

# PROCEDURES FOR ENCODING TOXICITY DATA PUBLISHED IN THE OPEN LITERATURE FOR USE IN ECOLOGICAL RISK ASSESSMENTS

U.S. Environmental Protection Agency (EPA) Office of Pesticide  
Products (OPP) Environmental Fate and Effects Division (EFED)

EFED Chemical Reports

Prepared for:

U.S. Environmental Protection Agency (EPA)  
Office of Research and Development (ORD)  
National Health and Environmental Effects Research Laboratory (NHEERL)  
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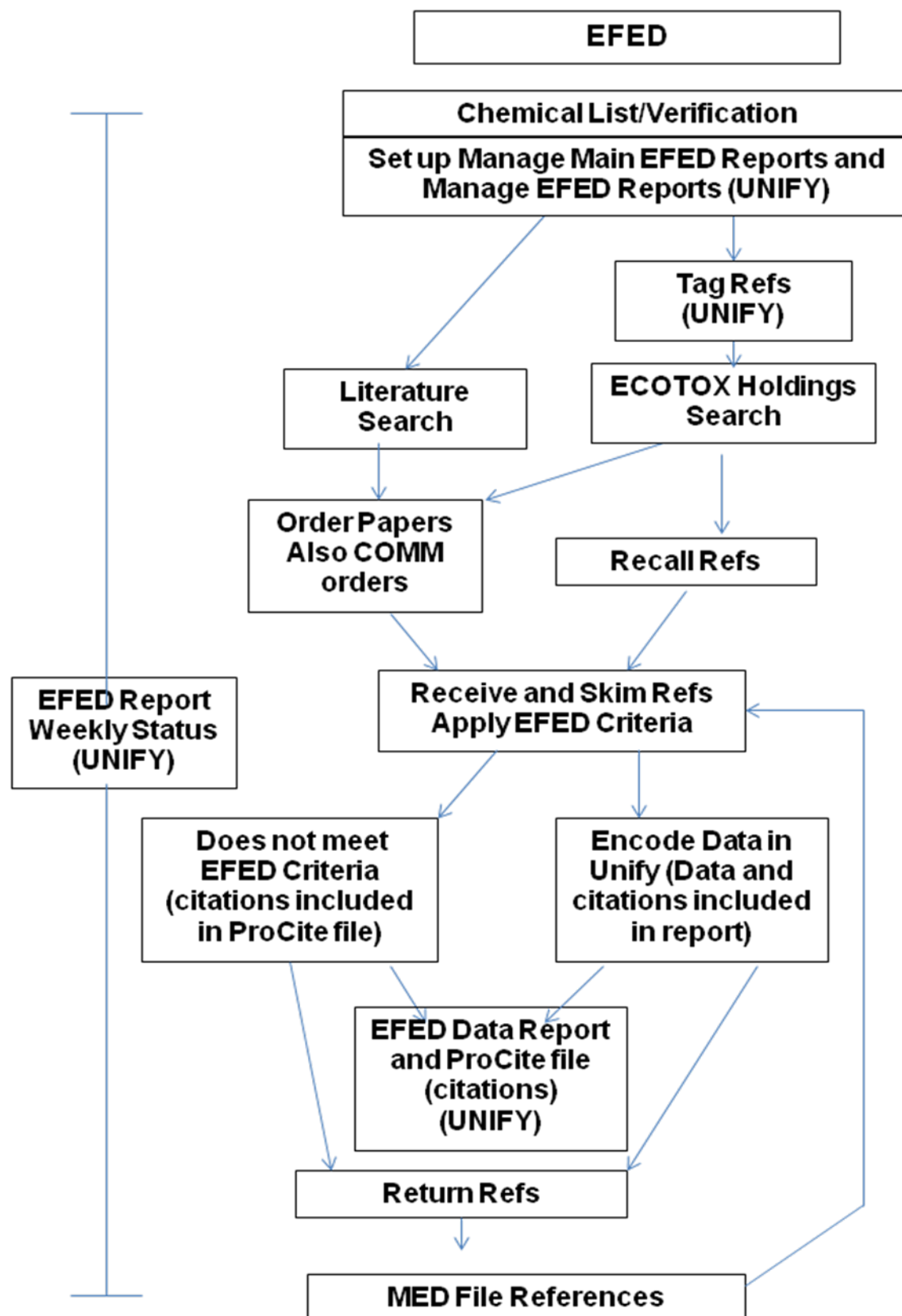
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## OVERVIEW

This Standard Operating Procedure (SOP) documents the procedure for U.S. EPA Office of Pesticide Products (OPP) Environmental Fate and Effects Division (EFED) toxicological reporting processing for chemicals identified in Mid-Continent Ecology Division (MED) Work Requests.

