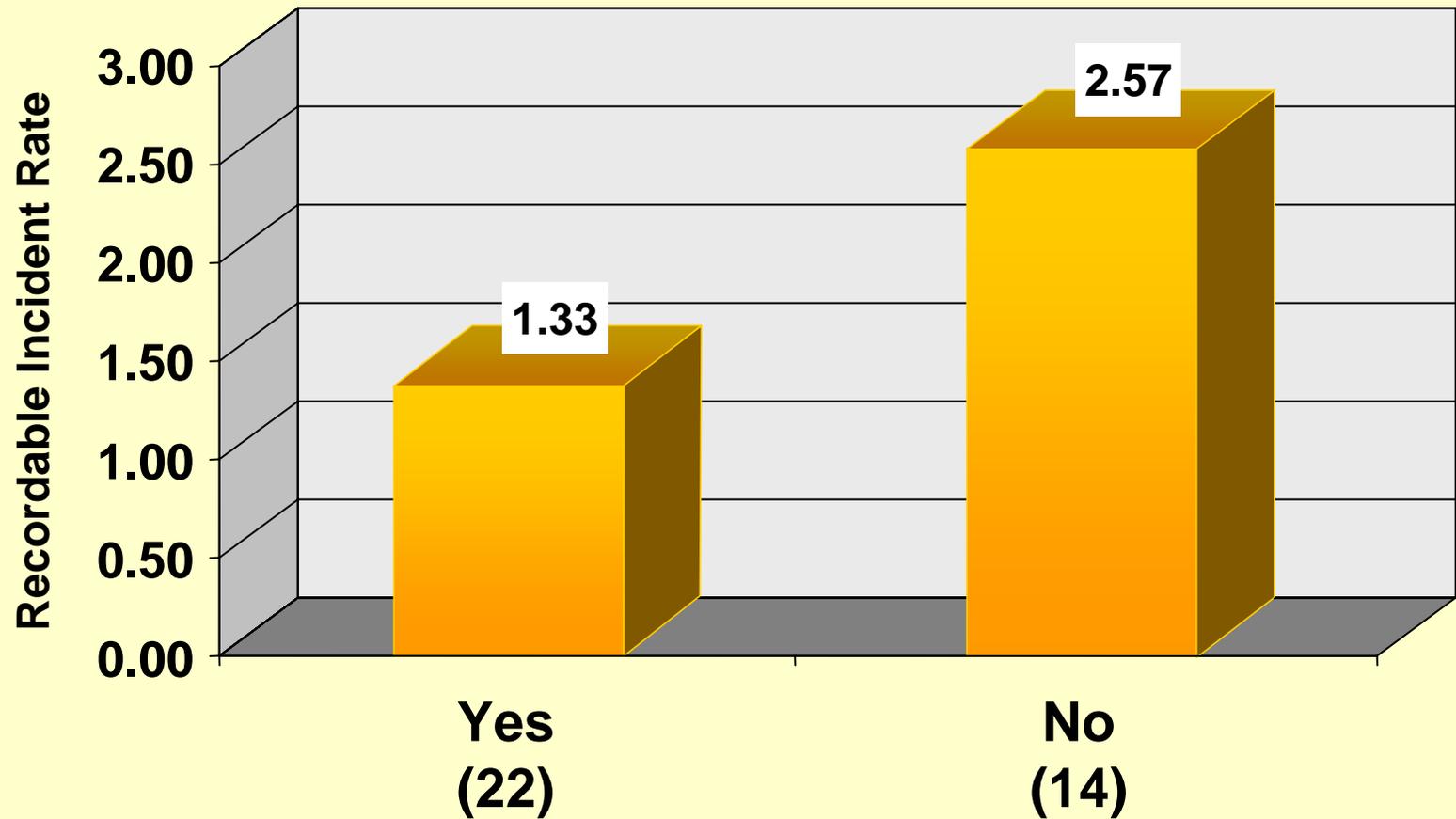
- POSSIBLE METHODS FOR IMPROVING SAFETY
 - STRONGER RESPONSIBILITY DETERMINATION USING EMR AND/OR OTHER RATES
 - USE EMR OR OTHER MEASUREMENT AS MINIMUM TECHNICAL REQUIREMENT
 - USE INCENTIVES – POSITIVE AND NEGATIVE
 - MONETARY FOR EXHIBITING SAFE LEADERSHIP AND CHARACTERISTICS
 - SANCTIONS FOR RISKY
 - CONTRACTOR EMPLOYEES REMOVED FROM SITE
 - TRAINING AND COMMUNICATION
 - ALL CONTRACTORS ATTEND SAFETY BRIEFING BEFORE ENTERING SITE
 - USE MULTIPLE AWARD OR OTHER MECHANISM TO RETAIN POOL OF SAFE CONTRACTORS

