



August 31, 2001

CG, MCAS Cherry Point
Facilities Directorate, FSSO
Attention: Denise Smith
PSC Box 8006
Building 286
Cherry Point, NC 28533-0006

Dear Denise:

Attached are our responses to the questions and comments raised with Task 3 of Project 01.016. Attachment 1 provides an overview of all comments and our responses. Attachment 2 is a specific response to the comments related to SDSFIE/FMSFIE nomenclature, in the form of an analysis and proposed renaming.

Mr. Carpenter's comment on conforming to the SDSFIE/FMSFIE nomenclature most significantly impacts the draft database design. We are proposing to conform to the naming guidelines wherever appropriate. However, the design style of the current SDSFIE/FMSFIE database and the draft CAA/SARA database are different, as are the purposes. Although we believe that the naming guidelines can be applied, we have not made any structural changes, nor do we believe any comments indicate such a change.

Several comments addressed the AUI and ARI systems described in the database design document. As noted in your responses, these items are not within the present scope of work.

We suggest that one utility of the CAA/SARA database design would be used as a benchmark to evaluate the utility of off-the-shelf software. As pointed out in one comment, developing an AUI and ARI is an expensive process. I have supplied a more detailed proposal on this idea in a separate letter.

Following your group's review of Attachment 2, and any further changes needed for conforming to the naming conventions, we will make said changes and deliver the final database design as a ERwin file and a MS Access file.

Sincerely,

Patrick G. Hecht, PE
Senior Staff Engineer

Attachments

cc: Becky Peer, URS Corporation/RTP

Attachment 1

Responses to Project 01.016, Task 3 Comments & Questions

#	Question/Comment	Responder	URS Response
1	Are the naming conventions (table, attributes, domain tables) going to be changed to better conform to either: (a) the current SDSFIE/FMSFIE or (b) the future transactional (which is still under development) FMSFIE naming conventions?	Bobby Carpenter	<p>Yes.</p> <p>We have proposed new table and fields names in Attachment 2. Some field name guidelines are stylistically not applicable to the object oriented design. In these cases, the current name is retained. There is at least one field name concept, "UOM" for unit of measure, that should be incorporated into the SDSFIE/FMSFIE nomenclature.</p> <p>Upon review and approval, the proposed changes will be made in the final database design.</p>
2	Definitions are needed for each table, attribute, domain table, and domain value.	Bobby Carpenter	These will be provided in the SOW defined ERwin file. Additionally, we can provide an MS Access file of the database design within this scope.
3	Will the "Application User Interface" (AUI) and "Application Report Interface" (ARI) be a project deliverable available for distribution via the CADD/GIS Technology Center's Internet website?	Bobby Carpenter	<p>No.</p> <p>These software objects are outside of the SOW. The design document references them as an aid to understanding the database design, particularly given that it is an object-oriented design. Such designs are procedurally driven by their interfaces with the rules that are stored in the database (not in the AUI).</p>
4	What software or programming language will be used in development of the AUI and ARI?	Bobby Carpenter	Per response #3, there is not a SOW to develop these interfaces. Our recommendation is to consider a web-based interface using standard web coding technology like ASP, Java, etc. Reports should be developed in a off-the-shelf, web-enabled, software product like Seagate Crystal Reports.
5	As discussed during the 17 Jul 01 meeting URS will need to use another field name other than Facil_ID in the object tables since this field is used frequently in the SDS/FMS tables as the facility id.	Denise Smith	Our proposed naming scheme in Attachment 2 addresses this comment. The name has been dropped.
6	Are the federal and state reports in electronic format or are they in hardcopy formats? The next obvious step is to create the required report outputs.	Group Comment	Report analysis at this level of detail is outside the SOW, so a definitive response is not provided. In general, most state and federal reports are still hardcopy. The SARA Form R is electronic, but via a specific EPA application, making the work effort little different than preparing hardcopy. North Carolina required reports are hardcopy.

7	<p>MS Access user interface. With the cost of ASP implementation it does not seem cost effective to create an interface for one person. Based on our current experience with the Facilities Project Database there would have to be a large audience to justify the expense of development and sustainment</p>	Group Comment	<p>We agree that user interface development, in any technology, is the most expensive part of an application design and development project. We believe that web-based technology can be developed as cost-effectively as an interface in MS Access for the purpose of reports, data views, and data parsing. We believe web-based log entry to be a superior data entry approach, when it is a tightly focused and constrained entry system. <u>We do not recommend either technology for data administration.</u></p>
8	<p>Do we need all the Foreign key links such as Inst_ID, Facil_ID, Meta_ID, etc. that are in the standard SDS/FMS table?</p> <p>Yes, if the additional tables are being designed to be included within the current SDSFIE/FMSFIE data model, the standard SDSFIE/FMSFIE Foreign Key joins should be included in the tables (meta_id, media_id, facil_id, & instln_id).</p>	Denise Smith & Bobby Carpenter	<p>No. The current tables are not being designed to include the SDSFIE/FMSFIE data model.</p> <p>This design's SOW objective is to provide recordkeeping storage capability for CAA and SARA reporting within the SDSFIE/FMSFIE structure. The design provides a mechanism to allow indirect linking or acknowledgement of these foreign key links as a property of an item.</p>
9	<p>You probably need to use the attribute "envfac_id", which is a Primary Key in the SDSFIE/FMSFIE table "ehsitfac", "Environmental Regulated Facility" (i.e., A facility or other locational entity that is regulated or monitored by the Environmental Protection Agency because of environmental concerns).</p>	Bobby Carpenter	<p>Attachment 2 provides our analysis and proposed new names to conform to the SDSFIE/FMSFIE nomenclature.</p>