The tasks described in this SOP are intended to track EFED tasks and reports within the UNIFY Application (UNIFY) and create final citation databases for EPA/EFED (See Figure 1).













Figure 1. EFED Workflow




## SETTING UP CHEMICAL TRACKING AND REPORTS

The chemical verification process is documented in the EFED Acquisition\_Chemical\_Criteria.doc SOP, located on Contractor site. The EFED chemicals are set up and tracked within the UNIFY report system through four screens; Manage Main EFED Reports, Manage EFED Reports, Tagging References and EFED Reports. All screens use the following Icons/Graphics.


### Navigation Icon/Graphics

ICON	Description	Usage
	Magnifying glass	Print View
	Pencil	Edit View
	Page with 'X'	Delete
	Plus Sign/Add Button	Add
	Right Arrow	Hover over to display complete text
	Page with Check	Verified or Activate
	Invoke index to display	Match typed in text to valid index
	Circle with Slash	Reject for Verification
	Binoculars	Search
	Printer	Print Command
	Excel Sheet	Download to Excel
	Circle Arrow	Return to search screen

ICON	Description	Usage
	RIS Export	Exports citations in RIS delimited from for transfer to ProCite or Reference Manager

## Manage Main EFED Reports

<b>Manage Main EFED /Skim by Chemical Reports</b>	Sets up new chemicals, title string search and rejected citation batch and history of EFED reports for the chemical.
---	--

This screen establishes the main chemical and search terms for EFED reports. After a list of priority chemicals is received from EPA and chemical verification process has been completed, the EFED reports are set up in UNIFY to track EFED publications and data status. Select the Add New button (  ) to start a new EFED Report. Enter the following data fields and click on the “Submit” button.

**Report Name:** Insert the primary chemical name for the report, e.g. Atrazine. Additional chemical and degradate names/codes are added in the Manage EFED Report screen.

**Title String Search:** Insert all chemical names and synonyms of primary and related chemicals in a pipe (|) delimited format, (chemical name | chemical name). Chemical names can be found in the following document located on Contractor site: ECOTOX Schedule for EFED Pesticides.doc.

**NOT Title String Search:** Insert all chemical names and synonyms of primary and related chemicals that cause false results in a pipe (|) delimited format, (chemical name | chemical name).

**Reject Batch Name:** Select the custom file name as set up in Manage Batches (see the following document located on the Contractor site: ECOTOXLitAcquisition.doc).

**Expand/Collapse:** Displays/hides all of the reports for that chemical.

## Manage Main EFED Reports

SEARCH REPORT GROUPS Collapse Pane

Name

☒ Starts With  
☐ Contains  
☐ Exact  
☐ Match Case

COC clear

124T  
 12DPA  
 12DPE  
 13DPA  
 13DPE  
 1CPA

Reject Batch ID --SELECT--

Clear Search

Search Results - 21 records

► = The data in this field has been truncated for display. Mouse over the icon to view the entire value.

Add New

Page 1 of 1 pages (21 total records)

	Report Name	Title String Search	NOT Title String Search	Reject Batch	Expand All
	Aldicarb	Al3-27093   Aldicarb   Aldicarb   Aldicarb   Carbamic acid		N/A	Collapse
	Report Group	Report Name	Chemical Groups	Delivery Date	
	November 2009	Aldicarb REFRESH	ADC (05/30/2009-11/25/2009)		
	May 2009	Aldicarb REFRESH	ADC (02/03/2007-05/29/2009)		
	December 2006	Aldicarb REFRESH	ADC (10/01/2004-02/02/2007)		
	September 2004	Aldicarb	ADC (01/01/1900-09/30/2004)		
	Aluminum phosphide	Aluminium-fosfide   Aluminium phosphid   Aluminum phos		N/A	Expand
	Benzyladenine	N-(phenylmethyl)-1H-Purin-6-amine   6-(N-Benzylamino		EFED Benzyladenine (BAD) Rejects	Expand

## Manage EFED Reports

## Manage EFED/Skim by Chemical Reports

Sets up due date for current EFED Report and lists chemicals within the report.

This screen sets up the EFED Report group for the specific chemicals. These are set up by monthly due dates. These fields can be added, edited and removed.

**EFED Report Group:** Name and due date. To add a new EFED Report group, check the Add New button ( ), enter the name and due date and select Submit. To edit or delete, highlight the appropriate EFED Report group, select the appropriate edit or delete icon.

**Reports in Selected Group:** Add chemical report names from dropdown and mark in checkbox if this report is a "Refresh" or not (if not checked, this is the first time the chemical has been requested for EFED project).