Contract Management Continued Action Areas

- On-site contractors are required to submit a safety and health plan, and update the plan as necessary. The Center Safety & Health Manager should review and approve to the plan to ensure appropriate emphasis on employee hiring and training and specific measures to ensure safe performance. Existing Plans can be required to be revised where necessary to promote safe performance.
- After polling several NASA centers, there appears to be a variety of local processes and procedures regarding evaluation and selection of contractors to emphasize previous safety record and future performance. Review these areas and select the best for agency-wide dissemination.
- Center's and prime contractors with on-site work responsibilities are requiring submission of EMR and other safety performance indicators in contractor and subcontractor proposals and are evaluating them as part of proposal evaluation. We should ensure center's and prime contractors are performing risk assessments of contractors potential performance using these performance indicators as part of source evaluation process
- Centers should evaluate Contractors' EMR and other safety performance indicators as part of their contract Performance Evaluation Plans (Award Fee Evaluation Plans).
- Centers could make safety performance an "area of emphasis" in their contract Performance Evaluation Plans (Award Fee Evaluation Plans) if it is not already..
- Centers can require contractors to submit risk management plans addressing S&H issues as a part of the proposals to be evaluated in source selections.
- We could develop sample metrics or provide "best practices" examples derived from one NASA Center to others, to be used in performance based contracts, award fee evaluations, and incorporated into statements of work being developed from site to site. (Facility personnel have begun this process)

Drug Testing

Are random drug tests conducted?



Source: CII Research Summary 160-1, *Safety Plus: Making Zero Accidents A Reality*

BACKUP DETAIL:

- REGULATIONS
- EXAMPLES

RESPONSIBILITY

Regulations - Sources of information

In making the determination of responsibility (see 9.104-1(c)), the contracting officer shall consider relevant past performance information (see Subpart 42.15). In addition, the contracting officer should use the **following sources** of information to support such determinations:

- (1) The Excluded Parties List System maintained in accordance with Subpart 9.4.
- (2) **Records and experience data**, including verifiable knowledge of personnel within the contracting office, audit offices, contract administration offices, and other contracting offices.
- (3) The prospective contractor-including bid or proposal information, questionnaire replies, financial data, information on production equipment, and personnel information.
- (4) **Commercial sources of supplier information of a type offered to buyers in the private sector.**
- (5) Preaward survey reports (see 9.106).
- (6) **Other sources** such as publications; suppliers, subcontractors, and customers of the prospective contractor; financial institutions; **Government agencies**; and business and trade associations.
- (7) If the contract is for **construction**, the contracting officer may **consider performance evaluation reports** (see 36.201(c)(2)).
- (d) Contracting offices and cognizant contract administration offices that become aware of circumstances casting doubt on a contractor's ability to perform contracts successfully shall promptly exchange relevant information.

RESPONSIBILITY

Regulations - Special Standards

- **FAR 9.104-2 Special standards.**
 - (a) When it is necessary **for a particular acquisition or class of acquisitions**, the contracting officer shall develop, with the assistance of appropriate specialists, special standards of responsibility. Special standards may be particularly desirable when experience has demonstrated that unusual expertise or specialized facilities are needed for adequate contract performance. The special standards shall be set forth in the solicitation (and so identified) and shall apply to all offerors.

