

Future Combat System Manned Ground Vehicles Environmental Design Guide Document MGV-ENV-003

MGV VARIANTS

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1.0 PURPOSE

The purpose of this document is to provide designers, engineers and subcontractors with an introduction to the Future Combat System (FCS) environmental requirements, which include materials data collection & reporting and the use of the Design for Environment Checklist, the Prohibited and Restricted Materials Tables, and the Preferred Materials List during the material selection process and vehicle design.

2.0 SCOPE

This document applies to all phases of FCS MGV Variants design & development, including new hardware design, use of legacy hardware, and selection of Commercial-Off-The-Shelf (COTS) hardware. It establishes the principles and framework for incorporating environmental engineering practices.

3.0 REFERENCES

- Boeing Procurement Control Drawing 786-30000, Common Requirements - MGV.
- Operational Requirements Document for Future Combat System, ORD 3791 - Environmental Quality.
- FED-STD-313D and Change Notice 1.
- FCS MGV Preferred Materials Control Document.
- Subcontractor Environmental Requirements, Document No. MGV-ENV-SUB.

4.0 ENVIRONMENTAL REQUIREMENTS

The MGV contract and the FCS Program requires compliance with Federal and FCS Program environmental requirements. The various requirements are detailed below.

4.1 ENVIRONMENTAL BACKGROUND

Many of today's environmental problems adversely affect the air, water, and land. During the years prior to the enactment of environmental laws, it was common practice to discharge wastes directly into the environment with little, if any, treatment. These past practices have created a major liability, costing billions of dollars, for remediation and hazardous waste cleanup. Today, concern for the environment and stringent environmental regulations are making environmental stewardship and the development of Environmental Management Programs a required strategy for both business and the DoD.

4.2 FCS ENVIRONMENTAL PROGRAM

In order to meet federal regulations and reduce negative impact to human health and the environment, the DoD has established environmental requirements for all acquisition programs. The Department of Defense must complete a Programmatic Environmental, Safety and Health Evaluation document for the FCS Program, with the support of its Segment Suppliers that defines the strategy for reducing environmental risks and costs, including methods for tracking progress. The environmental management strategy must cover all phases of the program design, test, manufacturing, operation & service, and demilitarization & disposal. The program must show that the system meets all environmental regulations and has documented progress towards the reduction and elimination of health and environmental impacts.

The DoD must also comply with the National Environmental Policy Act (NEPA). Compliance includes a thorough Environmental Assessment of impacts of all phases of the program, starting in the preliminary design phase with updates through fielding and final disposal. Detailed data to support life cycle environmental assessments and environmental costing analysis is required for the completion of the NEPA documentation. Some of the data must be supplied by the DoD's contractors and suppliers.

4.3 MGV ENVIRONMENTAL ENGINEERING WORKING GROUP

The MGV Environmental Engineering Working Group (EE Working Group) is composed of representatives from GD Land Systems, UDLP Armament Systems Division, UDLP Ground Systems Division and the FCS MGV Systems Engineering Integration Team. The EE Working group will ensure that the FCS program environmental requirements are incorporated into the design decision-making process, identify key issues and required actions, ensure accurate and thorough data generation and record keeping, and check all documentation generated for consistency with the FCS Environmental Managements System and as specified in the MGV contract and SOW. The EE Working Group will communicate to the designer, alternative processes and materials approved as replacements for Prohibited and Restricted materials. The EE Working Group will process and forward all requests to use a Prohibited Material to the FCS LSI Systems of Systems Engineering & Integration Environmental, Safety & Occupational Health Working Group (SSEI ESOH Working Group). The EE Working Group members are responsible to report to the SSEI ESOH Working Group the identity of all materials known to be used in all MGV variant designs.

4.4 PRODUCT DEVELOPMENT TEAM / SUBCONTRACTOR – MATERIAL SELECTION AND DATA REPORTING

All designers, including the subcontractors* and their design teams, must make material and coatings selections in accordance with (1) the Design-for-Environment Checklist, (2) Tables 1 & 2 of the Prohibited & Restricted materials lists, (3) and the Preferred Materials Control Document. This requirement also applies to commercial off-the-shelf (COTS) items. All teams are required to report the identity of all materials used in the design or required for maintenance and repair, and to provide data to the EE Working Group for environmental assessments. All teams must coordinate, through the EE Working Group, requests to use prohibited materials with the ESOH Working group. In addition, all teams will be responsible for providing data, upon request, for reports such as analysis of alternatives, environmental cost and impact assessments, and data needed for completion of the FCS Program NEPA documentation.