**COCs in Selected Report:** Insert primary and related chemicals (COCs) to be included in the report and the report start and end dates for each chemical. If the report is a new report the Start date is 01/01/1900. If the report is a "Refresh", the Start date will be the day after the last day of the previous EFED Report for that chemical (COC). The Report end dates can be found in the following document on the Contractor site: ECOTOX Schedule for EFED Pesticides.doc

## Manage EFED Reports

**SEARCH REPORT GROUPS**

Name

☒ Starts With  
☐ Contains  
☐ Exact  
☐ Match Case

COC

124T  
 12DPA  
 12DPE  
 13DPA  
 13DPE  
 1CPA

Due Date  
From   
Through

☐ Include Delivered Reports

**Clear** **Search**

**EFED Report Groups:**  
(Click to View Reports in Group)

ECOTOX OPPTS Chemicals (02/28/2011)

January 16th 2011 (01/16/2011)

January 1st 2011 (01/01/2011)

October 2010 (10/31/2010)

August 2010 (08/31/2010)

January 2010 (01/31/2010)

November 2009 (11/30/2009)

June 2009 (06/30/2009)

May 2009 (05/31/2009)

September 2008 (09/30/2008)

March 2008 (03/31/2008)

February 2008 (02/29/2008)

December 2007 (12/31/2007)

November 2007 (11/30/2007)

March 2007 (03/31/2007)

January 2007 (01/31/2007)

**Reports in Selected Group:**  
(Click to View COCs in Report)

Cyanamide REFRESH

Etofenprox REFRESH

**COCs in Selected Report:**

CYA (03/08/2008 - 01/16/2011)

CaCC (03/08/2008 - 01/16/2011)

CaCY (03/08/2008 - 01/16/2011)

NaCY (03/08/2008 - 01/16/2011)

## Tag Refs

<b>Tag Refs</b>	Searches chemical names within the publication title field and citations lacking the chemical code (COC) are displayed to be rectified. Tag potentially applicable citations with the chemical code for the report or reject.
-----------------	---

This screen is used for the literature acquisition process to identify and mark references from the chemical searches. See the following SOP located on the Contractor Site: EFED Acquisition\_Chemical\_Criteria.doc for ordering and recall details. This section has been included for tracking of recalled and ordered papers.

The UNIFY Application is designed to automatically locate potentially applicable citations by using the search terms/codes established in the Manage Main EFED Reports feature in UNIFY. Once the citations are found during the Tag References search and marked for the chemical, the citations are tracked via the EFED report screen.



## Tag References

**SEARCH REPORT GROUPS** Collapse Pane

Name:

☒ Starts With  
☐ Contains  
☐ Exact  
☐ Match Case

COC:   
 12DPA  
 12DPE  
 13DPA  
 13DPE  
 1CPA

Due Date: From  Through

☐ Include Delivered Reports

EFED Report Groups:

- August 2010 (08/31/2010)
- December 2006 (12/31/2006)
- December 2007 (12/31/2007)
- ECOTOX OPPTS Chemicals (February 2008 (02/29/2008)
- January 16th 2011 (01/16/2011)
- January 1st 2011 (01/01/2011)
- January 2007 (01/31/2007)
- January 2010 (01/31/2010)
- June 2009 (06/30/2009)

Reports in Selected Group:

	Report Name	COC	Title String	NOT Title String	Batch to Exclude
<a href="#">view results</a>	Cyanamide REFRESH	CYA (03/08/2008-01/16/2011) CaCC (03/08/2008-01/16/2011) CaCY (03/08/2008-01/16/2011) NaCY (03/08/2008-01/16/2011)	Amidocyanogen Carbamonitrile Carbimide Carbodiimid		EFED January CYA Rejects (3)
<a href="#">view results</a>	Etofenprox REFRESH	EFX (01/05/2008-01/16/2011)	1-[[2-(4-Ethoxyphenyl)-2-methylpropoxy]methyl]-3-p		EFED EFX Rejects (2)

\*\*NOTE: All References that match on Title String search (excluding NOT Title string search matches) are displayed here regardless of whether they have been tagged or not.

**Cyanamide Results** - 1 records

-- SELECT COC --

Select: All, None

	Order ID	Title	Status	EFED Status	Chemical Groups	Species Groups	Reject Batch
<input type="checkbox"/>	269380	Roberts, R.H., R.D. Radeleff, and J.N. Ka Bioassay of the Blood from Cattle Treated J. Econ. Entomol. 1958 51 861 864	Reviewing			MAMMAL	

## EFED Reports

### EFED/Skim by Chemical Reports

Generates the current status of a report, exports RIS files for each category, views with Excel format and delivers the final files.

