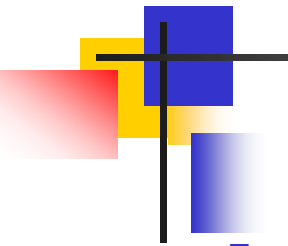


# **JPL Environmental, Health and Safety Management System**

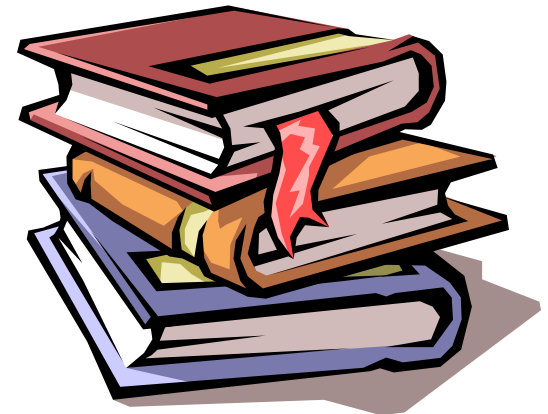
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# Rationale for EH&SMS at JPL

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- Mandated by Prime Contract NAS7-03001 (NASA and Caltech)
    - JPL shall integrate environmental, safety and health requirements into JPL programs, projects, tasks and Laboratory operations.
    - Employee training shall include all levels of management and all personnel.
  - Encompasses the following environmental, health and safety areas:
    - Safety and health of employees
    - Protection of environment
    - Protection of critical facilities from damage
    - Protection of project/program materials (including critical hardware)
  - Based on EMS requirements of Executive Order 13148

# What is an EH&SMS?

- A risk identification and management system which is integrated into JPL business practices for the purpose of ensuring the health and safety of personnel, protection of flight critical hardware & facilities and protection of the environment.
  
- What are some of the major environmental and safety risks?
  - Health and safety of personnel
    - Center personnel and the public
  - Cost to NASA
  - Mission Impacts
  - Legal and Regulatory Implications
  - Reputation and Stakeholder Considerations



## What is the JPL Approach to an EH&SMS?

- Create a data gathering system that fulfills EH&S data requirements by modifying work processes currently in use at JPL.
  - JPL chose to use a point in project development where funding is assigned to a project/task
- Utilize this data to recognize where EH&S concerns may reside and arrange for EH&S early involvement.
  - Build on processes already in place at JPL (e.g. **Work Agreements (WAs)** and **Technology Development Agreements (TDAs)**).
- Compare the risks identified to established procedures for managing EH&S related risks
  - Assure that these procedures are being followed or that new procedures are developed as needed
- Assure that other requirements of an EMS are addressed using institutional level processes or specialized processes as needed.

# Checklist for Work Agreements/Technology Development Agreements

**Questions are answered with a Yes or No. Responses automatically forwarded to central EH&S representative.**

- 1. Will this work be performed under the requirements of NPG 7120.5A, “NASA Program and Project Management Processes and Requirements?” (If the answer is yes the following questions do not need to be answered.)**
- 2. Will this work involve utilizing chemicals of any kind, pressure systems, explosives or experimental test facilities?**
- 3. Will this work result in emissions to air, water or soil?**
- 4. Will this work involve construction of facilities or facilities modifications ( i.e., building mods, excavation, trenching, etc.?)**
- 5. Will this work use non-ionizing or ionizing radiation of any type (i.e., RF, LASER) including transmission of radiation into navigable air space?**
- 6. Does this work involve hardware or software for flight projects or critical ground support systems (i.e., if malfunctions occur, will harm occur to people, property or the environment?)**
- 7. Does this work involve working with high voltage electrical systems, lifting operations, confined spaces?**

# Elements Of JPL EH&SMS Strategy

- Once data is obtained and reviewed, JPL then compares identified risks to existing Environmental, Health and Safety Program requirements
  - Defined in Laboratory policies and requirements (i.e. JPL Rules!)
  - JPL has completed a matrix identifying what general categories of risk are already addressed through existing policies and procedures
- JPL adds, updates and continually improves environmental and safety processes to assure compliance and risk mitigation
- Follow-up with the project/task is then maintained through JPL's established procedures for inspection and documentation.

# Other Elements Of JPL's EH&SMS

- Planning
  - Aspects & Impacts
  - Objectives & Targets
  - Legal & Other Requirements
- Implementation & Operation
  - Structure & Responsibility
  - Training & Awareness
  - EH&SMS Documentation
  - Emergency Preparedness & Response
- Corrective Action
  - Monitoring & Measurement
  - Nonconformance, Corrective & Preventive Action
  - Records
  - EH&SMS Inspections
- Executive Management Review
- Metrics

## Examples Of Major Activities at JPL With Environmental, Health and Safety Considerations

- Chemical/Processing Laboratories
- Construction of Facilities and Facilities Maintenance
- Transportation/Shipping and Receiving
- Offices
- Tank Storage of Hazardous Materials
- Medical Facilities
- Confined Spaces
- Cafeterias
- Flight Hardware/Project Development Life Cycle
- General Laboratory Site
- Hazardous Waste Accumulation Areas
- Legal Requirements
- Machine Shop and Fabrication Safety
- Gun Range Use





## How Do We Know an EH&SMS is Working?

- Use of documented procedures to track, monitor and measure the key characteristics of operations associated with EH&SMS objectives.
  - Measure and monitor.
    - Key characteristics of the operation for each high priority impact.
    - Key characteristics that ensure medium priority impacts do not become high priority ones.

# Summary

- What works
  - Use existing systems - update and continually improve
- Recommendation for future
  - Summarize aspect/impact/risk analysis
    - Create system that will highlight current environmental, health and safety management priorities

