

Automating OB/OD Permit Applications

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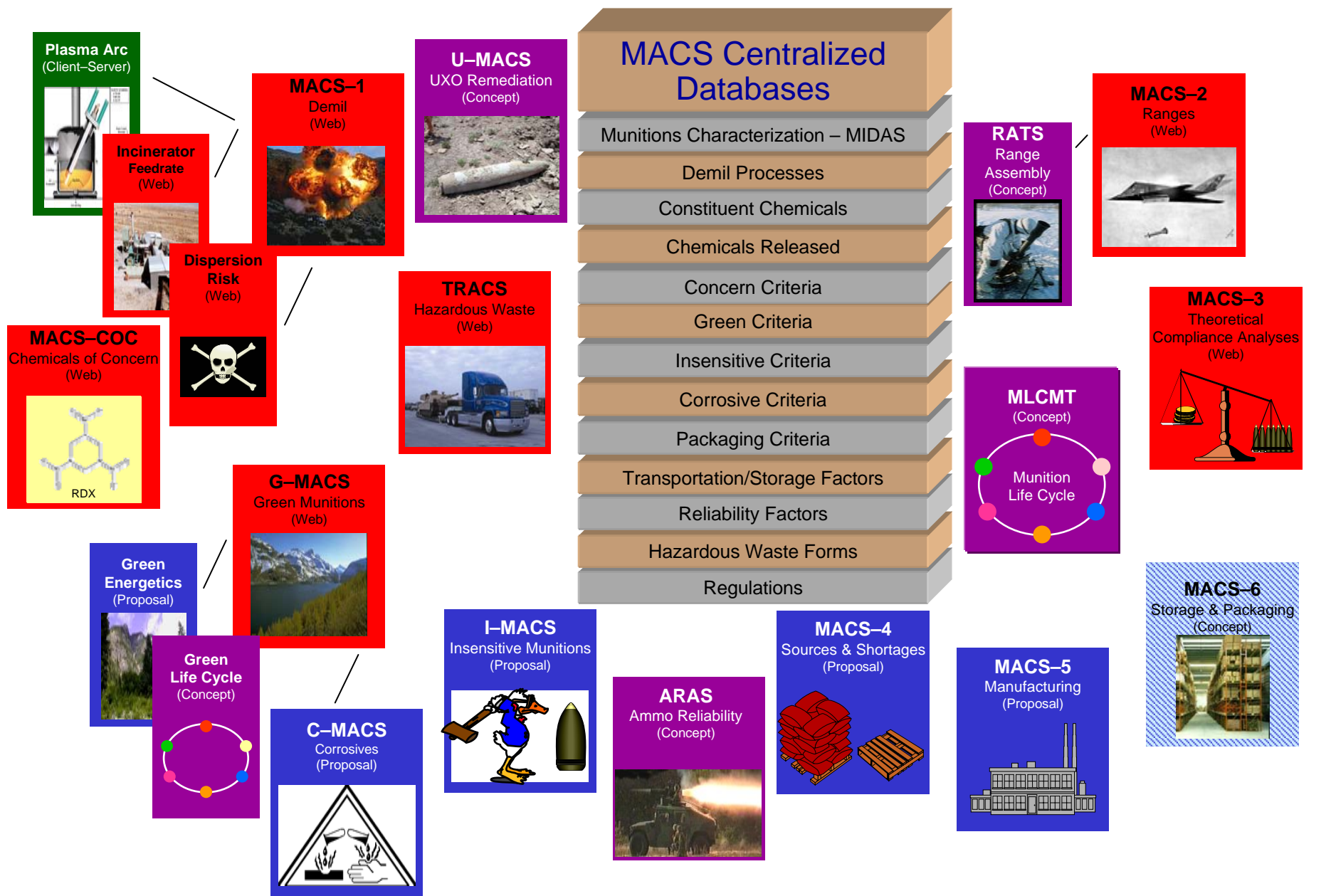
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Munitions Analytical Compliance Suite (MACS)



◆ Modules currently available on the World Wide Web

◆ Modules currently available as a client-server system

◆ Modules currently with submitted proposals

◆ Modules in the defined concept stage

EPA OB/OD RCRA Permit Assessment & Objectives (DUGM Presentation 10/17/06)

- 49 OB/OD Treatment, Storage & Disposal (TSD) Units in U.S. Under Interim Status Operating Permits (ISOP) Not Approved Controls
 - 11 OB/OD TSD Units On Track for Closure
 - 38 OB/OD TSD Units Continuing With ISOPs
 - Facilities Provided Data in FY06 EPA Survey
-
- By FY08 Achieve 95% EPA Approved Controls
 - By FY11 Achieve 98% EPA Approved Controls