This screen generates automated counts for each chemical in a report.

**Generate EFED Reports** Collapse Pane

SEARCH REPORT GROUPS

Name:

☒ Starts With  
☐ Contains  
☐ Exact  
☐ Match Case

COC:   
 12DPA  
 12DPE  
 13DPA  
 13DPE  
 1CATT

Due Date: From  Through

☐ Include Delivered Reports  
☒ EFED Reports







**Search Results**

Expand All	Report Group	Due Date
Expand	PPCP-GRLI	05/07/2015
Expand	April 30, 2015	04/30/2015
Expand	January 15, 2015	01/15/2015
Expand	December 15, 2014	12/15/2014
Expand	December 1, 2014	12/01/2014
Expand	November 15, 2014	11/15/2014
Expand	November 1, 2014	11/01/2014
Expand	October 15, 2014	10/15/2014
Expand	September 15, 2014	09/15/2014
Expand	September 6, 2014	09/06/2014
Expand	September 1, 2014	09/01/2014
Expand	August 15, 2014	08/15/2014
Expand	July 1, 2014	07/01/2014
Expand	June 15, 2014	06/15/2014
Expand	June 1, 2014	06/01/2014
Expand	Major Ions	05/07/2014
Expand	Copper Ion OW	05/07/2014
Expand	Copper Compounds OW	05/07/2014
Expand	PPCP 2011	05/06/2014

## Weekly Summary

On a weekly basis (every Monday) the EFED Status Report, a weekly summary of prioritized chemicals, is emailed to the EPA. The status of all papers for the chemicals is presented in the following manner and is found on the Contractor site as a file named EFED Phase I LiteEval Status.xlsx:.

Updated:10/26/2015									
				Require Action			Completed		
					Unreviewed				
	Code s	Tota l	On- Order, Copy Reques t or Reques t from MED Files	Need to apply criteri a	Non- Target Specie s (to review)	Target Species (no review)	Non- Applicabl e or did not pass criteria	Reviewe d into LITE	Date Coding completed
<b>Novemb er 06, 2015</b>									
Benflurali n (Not a Refresh)	BFL	310	1	0	0	74	156	79	

		Last Run	Report Name	Codes	On Order/Recall	Received, Not Addressed	Target Species	N/A (Excluded)	Not Acceptable	Reviewed (Acceptable)		
Deliver	Run	11/05/2015 at 08:50 PM	Benfluralin	BFL (01/01/1900-11/06/2015)							EFED Report Old LiteEval Report	View

1. Expand the appropriate EFED Report and select View to access the counts for each category.

Chemical	Codes	Total*	Matched on Title, not yet Rejected or Tagged	Unknown	Previously Delivered	Rejected	On Order	On Recall	Need to apply criteria	Non-Target Species to Review	Target Species	N/A (Excluded)	Not Acceptable	Reviewed (Acceptable)	Delivery Date
Benfluratin	BFL (01/01/1900-11/06/2015)	310	0	0	0	2	1	0	0	0	74	37	119	79	

2. The columns that are transferred to the EFED Phase I LiteEval Status Table.xls include:
  - Total (auto generated on spreadsheet for QA).
  - On Order + On Recall = On-Order, Copy Request or Request from MED Files on spreadsheet.
  - Need to apply criteria = Need to apply criteria on spreadsheet.
  - Non-Target Species to Review = Non-Target Species (to review) on spreadsheet.
  - Target Species = Target/Weeds/Pests Species = (no review) on spreadsheet.
  - N/A (Excluded) + Not Acceptable = Non-Applicable or did not pass criteria on spreadsheet.
  - Reviewed (Acceptable) = Reviewed into LITE on spreadsheet.

The following are the codes to use in counting the status:

Column Heading	Code / Notes
Chemical of Concern and Delivery Date	This is filled in when entering the chemical into the table (chemical verification staff add this information)
Total	Total number of publications processed (auto sum of all other fields in this row)
On-Order, Copy Request or Request from MED Files	Number of citations on order/called from MED Files (OL, Copy, COMM, Auth, RECALL)
Need to Apply Criteria	Total number of publications to skim
Non-Target Species (to review)	Number of citations that meet the criteria for EFED Review
Target (no review)	Number of citations that meet the criteria for EFED Review and are also Target/Weeds or Pests
Non-Applicable or NO (did not pass criteria)	Number of citations did not meet EFED or ECOTOX criteria (NO, Non-applicable or Archive)
Reviewed into LITE	Number of citations that have been coded and QA'd

3. When chemicals are completed (report is sent to EPA/EFED), the table row is moved to the bottom of the "Completed Chemicals" spreadsheet.