Attachment 2
September 6, 2001

SDSFIE/FMSFIE Naming Conventions Analysis & Proposal
Project # 01.016, Task 3, Comments Phase on the Draft Environmental Database Design

Introduction:

A main comment on the draft database design related to having the design conform to the SDSFIE/FMSFIE Naming Conventions. Our analysis shows that the guidelines can be applied and that the design should be treated as a distinct class in the Spatial Data Standards (SDS) Model. However, the database design provides functionality not present in the current SDS Model. The new functionality, described in the scope-of-work (SOW) as servicing the legal reporting requirements of the Clean Air Act (CAA) and the Superfund Amendments and Reauthorization Act (SARA), largely devolves to recording information needed to calculate emission and material inventories to satisfy state and federal reporting. The annual focus of either regulation is an emission inventory report.

Analysis Conclusions:

The database design is a new class with the chief purpose of providing environmental reporting of annual emission inventory statements for CAA and SARA. URS proposes that the design be recognized as a new class with the name **env_eis_caasara**. All table names will begin with the prefix “**eecsa**” followed by a 3-character identifier. Per SDSFIE/FMSFIE guidelines:

- Proposed Class Name: **env_eis_caasara**
- Proposed Entity Class Code: **csa**
- Proposed Design File Prefix: **eecsa**

Table A shows the proposed SDSFIE/FMSFIE names for the tables in the draft database design.

Table A: Proposed SDSFIE/FMSFIE Conforming Table Names.

Proposed Name	Current Draft Name	Table Definition/Service
eecsaitm	E_item	Stores identity records for all CAA and SARA items
eecsaitp	E_itemProperty	Stores property records for defined items
eecsacst	E_constant	Stores identity records for constants
eecsacsp	E_constantProperty	Stores property records for all constants
eecsaevt	E_event	Stores identity records for time-related events
eecsaevr	E_eventResult	Stores measure records for all time-related events
eecsub	E_substance	Stores identity records for all substances
eecsubsup	E_substanceProperty	Stores property records for all substances
eecsaagm	E_algorithms	Provides definitions for emissions estimate processing
eecsaec	E_valid_records	Stores identity records for picklist/other AUI processing
eecsaevv	E_valid_values	Stores values for picklist/other AUI processing
eecsapgm	E_Program_Inputs	Stores input values for stored procedures, etc.
eecsaadm	E_Admin_Log	Stores data processing activity records for audit purposes

Tables B1 through B13 show the proposed field names for the individual fields within the tables of the draft database design. Whenever the field nature allows the field name to conform to the guidelines, the proposed name is the SDSFIE/FMSFIE conforming name. In several instances, the database design has architectural concepts in its field scheme not considered in the SDSFIE/FMSFIE naming conventions; in these instances, the original name is retained as the proposed field name. In several cases, the data definitional and administrative tables, whole tables are outside the current SDSFIE/FMSFIE architectural concept. These concept exceptions are:

- Activate and Deactivate field time stamps (functional data class tables) address the concept and requirement to manage records for a minimal period (5 years by regulation). The time stamps provide a management concept of an item, property, attribute, etc., existing for a period and changing over time.
- UOM is “unit-of-measure” but without any database structural constraints. SDSFIE/FMSFIE system has the naming convention of “_u_d” with a prefix indicating the unit of measure. This concept is columnar dependent, which is restrictive and not suitable for this database design.
- Table **e_valid_records (proposed: eecsaevv)** is outside the current SDSFIE/FMSFIE design concept. This table stores information defining relationships between the functional data tables and their fields (i.e., substituting for fixed field relationships in the database definition). The purpose of this concept is to allow flexibility at implementation to cover any recordkeeping requirement.
- Table **e_valid_records’s** child table, **e_valid_values (proposed: eecsaevv)**, incidentally conforms to the naming conventions, however, its structure does not conform to the current SDS standard of a minimum of three attributes. A third attribute would be superfluous in this design.
- Table **e_Program_Inputs (proposed: eecsapgm)** is outside the current SDSFIE/FMSFIE design concept. This table provides a means to provide inputs to database procedures, triggers, and any other administrative programming devised.

Table B1: eecsaitm [e_item]

Proposed Name	Conforming Name	Current Draft Name
csaitm_ID	csaitm_ID	e_itemID
csasite_ID	csasite_ID	facil_id
csaitm_desc	csaitm_desc	description
cat1_d	cat1_d	category1
cat2_d	cat2_d	catelgory2
start_date	start_date ¹	eff_date
active_d	active_d	active
activate		activate
deactivate		deactivate

¹ DISA form chosen.