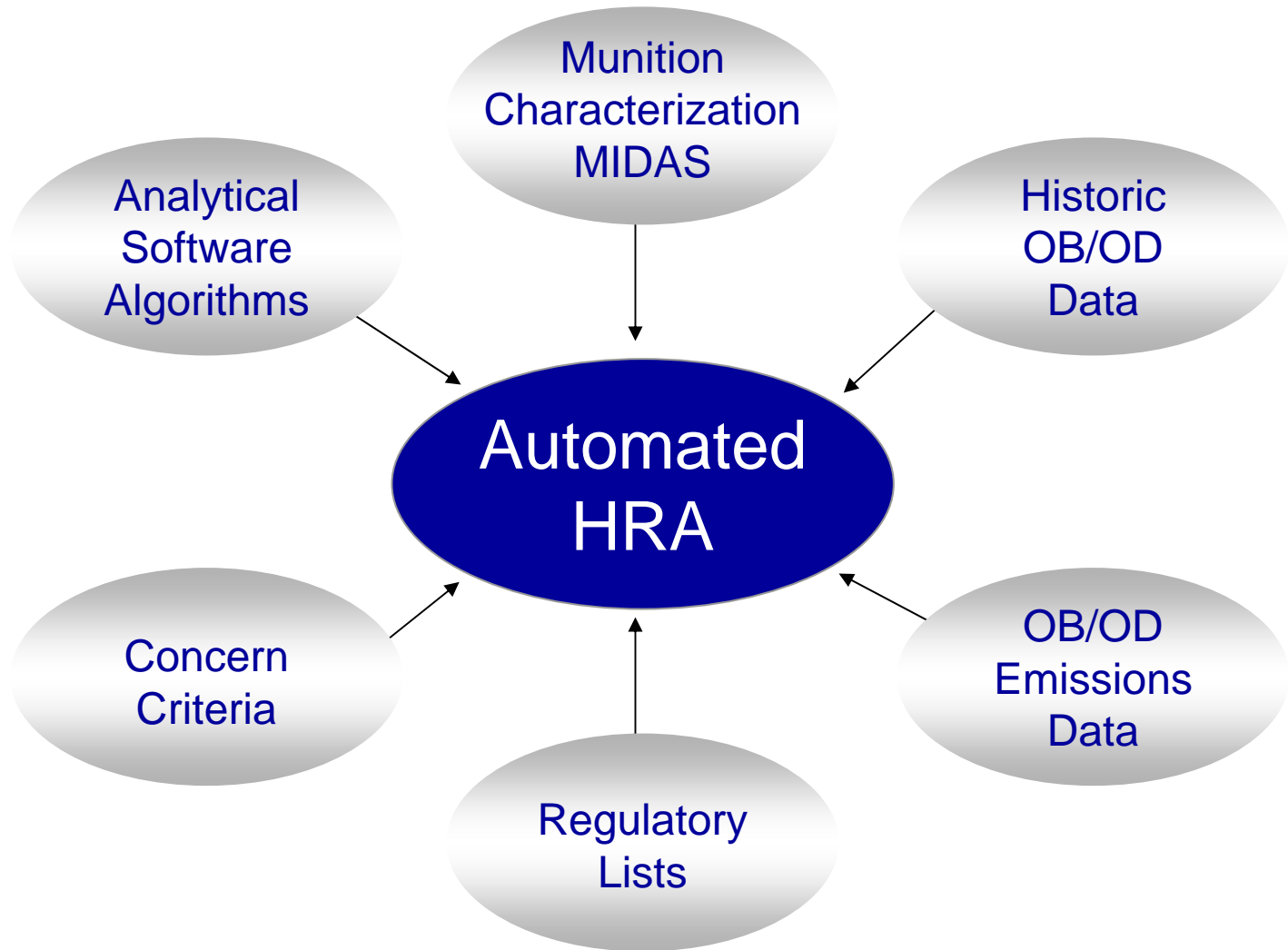
JMC OB/OD RCRA Permit Assessment & Analysis

- JMC Facility Permits Cover OB/OD/IN/Plasma Arc—As Applicable
- Demil Permit Costs: \$1-3M/Site, Initial Application
- Permitting Expenditures Every 3-5 Years
- Potential JMC Expenditure \$10-30M Every 3-5 Years
- Need to Decrease Permitting Time and \$\$ Costs