(*) See Subcontractor Environmental Requirements, Document No. MGV-ENV-SUB, in appendix 9.0.

5.0 DESIGN FOR THE ENVIRONMENT (DFE)

Design for the Environment (DfE) is a systematic way of incorporating environmental attributes into the design of a product. Using DfE, the designer considers the potential environmental impacts of the product throughout its life cycle. The product's life cycle includes the product's manufacture, operation and maintenance, and demilitarization & disposal. A product's potential to impact the environment range from the release of toxic chemicals into the environment and the consumption of nonrenewable resources and excessive energy use during production, use and maintenance, to the ease of demilitarization and disposal. Therefore, an awareness of a product's life cycle will help reduce environmental impact and liabilities. The earlier in the product design life cycle that a designer considers environmental factors, the greater the potential for environmental benefit and cost reduction.

5.1 DfE – CONCEPT

DfE is used to integrate environmental criteria in the product specifications at the start of the product development cycle. The use of DfE will provide a framework for the design team and subcontractors to improve the environmental performance of the development program design. The DfE checklist on page 4 will guide the designer in the incorporation of the program environmental requirements.

5.2 DfE – DESIGN

Early integration of environmental considerations as standard engineering practice ensures that the environmental consequences over a product's life cycle are considered before manufacturing decisions are made. Cross-functional teams of product designers, safety and health engineers, manufacturing and producibility engineers, materials and process engineers, and environmental systems engineers support successful use of DfE.

5.2 DfE – DESIGN, CONTINUED

Following is a general description of how DfE concepts are utilized during the various design phases to meet program objectives to eliminate or minimize hazardous materials usage and reduce impacts to the environment.

Requirements Analysis

In this phase, critical requirements such as the program-specific Restricted, Prohibited and Preferred materials are identified. In addition, general and specific environmental requirements such as those defined in Operation Requirements Document 3791 and Common Requirements Document 786-30000 are identified.

Conceptual Design

During the Conceptual phase, preliminary processes and materials are selected and preliminary trade studies are initiated. Environmental requirements and impacts are further defined and analyzed.

Preliminary Design

Preliminary trade studies are completed in this phase and alternatives to hazardous materials and processes are identified and evaluated. Environmental requirements and impacts are identified and used to influence the preliminary design. Some hazardous materials may remain in the preliminary design while alternatives continue to be evaluated. At this point, material review and selection is partially complete.

Detailed Design

In this phase, the preliminary design is finalized incorporating results of material and process trade studies as well as environmental requirements. Environmental impacts have either been mitigated or identified for future mitigation.

5.3 DfE – OPERATIONS AND SERVICE

Program engineers are required to address environmental impacts in the program operation and logistic plans. Peacetime training, operational testing, maintenance, repair and upgrades can all impact the environment. Design and material selections must also be based on minimizing the potential risks of crewmembers being exposed to toxic fumes, asphyxiates, or decomposition products during testing, operation, or maintenance of the vehicle or weapon system. Copies of any test data generated from the measurement of toxic or harmful emissions will be forwarded to the EE Working Group.

5.4 DfE – DEMILITARIZATION AND DISPOSAL

The MGV SOW incorporates the wording of Department of Defense Acquisition Instruction 5000.2, Enclosure 7.7, which states: "During system design, the Program Manager shall document hazardous materials used in the system and plan for the system's demilitarization and disposal. Disposal encompasses recycling, material recovery, reutilization, in addition to landfill and incineration. In the DfE process, products are designed with a long-term view of how their components can be easily identified and separated for disposal.

6.0 DFE - CHECKLIST

This checklist will help the designer focus on the program's environmental requirements during the design and material selection process.