Table B2: eecsaitp [e_itemProperty]

Proposed Name	Conforming Name	Current Draft Name
csaitem_ID	csaitem_ID	e_itemID
csasite_ID	csasite_ID	facil_id
prop_d	prop_d	property
cat3_d	cat3_d	category3
value_d	value_d	value
active_d	active_d	active
activate		activate
deactivate		deactivate

Table B3: eecsacst [e_constant]

Proposed Name	Conforming Name	Current Draft Name
csacst_ID	csacst_ID	E_constantID
csasite_ID	csasite_ID	facil_id
prop_d	prop_d	property
cat3_d	cat3_d	category3
value_d	value_d	value
annotation ²		annotation
active_d	active_d	active
deactivate		deactivate
activate		activate

Table B4: eecsacsp [e_constantProperty]

Proposed Name	Conforming Name	Current Draft Name
csacst_ID	csacst_ID	E_constant
grp_name	grp_name	group_name
csacst_desc	csacst_desc	description
cat1_d	cat1_d	category1
cat2_d	cat2_d	category2
start_date	start_date	eff_date
uom		uom
active_d	active_d	active
activate		activate
deactivate		deactivate

Table B5: eecsaevt [e_event]

Proposed Name	Conforming Name	Current Draft Name
csaevt_ID	csaevt_ID	e_eventID
csasite_ID	csasite_ID	facil_id
csaevt_desc	csaevt_desc	description
cat1_d	cat1_d	category1
cat2_d	cat2_d	catelgory2
start_date	start_date ³	eff_date
active_d	active_d	active
activate		activate
deactivate		deactivate

² The field name “reference” could be substituted here as an alternative.

³ DISA form chosen.

Table B6: eecsaevr [e_eventResult]

Proposed Name	Conforming Name	Current Draft Name
csaevr_ID	csaevr_ID	e_eventResult
csasite_ID	csasite_ID	facil_id
prop_d	prop_d	property
cat3_d	cat3_d	category3
start_date	start_date	start_date
value_d	value_d	value
end_date	end_date	end_date
uom		uom
active_d	active_d	active
deactivate		deactivate
activate		activate

Table B7: eecsub [e_substance]

Proposed Name	Conforming Name	Current Draft Name
csasub_ID	csasub_ID	e_substanceID
csasub_desc	csasub_desc	description
cat1_d	cat1_d	category1
cat2_d	cat2_d	category2
start_date	start_date	eff_date
active_d	active_d	active
activate		activate
deactivate		deactivate

Table B8: eecsubsup [e_substanceProperty]

Proposed Name	Conforming Name	Current Draft Name
csasub_ID	csasub_ID	e_substanceID
csasite_ID	csasite_ID	facil_id
prop_d	prop_d	property
value_d	value_d	value
cat3_d	cat3_d	category3
active_d	active_d	active
deactivate		deactivate
activate		activate

Table B9: eecsaagm [e_algorithms]

Proposed Name	Conforming Name	Current Draft Name
csasite_ID	csasite_ID	facil_id
csaitm_ID	csaitm_ID	e_itemID
csaevt_ID	csaevt_ID	eventID
constant_factor ⁴		constant_factor_id
constant_abatement		constant_abatement_id
purpose	purpose	purpose
start_date	start_date	start_date
cat1_d	cat1_d	category1
equat_type	equat_type	equation_type
stop_date		stop_date
scale_factor	scale_factor	scaling_factor
scale_factor_note	scale_factor_note	scaling_factor_note

Table B10: eecsaevr [e_valid_records]

Proposed Name	Conforming Name	Current Draft Name
csarec_ID	csarec_ID	validationID
csasite_ID	csasite_ID	facil_id
table		table
target_field		target_field
ctrl fld1	ctrl fld1	control_field1
ctrl_val1	ctrl_val1	control_value1
ctrl fld2	ctrl fld2	control_field2
ctrl_val2	ctrl_val2	control_value2
ctrl fld3	ctrl fld3	control_field3
ctrl_val3	ctrl_val3	control_value3
dataType		dataType
exclusive		exclusive
source		source

Table B11: eecsaevv [e_valid_values]

Proposed Name	Conforming Name	Current Draft Name
csaevv_ID	csaevv_ID	validationID
value_d	value_d	value

Table B12: eecsapgm [e_Program_Inputs]

Proposed Name	Conforming Name	Current Draft Name
program_tag		program_tag
activate		activate
value_d	value_d	value
value_typ_d	value_typ_d	value_type
csapgm_desc	csapgm_desc	description
active_d	active_d	active
deactivate		deactivate
deactivate_reason		deactivate_reason

⁴ The “_id” was dropped from this field and “constant_abatement_id” to avoid a conflict with the SDS Model usage of “_ID”.

Table B13: eecsaadm [e_Admin_Log]

Proposed Name	Conforming Name	Current Draft Name
csasite_ID	csasite_ID	facil_id
action_origin	action_origin	action_origin
activity_label	activity_label	activity_label
action_date	action_date	action_date
csaadm_desc	csaadm_desc	description