Human Health Risk Assessment

- Planning, Scoping & Problem Definition
- Toxicity & Exposure Analyses
- Risk Characterization

HRA Automation—MACS Existing Resources



HRA Component Automation

- Planning, Scoping & Problem Definition
 - Daily/Annual OB & OD Emissions
 - Enhanced Emissions Database—SMEs
 - Emission Levels of Concern
 - Emission HAPs & PBTs

MACS
Emission Risk
Assessment

(MACS-ERA)

HRA Component Automation

- Toxicity & Exposure Analyses
 - Cancer: IURs, Oral CSFs
 - Noncancer: RfCs, RfD
 - Acute: 12 Lists
 - Annual Releases
 - Exposure Time
 - Tiers I, II & III

MACS
Health Risk
Assessment
(MACS-HRA)

HRA Component Automation

● Risk Characterization

— Cancer

$$\text{Risk} = \text{EC}_L \cdot \text{IUR}$$

EC_L = lifetime of **continuous** inhalation exposure to individual HAPs

$$\text{Total Cancer Risk} = \text{Risk}_1 + \text{Risk}_2 + \text{Risk}_3 + \dots$$

— Noncancer

$$\text{Hazard Quotient (HQ)} = \text{EC}_C \cdot \text{RfC}$$

EC_C = lifetime of **continuous** inhalation exposure

$$\text{Hazard Index (HI)} = \text{HQ}_1 + \text{HQ}_2 + \text{HQ}_3 + \dots$$

— Acute

$$\text{HQ}_A = \text{EC}_{\text{ST}} \cdot \text{AV}$$

HQ_A = acute hazard quotient for an individual HAP

EC_{ST} = estimate of short-term inhalation exposure to that HAP

AV = the corresponding acute dose-response value for that HAP

$$\text{HI}_A = \text{HQ}_{A1} + \text{HQ}_{A2} + \text{HQ}_{A3} + \dots$$

HI_A = Acute Hazard Index

MACS
Health Risk
Assessment

(MACS-HRA)

MACS-ERA & MACS HRA Development Process

- Enhanced OB & OD Constituent Emissions Database — EFFs & SME
- Rank Emission Product Concern Levels
- MACS-ERA Software Development
- Add 5 LOL Databases → 18 Total
- Existing OB/OD Application Reviews + CHPPM, EPA
- MACS-HRA Software Development
- Supplemental Permit Information Identification

MACS Integration Value Added (“Free”) Capabilities

Plasma Arc
(Client-Server)



Incinerator Feedrate
(Web)



Dispersion Risk
(Web)



MACS-1
Demil
(Web)



U-MACS
UXO Remediation
(Concept)



TRACS
Hazardous Waste
(Web)



MACS Centralized Databases

Munitions Characterization – MIDAS

Demil Processes

Constituent Chemicals

Chemicals Released

Concern Criteria

Green Criteria

Insensitive Criteria

Corrosive Criteria

Packaging Criteria

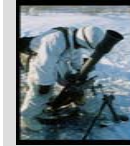
Transportation/Storage Factors

Reliability Factors

Hazardous Waste Forms

Regulations

RATS
Range
Assembly
(Concept)



MACS-2
Ranges
(Web)



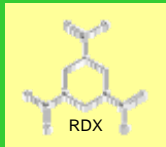
MACS-3
Theoretical
Compliance Analyses
(Web)



MACS-ERA
Emission Risk
(Web)



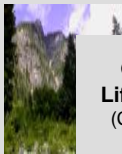
MACS-COC
Chemicals of Concern
(Web)



G-MACS
Green Munitions
(Web)



Green Energetics
(Proposal)



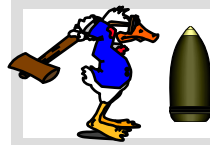
Green Life Cycle
(Concept)



C-MACS
Corrosives
(Proposal)



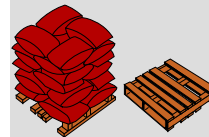
I-MACS
Insensitive Munitions
(Proposal)



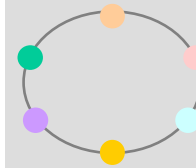
ARAS
Ammo Reliability
(Concept)



MACS-4
Sources & Shortages
(Proposal)



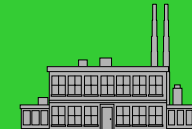
MLCMT
(Concept)



MACS-HRA
Health Risk
(Web)



MACS-5
Manufacturing
(Proposal)



MACS-6
Storage & Packaging
(Concept)





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*For more information on MACS-ERA or MACS-HRA,
or a remote demonstration of other MACS modules,
please contact:*



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