DESIGN FOR ENVIRONMENT CHECKLIST		✓
MATERIAL SELECTION		
1	Materials must be selected from the "Preferred Materials Control Document".	
2	The design must be kept free of Prohibited materials listed in Table 1 of this design guide, unless permission is granted to use them.	
3	The design must be kept free of Restricted materials listed in Table 2 of this design guide, unless permission is granted to use them.	
TRADE STUDIES AND ASSESMENTS		
4	When a material is needed in the design that is not listed in the Preferred Material Control Document, use form 2003M along with associated justification to have it added.	
5	When a Prohibited material(s) must be used in the design or in legacy hardware, permission must first be obtained using form 2003P and form 1000 along with associated justification & trade analysis.	
6	When Restricted materials(s) must be used in the design or in legacy hardware, permission must first be obtained using form 2003R along with associated justification.	
7	Before a material is selected, its effects on the crew during vehicle/system operation must be taken into consideration.	
DOCUMENTATION OF MATERIALS		
8	All materials used in the design that become part of the product must be identified and reported.	
9	All materials & processes required for maintenance and repair of the design must be identified and reported.	
DESIGN IMPACT		
10	Select designs that will result in the least amount of hazardous substances being released to the environment during the operation and maintenance of the vehicle.	
11	Designs must allow for fluid containment and management during the operation and maintenance of the vehicle.	
12	Designs must allow for replacement of parts at the lowest possible level to reduce waste from repairs.	
13	Designs must allow for ease of disassembly to facilitate maintenance and end-of-life recovery & disposal.	
RESOURCE AND MATERIAL EFFICIENCY		
14	Minimize the number of different materials and parts in the design to promote efficiencies in procurement and disposal/demilitarization.	
15	Use materials in the design that are readily recyclable.	
16	When feasible, mark components with the identity of their composition to facilitate end-of-life recovery and disposal. When special disposal methods are required, mark that method on the part.	

7.0 DRAWING OR DESIGN SIGN-OFF REQUIREMENTS

The drawing or design review process must include a mandatory environmental review and sign-off. It is considered a requirement that a check for adherence to the environmental engineering requirements of this document be a part of all completed design drawing reviews.

8.0 ENVIRONMENTAL DESIGN GUIDE CRITERIA & MATERIALS SELECTION PROCESS

8.1 PROHIBITED MATERIALS

A Prohibited Material is any material that contains in whole or in part, one of the listed prohibited materials in Table 1. The listed materials are specifically prohibited for use in the design or in associated maintenance processes without approval from the FCS Program. This approval will be obtained through the FCS LSI SSEI ESOH Working Group. See Section 8.5.

(Note: Class I and Class II Ozone Depleting Chemicals are banned by contract and will not be approved for use for any reason.)

TABLE 1 - LIST OF PROHIBITED MATERIALS	
Asbestos (<i>All Forms</i>)	Nickel & Compounds - <i>Exempted in Metal Alloys</i>
Beryllium, Alloys & Compounds	Polychlorinated Biphenyls (PCBs)
Cadmium (including electroplating)	Phenol
Hexavalent Chromium (Cr^{+6}) (including electroplating & coating processes)	Tetrachloroethylene (<i>Perchloroethylene</i>)
Hydrazine	Toluene
Lead & Compounds (including soldering)	Toluene Diisocyanate
Mercury	Trichloroethylene
Methylene Chloride	Xylene
Methyl Ethyl Ketone	Radioactive Materials

8.2 RESTRICTED MATERIALS

A Restricted Material is any material that contains in whole or in part, one of the listed restricted materials in table 2. These materials are restricted for use and shall not be used in the design without approval from the Environmental Engineering Working Group.