PAST PERFORMANCE Regulations

- FAR – PAST PERFORMANCE
 - One indicator of an offerors ability to perform successfully
 - Can include performance on past or current contracts
 - Can include information obtained from any other sources
 - Offeror without a record - neutral
- NASA FAR SUPPLEMENT
 - The contracting officer may start collecting past performance data before proposal receipt
 - The contracting officer shall evaluate the offeror's past performance in **occupational health**, security, **safety**, and mission success (e.g., mishap rates and problems in delivered hardware and software that resulted in mishaps or failures) when these areas are germane to the requirement
- WEIGHT RELATIVE TO COST AND MS CAN VARY

SELECTION OF CONTRACTORS

Regulations - Evaluation of S&H in Mission Suitability

- NFS 1815.304-70 NASA Evaluation Factors
 - indicates the merit or excellence of the work to be performed or product to be delivered
 - Subfactors numerically weighted and scored - total MS = 1000 points
 - The Mission Suitability factor shall include a subfactor for **safety and health**
- NFS 1815.305 Proposal evaluation.
 - Numerical score and/or adjectival rating of each MS subfactor
 - Any programmatic **risk** to mission success, e.g., technical, schedule, cost, **safety, occupational health**, export control, environmental.
 - **Risk** evaluations must consider the probability of the risk occurring
 - **Risk assessments shall be considered** in determining Mission Suitability strengths, weaknesses, deficiencies, and numerical or adjectival ratings

BEST PRACTICE EXAMPLE

H.12 Subcontractor Safety Performance

Section H Language:

The contractor shall monitor the safety performance of its subcontractors, at all tiers and Ensure they are in compliance with the approved Safety and Health Plan, Attachment J-2. In addition, the prime contractor shall review the EMR rating for its subcontractors, at all tiers and require those with a rating above .99 to submit an explanation to the prime addressing any mitigating circumstances which caused their rating to exceed .99. This explanation should include any corrective action taken.

BEST PRACTICE EXAMPLE:

SECTION L INSTRUCTIONS TECHNICAL PROPOSALS – BASELINE REQUIREMENTS - REQUIRED

- **6.3.1.2.2** The contractor must also provide the following:
- **Independently documented evidence of your firm’s designated OSHA Total Recordable Incident Rate (TRIR) with NAICS Code**, which will be considered as one indicator of the effectiveness of your safety and health program, and will also be considered as part of the evaluation. You must provide your current Recordable Incident Rate (RIR) and the previous three year’s TRIRs.
- **Independently documented evidence of your firm’s OSHA DART rate (Days away from work, days of restricted work activity or job transfer) with NAICS Code**, which will be considered as one indicator of the effectiveness of your safety and health program, and will also be considered as part of the evaluation. You must provide your current DART rate and the previous three year’s DART rates.
- **Independently documented evidence of your firm’s designated Safety Experience Modifier Rate (EMR) used to calculate Workmen’s Compensation Insurance**, which will be considered as one indicator of the effectiveness of your safety and health program and will be considered as part of the evaluation. You must provide your most current EMR rating and the previous two years’ EMR ratings. Offerors having a current EMR rating above 0.99 must submit a detailed explanation that addresses any mitigating circumstances that caused their EMR rating to exceed .99. This explanation should include any corrective action taken.