## **Quality Assurance Procedure for Completion of EFED Chemicals**

1. At report set-up, quality assurance and data updates are conducted for specific data fields that affect calculations and display of records in the EFED reports. These data fields include, Chemical Grade, Chemical Formulation, Percent Purity, Concentration Type, Chemical Analysis Method, Concentration Units Author Reported (for Oral exposure types), Exposure Types, especially NC, and Oral exposures types, see Appendix D - EFED REPORT INITIAL DATA QA
2. Two to three weeks prior to the due date, provide EPA with citations for publications still on order each time a Weekly Status is provided. Internally, track down any publications needing to be skimmed or reviewed and make sure they are processed right away.
2. One week prior to the deadline, make sure all OK papers have been reviewed. This will allow enough time for QA of the individual publications as well as QA of the excel report and the accompanying ProCite files.

Once the steps above are done, the process of quality assuring the data can begin.

- a. In UNIFY, go to References and select EFED Reports. Expand appropriate Report Group. Go to the EFED Report for chemical. A new window will open up for generating the report. Choose Excel from the Report Type dropdown and select Generate Report. A file download window will open up asking to open or save the Excel file. Choose open.

An Excel window will open asking to verify the file is from a trusted source and choose yes. Data fields included in the EFED report are found in Appendix B.

- b. With the Excel file open, make sure that the chemical names are reported correctly. Go through each field to ensure there are no blank fields. If there is a blank field, investigate and ensure there was in fact no data to report and update the record as needed.

Scroll to the bottom of the sheet. Make sure that there is no error message here. If there is an error message, report this to the programming staff.

- c. Either sort by the Phylum field or scroll down and make sure there is a phylum listed for all records. If there is a record(s) without one, investigate this record.
- d. Either sort by the Endpoint field or scroll down and make sure there is an Endpoint listed for every record. If there is a record without an Endpoint, investigate the record.
- e. Scroll down and make sure the habitat matches the species. For example if the habitat is Aquatic and the species is Duck, this should be corrected.
- f. Sort the Conc Unit Orig field and check to make sure that there is an A Conc type for those units that contain AI (active ingredient).

- g. Make sure the conversions look correct in the following fields:
- Dur Orig/Dur Unit Orig - conversion to - Dur Preferred/Dur Unit Preferred  
(The preferred unit is d (days)).
  - Conc #1 Author Reported/ Conc Units Author Reported - conversion to - Conc #1 Purity Adjusted (this is converted according to the entry in the Purity field).  
NOTE: If the Conc Type is A or NR, the purity conversion will not take place.
  - Conc #1 Purity Adjusted - conversion to - Conc #1 Purity Adjusted in Preferred Unit (If any of these conversions seem incorrect, alert the programming staff). The Preferred Units are as follows based on taxa:
    - (1) All aquatic organisms: ai mg/L
    - (2) All terrestrial vertebrates: ai mg/kg bw, ai mg/kg(food), ai lb/A
    - (3) Terrestrial plants: ai lb/A
    - (4) Terrestrial invertebrates: ai mg/kg bw ai mg/kg(food) mg/kg-soil, ai lb/A, ai ug/bee (honey bees and other bees).
  - Scroll through all the records and make sure none look out of the ordinary and that there are no blank fields in the report. If there are blank fields, this needs to be investigated to ensure that, in fact, no data was coded.
  - When all data looks correct, highlight and copy the Ref# column.
  - Insert a worksheet and paste the column.
  - Put the cursor in the header box (Ref#) and sort in ascending order.
  - Highlight the entire column and choose "Data" "Filter" "Advanced filter" and click in the "Unique records only" check box. Choose "OK".
  - Select just the unique reference numbers (not the entire column) then choose copy.
  - Create a new worksheet and paste the info in the new sheet. Create one column header labeled "EFED Reviewed" designating the column that contains the ECOREF#'s generated from Reviewed data and one header labeled "UNIFY" designating the column that contains the ECOREF#'s generated from UNIFY. This worksheet will be used to compare the lists of ECOREF# numbers that were from Reviewed data to the ECOREF#'s UNIFY lists as being "Reviewed (Acceptable)" for the chemical.
  - In UNIFY, with the appropriate Report Group expanded, and in the current UNIFY Report, select "View". A UNIFY Production window will appear. On the far right select the numbered box for "Reviewed (Acceptable)". A File Download window will appear asking whether you want to open or save file, select Open.
  - A Microsoft Office Excel window will open asking to verify the file is from a trusted source, choose yes.
  - Place the cursor in the header box "ECOREF\_NUMBER" and sort in

ascending order. Highlight the ECOREF#'s under the header and copy and paste into the new EFED reviewed worksheet created previously under the "UNIFY" header.