TABLE 2. LIST OF RESTRICTED MATERIALS		
Chemical compounds followed by (9) are class A1 or A2 cancer causing substances per ACGIH, or are so defined by a specific OSHA standard.		
No.	Chemical Compound	CAS No.
1	Acrylonitrile	107-13-1
2	Amines (DMA, NMA, DMF, NMF), Diethylamine, Dimethylamine, Nitrosamide, Nitrosamine	109-89-7, 124-40-3, 127-19-5, 68-12-2, 35576-91-1, 614-00-6, 123-39-7
4	Aminoazotoluene (o-)9	97-56-3
5	Aminodiphenyl (4-)	92-67-1
6	Amino-4-nitrotoluene (2-)9	99-55-8
7	Ammonium Sulfide	12135-76-1
8	Antimony - <i>Exempted in Metal Alloys</i>	7440-36-0
9	Arsenic9	7440-38-2
10	Barium	7440-39-3
11	Benzene9	71-43-2
12	Benzidine 9	92-87-51
13	Bismuth - <i>Exempted in Metal Alloys</i>	7440-69-9
14	Boron - <i>Exempted in Metal Alloys</i>	7440-42-8
15	Butadiene	106-99-0
16	Butyl Bromoacetate	5292-43-3
17	Chloroaniline (p-)9	106-47-8
18	Chloroform	67-66-3
19	Chloro-o-toluidine (4-)9	95-69-2
20	Cobalt - <i>Exempted in Metal Alloys</i>	7440-48-4
21	Cresidine (p-)9	120-71-8
22	Cyanide Compounds	57-12-5
23	Diaminoanisole (2,4-)9	615-05-4
24	Dichlorobenzidine (3,3')9	91-94-1
25	Dimethoxybenzidine (3,3')9	119-90-4
26	Dimethylbenzidine (3,3')9	119-93-7
27	Dimethyl-4,4'-diaminodiphenylmethane (3,3')9	838-88-0
28	Epichlorohydrine	106-89-8
29	Ethyl Benzene	100-41-4
30	Formaldehyde	50-00-0
31	Ethylene Glycol Ethers	111-90-0, 112-15-2, 111-77-3, 629-38-9, 110-80-5, 111-15-9, 109-86-4, 100-49-6, 111-76-2, 112-07-2
32	Methyl Isobutyl Ketone (MIBK)	108-10-1
33	Methylene Dianiline (4,4')9	101-77-9
34	Methylenebis-(2-chloroaniline) (4,4')9	101-14-4
35	Naphthylamine (2-)9	91-59-8
36	Nitrobiphenyl (4-)	92-93-3
37	Organo-tin Compounds	Many

TABLE 2. LIST OF RESTRICTED MATERIALS - Continued		
38	Oxydianiline (4,4'-) 9	101-80-4
39	Perfluorocarbons (PFCs)	Many
40	Pentachlorophenol (PCP)	87-86-5
41	Polybrominated biphenyls / diphenyl ethers & oxides	67774-32-7, 17064-47-0
42	Selenium	7782-49-2
43	Silver - <i>Exempted in electronic Solder Alloys</i>	7440-22-4
44	Tar acids & tar oils (including Creosote)	8007-45-2, 8001-58-9, 65996-85-2
45	Tellurium	13494-80-9
46	Thallium	7440-28-0
47	Thiodianiline (4,4')9	139-65-1
48	Tin - <i>Exempted in electronic Solder Alloys</i>	7440-31-5
49	Toluidine (o-)9	95-53-4
50	Tolulenediamine (2,4-)9	95-80-7
51	Trimethylaniline (2,4,5)9	137-17-7
52	Trinitrophenol (2,4,6-)	88-89-1
53	Vanadium - <i>Exempted in Metal Alloys</i>	7440-62-2
54	Vinyl Chloride	75-01-4

8.3 PREFERRED MATERIALS

Only the preferred materials and finishes referenced in the FCS MGV Preferred Materials Control Document will be used in new design or in the legacy hardware. If materials, other than those referenced are required, the design engineer will petition Environmental Engineering to add it to the control document. The petition must include justification for the materials need. Prohibited & Restricted materials from Tables 1 & 2 will not be added to the Preferred Materials List. Prohibited materials can only be approved for use on a case by case basis and with the approval of the FCS Program ESOH Working Group.

8.4 MATERIALS SELECTION PROCESS

The material selection process requires that the designing engineer avoid specifying or selecting materials in new designs that are Prohibited or Restricted, or specifying legacy designs that contain Prohibited or Restricted materials. If, for good reason, the designer believes that a prohibited material needs to be used in the design, the engineer must first obtain the concurrence of the EE Working group and the approval of the EESI ESOH Working Group through the use Form 2003P. If the designer needs to select a material on the Restricted List, the designer must obtain the approval of the EE Working group through the use of Form 2003R.

The forms and all supporting documentation shall be submitted to Environmental Engineering, who in consultation with the EE Working group and the FCS Program will either deny the request or approve it (with possible restrictions). Environmental Engineering will assist in finding alternative materials, if the request is denied.

When requesting to use a Prohibited material, the supporting documentation shall include a review of known alternatives with a comparison to the item in the request. The analysis shall include an estimate of the comparative costs, technical limitations, and review of the design requirements. Considerations of impacts to schedule, overall program risks and mission critical milestones may be appropriate.