BEST PRACTICE EXAMPLE:

SECTION L INSTRUCTIONS (CONT) TECHNICAL PROPOSALS – VALUE CHARACTERISTICS

- **6.3.1.2.2** The contractor must also provide the following:
- **Independently documented evidence of your firm’s designated OSHA Total Recordable Incident Rate (TRIR) with NAICS Code**, which will be considered as one indicator of the effectiveness of your safety and health program, and will also be considered as part of the evaluation. You must provide your current Recordable Incident Rate (RIR) and the previous three year’s TRIRs.
- **Independently documented evidence of your firm’s OSHA DART rate (Days away from work, days of restricted work activity or job transfer) with NAICS Code**, which will be considered as one indicator of the effectiveness of your safety and health program, and will also be considered as part of the evaluation. You must provide your current DART rate and the previous three year’s DART rates.
- **Independently documented evidence of your firm’s designated Safety Experience Modifier Rate (EMR) used to calculate Workmen’s Compensation Insurance**, which will be considered as one indicator of the effectiveness of your safety and health program and will be considered as part of the evaluation. You must provide your most current EMR rating and the previous two years’ EMR ratings. Offerors having a current EMR rating above 0.99 must submit a detailed explanation that addresses any mitigating circumstances that caused their EMR rating to exceed .99. This explanation should include any corrective action taken.

BEST PRACTICE EXAMPLE:

NSA USE OF EMR

I. YOUR FIRM'S SAFETY PERFORMANCE AND PROGRAM

A. Worker's Compensation Insurance – Experience Modification Rate (EMR)

1. Please obtain from your insurance company (or state fund, if applicable) your interstate EMRs for the last three rating periods. If you do not have an interstate rating, obtain your intrastate EMR's. Then complete the following data:

	Policy Year	EMR
Most Recent Policy Year	_____	_____
1 Year Previously	_____	_____
2 Years Previously	_____	_____

Are the above rates interstate or intrastate? _____
If intrastate, which state? _____

If your EMR is exactly 1.0 for any policy year, is it because your firm is (or was) too new or too small to have an EMR calculated? Yes _____ No _____

Is your firm self-insured for Worker's Compensation claims? Yes _____ No _____

2. We require back up for the above information. Any of the following methods would be acceptable:

____ Furnish a letter from your insurance agent, insurance carrier, or state fund (on their letterhead) verifying the EMR data listed above; or

____ Furnish copies of the last three years Experience Rating Calculation Sheets which your insurance carrier should forward to you annually; or

____ Furnish a copy of the page from each of your last three years insurance policies showing the modification rate and the coverage period; or

____ If you're in a "state fund" state, such as Ohio or West Virginia, furnish a copy of the state's last three years annual statement pages showing the modification rate and the coverage period.

BEST PRACTICE EXAMPLE:

NSA – OSHA RECORDABLE INCIDENTS

B. OSHA Recordable Incidents

1. Furnish a copy of your firm's OSHA 200 or 300 Log from last year
2. Some firms are not required to complete the OSHA 200/300 Log, because they have too few employees or are exempted by virtue of the services they perform. If you don't complete an OSHA 200/300 Log, is it because your firm has too few employees? Yes _____ No _____

Or is it because your firm performs a service which is exempted from completing an OSHA 200/300 Log? Yes _____ No _____

If you do not complete an OSHA 200/300 Log and you answered "NO" to the above questions, please explain.

3. Using the OSHA 200/300 Log, complete the following:

- | | |
|---|-------------|
| | Year: _____ |
| a. Number of injury-related fatalities | _____ |
| b. Number of injuries with lost workdays | _____ |
| c. Number of injuries without lost workdays | _____ |
| d. Number of illness-related fatalities | _____ |
| e. Number of illnesses with lost workdays | _____ |
| f. Number of illnesses without lost workdays | _____ |
| g. Total number of injuries and illnesses from OSHA 200/300 Log | _____ |

4. Total employee hours worked last year (field, supervisory and clerical) by your firm.
Year: _____ Hours: _____ Year: _____ Hours: _____ Year: _____ Hours: _____

5. List below members of management, by title, in your organization who receive accident reports (OSHA 200/300) and report summaries.