- Compare the two columns of ECOREF numbers.
  - If they are exactly the same then all references are OK.
  - If there are ECOREF numbers missing from the EFED reviewed list they are most likely involved in the species verification process and the Species Report Table was not updated. If that step was done, check the reviewed records in UNIFY and make sure that they are not in a "general species category" such as Aquatic Community which would not produce a Phylum. These records will need to be looked at and a more specific species assigned.
  - If there are ECOREF numbers missing from the UNIFY list, the status in Field 17 could be incorrect. Investigate this issue by finding the paper and/or looking for data in UNIFY for the ECOREF#. Change Field 17 if necessary
  - Print out the references list to attach to the completion documentation.
- h. Use the Plotting application (pivot table) located on Contractor site as Data Plot Template.xls to determine outliers as one more Quality Assurance step.
- First, in UNIFY EFED Reports, open the appropriate EFED Report as an Excel file as before and rename the worksheet "dynamic". Save file as in the following example: dynamic Dicrotophos plotting.xls.
  - Open Data Plot Template.xls. A security warning appears above the spreadsheet indicating Macros have been disabled. Select Options Next to Update Security Warning. A Microsoft Office Security Options Security Alert pops up. Select enable this content.
  - Select Import & Plot Data and Re-save the file on Contractor site using the same name as before (e.g. dynamic Dicrotophos plotting.xls); a Microsoft pop-up appears indicating the file already exists. Do you want to replace the existing file? Select yes.
  - From the plot, look for any outlier data points and investigate as needed. You can view the sorted data and plot again based on limits based on Effect, Concentration, Duration, ConcType, Endpoint, Exp Type, Exp Route, Species Group and Conc Unit to determine trends and possible other outliers. As an example, limit based on species group. From the drop-down, select Aves then plot. A Microsoft pop up appears indicating a formula contains one or more invalid references, select OK. View plots and check for outliers. Repeat with other species groups etc. as needed. Save the file upon closing.

When all of the steps above have been completed, and all of the data are acceptable, the ProCite files can be created; and data can be released to EFED/EPA.

A data visualization report using the quality assurance plot is also created and forwarded to EFED/EPA. A report template is located in the EFED report folder at the contractor's location.

## ProCite Files Forwarded to EFED/EPA

When all articles have been reviewed for an EFED chemical, ProCite files are created containing all pertinent citations acquired for the chemical. This section describes the naming convention of the ProCite files sent to EFED/EPA and how to generate the files.

The ProCite files provide the information requested in the SOP "Interim Guidance of the Evaluation Criteria for Ecological Toxicity Data in the Open Literature. Phases I and II. Procedures for Identifying, Selecting and Acquiring Toxicity Data Published in the Open Literature for use in Ecological Risk Assessments. July 16, 2004 version" found on Contractor site as SOPPhaselandII.wpd.docx. and the "Supplemental Guidance of Evaluation Guidelines for Ecological Toxicity Data in the Open Literature: Procedures for screening, reviewing and incorporating toxicity data published in the open literature for use in ecological risk assessments. January 21, 2010" found on Contractor site as the following document: Supplemental ECOTOX Guidance\_01-21-10.doc.

EFED ProCite File Naming Convention and Content- The following files are forwarded to EFED/EPA using the same naming convention for each chemical:

- "Chemical name" **acceptable date** (e.g., Chlorophacinone Refresh acceptable January 2011)-This file includes citations for all papers that were identified as acceptable to the ECOTOX Knowledgebase effort and passed EFED acceptance criteria. These publications were reviewed and data entered into the system.
- "Chemical name" **not acceptable date** (e.g., Chlorophacinone Refresh not acceptable January 2011)-This file includes citations for all papers that were identified as acceptable to the ECOTOX Knowledgebase effort but did not pass EFED acceptance criteria. The data from these publications is not included in the EFED reports.
- "Chemical name" **excluded date** (e.g., Chlorophacinone Refresh excluded January 2011)-This file include citations of papers that were identified as not acceptable or archived for the ECOTOX Knowledgebase effort either by rejecting the paper once acquired or rejecting the citation during a literature search (i.e. without acquisition of the paper).
- "Chemical name" **target date** (e.g., Chlorophacinone Refresh target January 2011)-This file includes citations of papers that were identified as acceptable to the



ECOTOX Knowledgebase effort and passed EFED acceptance criteria. However, the tested species is one that falls into either the TARGET2012, PESTS or WEEDS category as defined in Appendix A of the EFED Acquisition\_Chemical\_Criteria.doc and therefore is not reviewed for inclusion in UNIFY.