The request can apply to multiple components with the same coating or process. Impacts must be assessed over the entire life cycle from manufacturing through final disposal, since operational impacts may be significant relative to the production of the part.

Environmental Engineering, Manufacturing Engineering, procurement, and other departments can provide support for completion of the justification portion of the requests to use prohibited or restricted materials. Vendors can supply Material Safety Data Sheets and comparisons of hazardous waste streams resulting from using alternate materials. When necessary, Logistics, Army Depots, and the Defense Reutilization & Marketing Service can provide estimate of risks and impacts during the operation & service and the demilitarization & disposal phases.

If the designer feels that the Preferred Material List is not inclusive enough, the designer can fill out Form 2003M to add additional materials. The designer must justify why the new material should be added to the established List. The form and supporting documentation shall be submitted to Environmental Engineering, who in consultation with the EE Working group will either approve or disallow the inclusion to the Preferred Material List.

8.5 PROHIBITED, RESTRICTED & PREFERRED MATERIAL REQUEST FORMS

The following forms (2003P, 2003R and 2003M) can request the use of a prohibited* or restricted material, or to add a new material to the Preferred Materials Control Document. The forms should be sent electronically, when possible, to Environmental Engineering.

(*) When requesting the use a prohibited material, the design engineer fills out form 2003P and forwards it to environmental engineering. Form 2003P, along with Form 1000 which is initiated by environmental engineering, will be forwarded to the EEWG for review and concurrence or rejection prior to being sent to the SSEI ESOH Working Group.

8.5.1 Form 2003P

Requesting design engineer will use this form to initiate a request to use a **prohibited material**.

FORM 2003P: REQUEST TO USE A PROHIBITED MATERIAL			
REQUESTOR FILLS OUT SECTION I OF THIS FORM			
SECTION I			
Company/Vendor Name:		Date of Request:	
Requester's Name/Phone:		Department:	
Part Name:		Part number:	
Part Description:			
1. Prohibited Material contained in requested material/part/process:			
2. Intended use (assembly, installation, system) and quantity required:			
3. Reason for need to use prohibited material (including cost comparisons & technical requirements):			
4. Alternative materials researched/tested and their current state of technology:			
5. Hazardous material management plan (mitigation in use, handling, disposal):			
6. Future plan for replacement:			
7. Laws or Regulations impacted by the use of prohibited material:			
ATTACH MSDS, VENDOR CONTACT INFORMATION, DESIGN DRAWINGS, APPLICABLE MANUFACTURING PROCESS DATA AND FORWARD TO ENVIRONMENTAL ENGINEERING			
SECTION II			
Reviewed By		Concur/Reject	Date
Environmental Eng:			
System Safety:			
NBC Systems Eng:			
Lead Engineer:			
Systems Integrator:			
Army Technical Lead:			
Comments:			
FORWARD TO THE MGV EEWG FOR REVIEW AND CONCURRANCE / REJECTION (only requests that have passed approval in section II will be forwarded to the EEWG)			
SECTION III			
Date Forwarded to MGV EEWG Members:			
Reviewed By		Concur / Reject	Date
GDLS:			
UDLP-ASD:			
UDLP-GSD:			
Comments:			
PROCESS FORM 1000 AND FORWARD WITH ALL ATTACHMENTS TO THE DESIGNATED LSI ESOH COORDINATOR FOR DISPOSITION (Only requests that have passed approval in sections II & III will be forwarded to the LSI ESOH)			
SECTION IV			
ESOH Coordinator:		Phone Number:	
Date Forwarded:		Disposition:	

8.5.2 Form 2003R

Use this form to request the use of a **restricted material**.