Received by	Monthly	Quarterly	Annually
a. _____	_____	_____	_____
b. _____	_____	_____	_____
c. _____	_____	_____	_____
d. _____	_____	_____	_____

BEST PRACTICE EXAMPLE:

NSA – EMR CUTOFF AND LACK OF EXPERIENCE

II. SAFETY “ACCEPT/REJECT” CRITERIA

A contractor must have an acceptable EMR rating and acceptable OSHA incident rate in order to meet the minimum safety requirements of the contract. Failure to meet the criteria will result in a contractor being ineligible for contract award.

“Accept” the EMR requirement of the contract if the contractor has a current Workers Compensation Insurance Experience Modification Rate (EMR) of less than or equal to 1.00.

“Accept” a contractor whose current EMR is greater than 1.00, if the trend of the last three EMRs is downward and no single EMR in that period is above 1.20. (For example: pass contractor whose EMR’s for the last three years have been 1999-1.19, 2000-1.03, 2001-1.05)

For a contractor who can't provide a true EMR because the business is too new, too small or self-insured, the OSHA incident rate will be the only rating factor.

“Accept” the OSHA incident rate requirement of the contract if the OSHA Recordable Incident Rate is less than or equal to 9 injuries and illnesses per 200,000 man-hours. Accept an incident rate greater than 9 but less than 12 if the trend for the last three years is downward provided no year is above 12. (For example: accept a contractor whose rates for the last three years have been 1999-11.9, 2000-11.0, 2001-9.8)

BEST PRACTICE EXAMPLE:

CONTRACTOR SAFETY PERFORMANCE AWARD

- NASA is introducing a program to recognize superior performance in safety for fixed price construction contractors. The contractor may be recognized with either a financial incentive or other incentives for performance that exceeds contract safety requirements. These incentives are intended to provide support to the already high standard of safety at NASA construction job sites.
- Contract performance as relating to the requirements for safety included in the specifications, the NASA Safety Manual, and the company's own Safety and Health Plan will be evaluated for consideration of the safety bonus to the contractor. Factors that will be evaluated may include: number of close calls, number of safety violations noted by inspectors, quantity and quality of company safety meetings, lack of accidents, injuries, and mishaps on the job site; and general quality of the working environment and any other factors deemed representative by the Government for that contract. The evaluation of the contractor shall be done by the Government, as shall the amount or type of bonus. Input will be considered from Safety Inspectors, construction inspectors, management, and other interested parties. Participation in this program is not an additional task for the contractor, but is part of the existing contract requirements.
- This program is focused on the Prime Contractor and their employees, as well as Sub-Contractors and their employees. The Government recommends that the construction workers who are instrumental in creating a safe work environment be rewarded with any financial incentive payment to the Company.

US Army Corps of Engineers Albuquerque District

- *The Albuquerque District will use each contractors' Experience Modification Rate (EMR) and OSHA/Bureau of Labor Statistics incidence and severity rates in the contractor selection process for competitively bid as well as Small Business Administration, 8(a) negotiated contracts.*
- *Prior to awarding any subcontract, the prime contractor will be required to furnish to the contracting officer, the EMR of the proposed subcontractor. Should a prime contractor or subcontractor (at any tier) have an EMR of 1.05 to 1.29, a meeting with the Contracting Officer prior to award will be required to explain how they intend to maintain an accident-free work site.*
- *Finally, after completion of the contract the contractor will be evaluated on its ability to meet the Zero Injury goal.*

- *<http://www.spa.usace.army.mil/ec/zero/zero.html>*

DOE Policy on Using Safety Indicators in Selection

Another fundamental element of a program that effectively manages construction 'safety and health is a means to evaluate prospective bidders' safety and health records to ascertain whether they meet a minimum level of performance. In this element, the methods used in the private sector may not fit the constraints of the federal procurement process. For example, in the private sector, prospective bidders are frequently pre-qualified on the basis of several indicators of past safety and health performance. These may include a review of each contractor's safety and health plan, the worker's compensation experience modifier rate, the OSHA 200 Log (a required listing of recordable injuries and illnesses), or the incidence rate derived from the OSHA Log.