- “Chemical name” **on order** date (e.g., Chlorophacinone Refresh on order January 2011)-This file includes citations of papers that were identified as acceptable to the ECOTOX Knowledgebase effort during the literature acquisition IDing process. The publications have been ordered but have not been received prior to the EFED coding deadline.

The data from the UNIFY bibliographic files is transferred into the following ProCite fields:

Procite Field Number	UNIFY Information	Notes
1	Author(s)	
4	Title	
8	Effect code	This field list the effect code(s) of the data found in the paper, e.g. <b>MOR</b> for mortality
10	Journal	
19	Media and Route	This field lists the media that the organism was tested in (soil or water) and the chemical exposure route, e.g. <b>ENV, TOP</b>
20	Date	
22	Volume	
24	Issue	
25	Page Numbers	
42	ECOTOX Reference number	Heading = EcoReference No.:
37a	ECOTOX Knowledgebase status	<p>If a paper has been coded in ECOTOX it will show: <b>A, T or AT</b></p> <p>If a paper has not been coded in ECOTOX it will show: <b>UR</b></p> <p>If a paper has been found not acceptable to ECOTOX it will show: <b>NON-APPLICABLE or ARCHIVE</b></p> <p>If a paper is still on order for ECOTOX it will show: <b>ILL, COPY REQUEST, AUTH, COMM</b></p>



Procite Field Number	UNIFY Information	Notes
37b	Database descriptor for species type as well as special projects	Species grouping and sub-groupings within ECOTOX Knowledgebase , e.g. RODE for rodents or EFED for Environmental Fate and Effects Division data
40	Test Species Habitat	If the paper has aquatic species it will show: <b>A</b> If the paper has terrestrial species it will show: <b>T</b> If the paper has both aquatic and terrestrial species it will show: <b>AT</b>
42	Chemical(s) of Concern	The three letter code for the chemical(s) is shown
44	Acceptability Criteria Status	Identifies whether the publication has passed ECOTOX and/or EFED acceptance criteria. Examples include: LITE EVAL CODED(COC) NO ENDPOINT(COC) TARGET2012(COC) NO IN VITRO(COC)
45	Keywords	If a paper has been found not to be acceptable for ECOTOX the rejection keywords are found here, e.g. <b>IN VITRO</b>
43	Abstract	The abstract is found here if available







## Generating ProCite Files


The files are exported from UNIFY References and the EFED Literature Search files, imported into ProCite, formatted and quality assured prior to forwarding to EFED/EPA.

As a tool for QA and reference for generating accurate counts, print and attach a hard copy of the chemical report counts to the back of the EFED Procite File Checklist. See example below.

Chemical	Codes	Total*	Matched on Title, not yet Rejected or Tagged	Unknown	Previously Delivered	Rejected	On Order	On Recall	Need to apply criteria	Non-Target Species to Review	Target Species	N/A (Excluded)	Not Acceptable	Reviewed (Acceptable)	Delivery Date
Methiocarb	MCB (10/30/2009-06/15/2016) MCBSL (01/01/1900-06/15/2016) MCBSO (10/30/2009-06/15/2016) MCBSP (01/01/1900-06/15/2016) MCBSX (10/30/2009-06/15/2016)	239	0	2	124	8	4	0	1	17	55	59	57	46	

1. To export on order, target, excluded, not acceptable and/or acceptable citations from UNIFY, expand the pertinent Report Group in EFED Reports.

	Report Name	Codes	On Order /Recall	Received, Not Addressed	Target Species	N/A (Excluded)	Not Acceptable	Reviewed (Acceptable)		
<b>Deliver</b>	Chlorophacinone REFRESH	CPC 11/19/2004- 01/01/2011							<b>EFE D Rep ort Old Lite Eval Rprt</b>	<b>View</b>

1. Click on the Red Arrow () in each column to generate the RIS export file. Create a folder for the chemical, if it hasn't been previously created. Name the text files using the standard EFED nomenclature outlined previously. If there are no citations in a given category, UNIFY will display a message stating this (e.g., No ON ORDER References were found for the Chlorophacinone report). Repeat the export process report type for each column in UNIFY.

2. Export the non-applicable files from the EFED Literature Searches by going to the appropriate EFEDLitSearch file.

Example: Chlorophacinone- CPC REFRESH 2011

Search on Field #44 by the chemical code or name and year (due date for the chemical).

Example: "#44 = CPC and #44 = 2011"

If the chemical is refreshing the initial chemical search, then add the term "refresh" to your search. Example "#44 = CPC and #44 = 2011 and #44 = REFRESH.