FORM 2003R: Request to use a Restricted Material			
Requestor fills out section I only			
SECTION I			
Company Name:		Date of Request:	
Requester's Name/Phone:		Department:	
Part Name:		Part number:	
Part Description:			
1. Restricted material contained in requested material/part:			
2. Intended Use: (assembly, installation, system) Include drawing as needed:			
3. Reason for need to use a restricted material:			
4. Reason for not using a preferred material (costs comparison, technical requirements):			
5. What alternative materials/processes are being developed in the marketplace:			
6. Future plans for replacement:			
ATTACH MSDS, VENDOR CONTACT INFORMATION, DRAWINGS, MANUFACTURING PROCESS DATA AND FORWARD TO ENVIRONMENTAL ENGINEERING			
SECTION II			
Reviewed By		Concur / Reject	Date
Environmental Eng:			
System Safety:			
NBC Systems Eng:			
Comments:			
FORWARD TO THE FCS MGV EEWG FOR APPROVAL / REJECTION (Note: only requests that have passed approval in section II will be forwarded)			
SECTION III			
Date Forwarded to MGV EEWG Members:			
Reviewed By		Concur / Reject	Date
UDLP ASD:			
Comments:			
UDLP GSD:			
Comments:			
GDLS:			
Comments:			
Final Disposition:			

8.5.3 Form 2003M

Use this form to request a **new material** be added to the MGV Preferred Material List

FORM 2003M: Request to add New Material to the Preferred Material List			
Requestor fills out Section I only			
SECTION I			
Company Name:		Date of Request:	
Requestor's Name/Phone:		Department:	
Material Type:			
Material Name/Description:			
PN / Specification:			
1. Intended Use (list assemblies affected and function of material/process):			
2. Reason can't use existing material on the Preferred Material Control Document:			
3. Reason or Need for New Item:			
ATTACH MSDS AND PRODUCT DATA SHEET & FORWARD TO ENVIRONMENTAL ENGINEERING			
SECTION II – REVIEW AND DECISION			
Reviewed by		Concur / Reject	Date
Environmental Eng:			
System Safety:			
NBC Systems Eng:			
Comments:			
FORWARD TO THE FCS MGV EEWG FOR APPROVAL / REJECTION (Note: only requests that have passed approval in section II will be forwarded)			
SECTION III			
Date Forwarded to MGV EEWG Members:			
Reviewed By		Concur / Reject	Date
UDLP ASD:			
Comments:			
UDLP GSD:			
Comments:			
GDLS:			
Comments:			
Final Disposition:			

9.0 APPENDIX

9.1 SUBCONTRACTOR ENVIRONMENTAL REQUIREMENTS FOR THE FCS MGV PROGRAM

Document No. MGV-ENV-SUB

1.0 Scope

The Future Combat System Manned Ground Vehicles (FCS MGV) Subcontract Environmental Requirements apply to all subcontractors and suppliers that provide FCS MGV design, fabrication, assembly, test, or manufacturing activities. These requirements apply to Commercial-Off-The-Shelf (COTS) items, legacy items, and new designs. These requirements shall be flowed down to all lower level subcontractors or suppliers.

2.0 Reference Documents

- FCS MGV Environmental Design Guide, Doc No. MGV-ENV-003.
- Subcontractor/Supplier HMMP Data Sheet, Doc No. MGV-ENV-DAT.
- FED-STD-313D "Material Safety, Transportation and Disposal Data for Hazardous Materials".
- FED-STD-313D, Change Notice 1, March 21, 2000.

3.0 Environmental Compliance / Pollution Prevention

The subcontractor or supplier shall comply with all Federal, State, and local environmental laws, regulations, and policies applicable to any FCS MGV activities defined in this RFP/SOW. Upon request, the subcontractor or supplier shall provide any applicable environmental permits, reports, and documentation.

The subcontractor or supplier shall be responsible for the management, cleanup, protection, and disposal of any and all emissions, effluents, wastes, and hazardous materials used in, generated by, or associated with FCS MGV activities defined in this RFP/SOW.

The subcontractor or supplier shall implement pollution prevention strategies to minimize environmental impacts and costs to the FCS MGV program. Environmentally preferable materials will be used whenever possible.

The subcontractor or supplier shall certify in writing that they are in compliance with all applicable reporting requirements of the Emergency Planning and Community Right-to-Know Act of 1986 and the Pollution Prevention Act of 1990. The subcontractor or supplier shall submit their annual Toxic Release Inventory reports for review.

4.0 Hazardous Materials Management

The subcontractor or supplier shall submit a list of **all** materials by part used in the design or required for maintenance and repair including, but not limited to, base materials, plating materials, coatings, adhesives, and lubricants. Material data shall be submitted electronically using the Subcontractor/Supplier HMMP Data Sheet (MGV-ENV-DAT).