As meaningful as these indicators might be, for several reasons their use is problematic in the federal sector. First, the use of a prequalification process for prospective bidders on federal work is restricted to specific and compelling technical competencies essential to perform the work; a written justification for the resulting limited competition is mandatory. It would be difficult to argue that safety and health performance indicators that are less than absolute constitute a compelling reason for restricted competition on federally funded construction projects.

Furthermore, the fundamental tenet of federal procurement policy, fair and open competition, would be compromised by the indiscriminate use of indicators such as the experience modifier rate or incidence rate. The experience modifier rate is deliberately and inherently biased against companies with small payrolls (i.e., small businesses) in that a single catastrophic loss constitutes a larger percentage of annual payroll (upon which premiums are based) than it would for a large corporation. Moreover, it is based on performance from two to four years ago as opposed to current performance and therefore may not reflect significant safety and health program improvements. With respect to the use of incidence rates as a prequalification criterion, history has shown clearly that the mere use of these rates for such purposes has led, in and of itself, to their marked improvement, without necessarily a corresponding improvement in true safety performance. The fairness of either of these indicators can easily be questioned.

What is allowed—and in fact required—under applicable federal procurement policies is that the responsibility of a bidder, based on past performance, be determined prior to contract award. On fixed-price construction contracts, this performance record is to be based, in part, on past evaluations of performance in five elements: (1) quality of work, (2) timely performance, (3) effectiveness of management, (4) compliance with labor standards, and (5) compliance with safety standards. Therefore, in the interest of fair and open competition, any contractor with appropriate bonding can bid on and be awarded a federally funded, fixed-price construction contract. The contractor's ability to continue doing so, however, is based largely on satisfactory performance. Although this system is more fair than a prequalification process based on sometimes faulty safety performance indicators, it is by no means foolproof. It is essential to maintain accurate and thorough records to support the issuance or use of such ratings. To do otherwise is to invite contract disputes and bid protests with their accompanying impact on project cost and schedule.

safely and more economically.

DOE Policy on Using Safety Indicators in Selection (cont)

These principles were considered in several areas in the development of the Order. When DOE contracts directly for fixed-price construction (which it seldom does), the policy defers paragraph 36.201 of the FAR provision. Similarly, when the department procures construction services through fixed-price subcontracts to its maintenance and operation contractors, environmental restoration management contractors, or construction management contractors, the policy requires that these contractors develop and implement a system to measure contractor safety and health performance on their projects and use the results during bid evaluations for future work. Their systems should be similar to that prescribed in the FAR in that they are obligated to subcontract consistent with the federal acquisition policy.

The FAR prescribes application of such an evaluation system to fixed-price contracts exceeding \$500,000, or less in exceptional cases. This amount was used in the Order to establish the threshold above which an enhanced level of DOE project manager involvement was required in subcontracted projects. This threshold was needed for two reasons. First, DOE does not have the personnel at its sites to allow the active participation of its project managers on construction projects down to the threshold of \$2,000 provided within the Davis-Bacon Act. Second, enhanced participation above this \$500,000 threshold helps ensure that the department is involved in decisions on those projects for which such an evaluation is required. This involvement will include reviewing project documentation that may form the basis of future unsatisfactory evaluations and even become the subject of future contract disputes or bid protests.

There were a number of comments concerning the perceived inability of small or minority-owned businesses to comply with the construction safety and health program requirements of the order. Of primary concern was that these requirements would work against programs meant to encourage small and minority-owned business participation on DOE sites. Interestingly, there were at least as many comments (some from the same sources) stating that a rigid prequalification process based on experience modifier rates and incidence rates was superior to the contractor evaluation system prescribed by the FAR and referred to in the Order, despite the fact that the experience modifier rate is inherently biased against small businesses.