Subcontractor Environmental Requirements for the FCS MGV Program - continued

The subcontractor or supplier shall utilize the processes and procedures contained in the *FCS MGV Environmental Design Guide* for the selection of materials and processes. Tables 1 and 2 of the design guide identify prohibited and restricted materials and processes. The subcontractor or supplier shall submit a justification for approval, using forms contained in the design guide, and all supporting documentation for each prohibited or restricted material remaining in the product or required for its use.

The subcontractor or supplier shall submit applicable Material Safety Data Sheets and required additional information in accordance with FED-STD-313D. Per FED-STD-313D the subcontractor or supplier shall manage proprietary material data consistent with 29 CFR 1910.1200 or 40 CFR 350, as applicable and must indicate the authority under which proprietary data is withheld.

5.0 National Environmental Policy Act (NEPA)

Upon request, the subcontractor or supplier shall provide data needed by the government or the FCS Program to do programmatic life-cycle environmental assessments or other NEPA analyses. Such data shall include but is not limited to: functional descriptions, size characteristics, weight characteristics, fluid capacities, materials required for maintenance, battery requirements, and actual or potential hazardous wastes, and solid, liquid, or airborne wastes or releases of any nature stemming from product use. Such data also includes ionizing or non-ionizing radiation sources of any nature. Other information may include preliminary designs, manufacturing processes, bill of material, trade studies, performance characteristics, etc.

Subcontractor Environmental Requirements for the FCS MGV Program - continued

INSTRUCTIONS FOR USE

SUBCONTRACTOR/SUPLIER HAZARDOUS MATERIAL MANAGEMENT PROGRAM (HMMP) DATA SHEET

Doc No. MGV-ENV-DAT

SECTION A - SUBCONTRACT / SUPPLIER INFORMATION

Item No.	Data Element	Instructions
1	Company and/or Division Name	Provide Company and/or Division Name
2	Company/Division Address	Provide Address of Company and/or Division
3	Company/Division City, State, Zip	Provide Location of Company and/or Division
4	Subcontract/Purchase Order No.	Provide Subcontract and/or Purchase Order Number
5	Environmental Point of Contact (POC) Name	Provide Environmental POC Name
6	Environmental POC Telephone Number	Provide Environmental POC Telephone Number
7	Environmental POC E-Mail Address	Provide Environmental POC E-Mail Address
8	1st Tier OR 2nd Tier Subcontractor/ Supplier	Is Company 1st Tier or 2nd Tier Subcontractor or Supplier?
9	CAGE Code	Provide Commercial and Government Entity (CAGE) Code

SECTION B - PART INFORMATION

Column No.	Data Element	Instructions
1	Part Number	Provide the Supplier Part Number for each part
2	Part Name	Provide the Part Name for each part
3	Part Quantity	Provide the Part Quantity for each part
4	Next Higher Assembly Name/Number	Provide the Next Higher Assembly Name and/or Number for each part
5	Part Source (Make/Buy/GFE)	Is the Part manufactured, purchased, or government-furnished?
6	Supplier Name (if Applicable)	Provide the Supplier's Name for each part if provided by lower level supplier/subcontractor

SECTION C - MATERIAL INFORMATION

Column No.	Data Element	Instructions
1	Part Number	Provide the Supplier Part Number for each part (See Section B, Column 1)
2	Part Weight	Provide Weight of each part (use SI Units)
3	Part Weight Units (SI)	Provide the SI Units of weight for each part
4	Material	Provide all materials for each part (incl. base materials, coatings, lubricants, adhesives, etc.). Use a separate line for each material.
5	Material Quantity	Provide Material Quantities for each material for each part
6	Material Quantity Units (SI)	Provide the SI Units of Material Quantities for each part
7	Specification / Standard	Provide the Specification / Standard for each material if applicable
8	Prohibited, Restricted, Other Material (P/R/O)	Identify each Material as Prohibited, Restricted, or Other. Prohibited and Restricted Materials are defined in the FCS MGV Environmental Design Guide.
9	Material Safety Data Sheets (MSDSs) (Y/N)	Have MSDSs been submitted in accordance with FCS MGV Hazardous Material Management Program (HMMP) Plan?
10	Prohibited/Restricted Material Justification (Y/N)	Has Justification Documentation for Prohibited/Restricted Materials been submitted in accordance with FCS MGV Environmental Design Guide?