In reviewing these contradictory positions, it was believed that it was more desirable to allow contractors the opportunity to demonstrate their ability to comply with DOE's construction safety program requirements than it was to preclude contractors on the basis of safety performance indicators that were neither fair nor completely reliable. Not only does this win the "fairness" argument, but also it will probably result in a larger pool of prospective bidders capable of performing in accordance with DOE's program requirements. In addition to the desired positive effect on safety and health, this larger bidder pool should exert downward pressure on bid prices, thereby enabling DOE to perform its construction more

RESPONSIBILITY

What Can We Do?

- EMPHASIZE SAFETY AS PART OF RESPONSIBILITY DETERMINATION
 - Use trailing indicators (EMR; OSHA TRIR, DART, logs, citations, reportable incidents) as part of responsibility determination
 - Put language in solicitation notifying contractors that indicators will be used as part of determination and requiring any with indicators outside parameters to submit mitigation plan
 - Army Corps of Engineers example
 - Eliminate contractors who had unsafe performance and exhibited characteristics indicative of unsafe performance and/or lack of appropriate quality assurance measures, and safety programs
 - In on-site construction and service contracts safety can be considered part of the product or quality of the product
 - Utilize government and NASA Past Performance Databases in determination
 - PPDB (NF1680)
 - Construction (SF1420)
 - Create “Special Standard” in accordance with FAR 9-104-2 for cases where there are unique or special safety requirements
 - Work in an extremely hazardous environment

NASA FAR Supplement

- (a) The clause at [1852.223-70](#), Safety and Health, shall be included in all solicitations and contracts when one or more of the following conditions exist:
- (1) The work will be conducted completely or partly on premises owned or controlled by the Government.
 - (2) The work includes construction, alteration, or repair of facilities in excess of the simplified acquisition threshold.
 - (3) The work, regardless of place of performance, involves hazards that could endanger the public, astronauts and pilots, the NASA workforce (including contractor employees working on NASA contracts), or high value equipment or property, and the hazards are not adequately addressed by Occupational Safety and Health Administration (OSHA) or Department of Transportation (DOT) regulations (if applicable).
 - (4) When the assessed risk and consequences of a failure to properly manage and control the hazard(s) warrants use of the clause.
 - (b) The clause prescribed in paragraph (a) of this section may be excluded, regardless of place of performance, when the contracting officer, with the approval of the installation official(s) responsible for matters of safety and occupational health, determines that the application of OSHA and DOT regulations constitutes adequate safety and occupational health protection.
 - (c) The contracting officer shall insert the provision at [1852.223-73](#), Safety and Health Plan, in solicitations containing the clause at 1852.223-70. This provision may be modified to identify specific information that is to be included in the plan. After receiving the concurrence of the center safety and occupational health official(s), the contracting officer shall include the plan in any resulting contract. Insert the provision with its Alternate I, in Invitations for Bid containing the clause at [1852.223-70](#)

SAFETY AND HEALTH CLAUSE

- a) Safety is the freedom from those conditions that can cause death, injury, occupational illness, damage to or loss of equipment or property, or damage to the environment. NASA's safety priority is to protect: (1) the public, (2) astronauts and pilots, (3) the NASA workforce (including contractor employees working on NASA contracts), and (4) high-value equipment and property.
- (b) The Contractor shall take all reasonable safety and occupational health measures in performing this contract. The Contractor shall comply with all Federal, State, and local laws applicable to safety and occupational health and with the safety and occupational health standards, specifications, reporting requirements, and any other relevant requirements of this contract.
- (c) The Contractor shall take, or cause to be taken, any other safety, and occupational health measures the Contracting Officer may reasonably direct. To the extent that the Contractor may be entitled to an equitable adjustment for those measures under the terms and conditions of this contract, the equitable adjustment shall be determined pursuant to the procedures of the changes clause of this contract; provided, that no adjustment shall be made under this Safety and Health clause for any change for which an equitable adjustment is expressly provided under any other clause of the contract.
- (d) The Contractor shall immediately notify and promptly report to the Contracting Officer or a designee any accident, incident, or exposure resulting in fatality, lost-time occupational injury, occupational disease, contamination of property beyond any stated acceptable limits set forth in the contract Schedule; or property loss of \$25,000 or more, or Close Call (a situation or occurrence with no injury, no damage or only minor damage (less than \$1,000) but possesses the potential to cause any type mishap, or any injury, damage, or negative mission impact) that may be of immediate interest to NASA, arising out of work performed under this contract. The Contractor is not required to include in any report an expression of opinion as to the fault or negligence of any employee. In addition, service contractors (excluding construction contracts) shall provide quarterly reports specifying lost-time frequency rate, number of lost-time injuries, exposure, and accident/incident dollar losses as specified in the contract Schedule.
- (e) The Contractor shall investigate all work-related incidents, accidents, and Close Calls, to the extent necessary to determine their causes and furnish the Contracting Officer a report, in such form as the Contracting Officer may require, of the investigative findings and proposed or completed corrective actions.
- (f)(1) The Contracting Officer may notify the Contractor in writing of any noncompliance with this clause and specify corrective actions to be taken. **When the Contracting Officer becomes aware of noncompliance that may pose a serious or imminent danger to safety and health of the public, astronauts and pilots, the NASA workforce (including contractor employees working on NASA contracts), or high value mission critical equipment or property, the Contracting Officer shall notify the Contractor orally, with written confirmation. The Contractor shall promptly take and report any necessary corrective action.**
- (2) If the Contractor fails or refuses to institute prompt corrective action in accordance with subparagraph (f)(1) of this clause, the Contracting Officer may invoke the stop-work order clause in this contract or any other remedy available to the Government in the event of such failure or refusal.
- (g) The Contractor (or subcontractor or supplier) shall insert the substance of this clause, including this paragraph (g) and any applicable Schedule provisions and clauses, with appropriate changes of designations of the parties, in all solicitations and subcontracts of every tier, when one or more of the following conditions exist:
- (1) The work will be conducted completely or partly on premises owned or controlled by the Government.
- (2) The work includes construction, alteration, or repair of facilities in excess of the simplified acquisition threshold.
- (3) The work, regardless of place of performance, involves hazards that could endanger the public, astronauts and pilots, the NASA workforce (including Contractor employees working on NASA contracts), or high value equipment or property, and the hazards are not adequately addressed by Occupational Safety and Health Administration (OSHA) or Department of Transportation (DOT) regulations (if applicable).
- (4) When the Contractor (or subcontractor or supplier) determines that the assessed risk and consequences of a failure to properly manage and control the hazard(s) warrants use of the clause.
- (h) The Contractor (or subcontractor or supplier) may exclude the provisions of paragraph (g) from its solicitation(s) and subcontract(s) of every tier when it determines that the clause is not necessary because the application of the OSHA and DOT (if applicable) regulations constitute adequate safety and occupational health protection. When a determination is made to exclude the provisions of paragraph (g) from a solicitation and subcontract, the Contractor must notify and provide the basis for the determination to the Contracting Officer. In subcontracts of every tier above the micro-purchase threshold for which paragraph (g) does not apply, the Contractor (or subcontractor or supplier) shall insert the substance of paragraphs (a), (b), (c), and (f) of this clause).
- (i) Authorized Government representatives of the Contracting Officer shall have access to and the right to examine the sites or areas where work under this contract is being performed in order to determine the adequacy of the Contractor's safety and occupational health measures under this clause.
- (j) The contractor shall continually update the safety and health plan when necessary. In particular, the Contractor shall furnish a list of all hazardous operations to be performed, and a list of other major or key operations required or planned in the performance of the contract, even though not deemed hazardous by the Contractor. NASA and the Contractor shall jointly decide which operations are to be considered hazardous, with NASA as the final authority. Before hazardous operations commence, the Contractor shall submit for NASA concurrence --
- (1) Written hazardous operating procedures for all hazardous operations; and/or
- (2) Qualification standards for personnel involved in hazardous operations.