Open the file and sort by Field 37. Mark the Non-Applicable citations to transfer, except for the No Toxicant, False Hits and/or Keywords followed by NO COC and using the established naming conventions, copy the file to the appropriate EFED Report.

3. To import the files, created in Steps 1 and 2 above, into ProCite, open ProCite, then open the pertinent folder created above. For example:

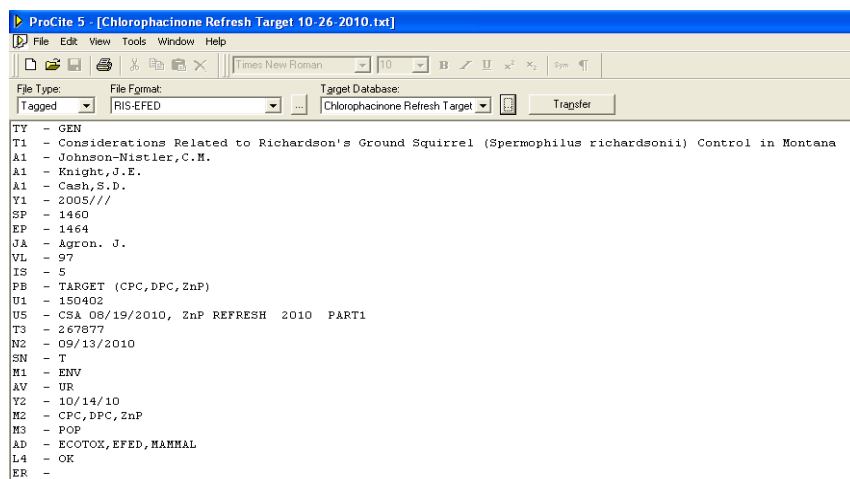
Chlorophacinone Refresh Target January 2011.txt.

The following specific steps are taken to import the UNIFY Reference files:

- 1) Open ProCite.
- 2) Choose File, then Open.
- 3) Choose one of the export files (e.g. Chlorophacinone Refresh Target January 2011.txt) created in the steps above by double clicking on the file name. The export file text will appear (see example below).

## 4) Confirm that the following information is selected:

File type: Tagged      File format: RIS-EFED      Target Database: Select ...



## 5) Select Transfer. A message will come up letting the user know if the transfer was successful. Click OK.

Formatting ProCite Files

Once all records have been transferred to a ProCite file some of the fields must be globally modified and/or moved in order to provide the records in EFED standard format. The transferred records should all be marked with an 'x'.

The EFED ProCite File Checklist (next page) and the following section describe the modifications that need to be made to each specific file:

1. "Chemical name" **acceptable** date (e.g. Chlorophacinone Refresh acceptable January 2011). Global move field 39 to 19 (end of field). The following fields are showing when the file is ready to send: 42,44,45.
2. "Chemical name" **not acceptable** date (e.g. Chlorophacinone Refresh not acceptable January 2011). Global move field 39 to 19 (end of field). The following fields are showing when the file is ready to send: 42,44,45.
3. "Chemical name" **on order** date (e.g. Chlorophacinone Refresh on order January 2011). Global move field 39 to 19 (end of field). The following fields are showing when the file is ready to send: Author, Title, Journal.
4. "Chemical name" **target** date (e.g. Chlorophacinone Refresh target January 2011). Global move field 39 to 19 (end of field). The following fields are showing when the file is ready to send: 42,44,45.

5. "Chemical name" **excluded date** (e.g. Chlorophacinone Refresh excluded January 2011)

a) For citations from UNIFY References: global move field 39 to 19 (end of field)

b) For citations from the EFED Literature Search files (NON-APPLICABLE):

- Clear all contents in field 44
- Move field 43 to 42 (end of field)
- Move field 42 to 43 (replacing entire field)
- Add to beginning of field 29: Chemical of Concern:
- Global move 29 to 42 (end of field)
- Global move 39 to 37 (end of field)

Use the EFED ProCite File Checklist to ensure that all steps are performed. The checklist is found below and should be printed out and used for each separate report that is prepared for EPA/EFED. The numbers that are found on the checklist need to be updated to the EFED Weekly Status report and are considered the final numbers for the deliverable. Once the report files have been created, QA'd and delivered, the checklist may be recycled.

**EFED ProCite File Checklist - Acceptable** (showing when done 42,44,45)

export	Import	39 to 19 (to end)	check	sent
file name (name acceptable date): acceptable				

**Not Acceptable** (showing when done: 42,44,45)

export	Import	39 to 19 (to end)	check	sent
file name (name not acceptable date): not acceptable				

**On Order** (showing when done: 40,4,10)

export	import	39 to 19 (to end)	check	sent
file name (name on order date): on order				

Sum of Not  
Acceptable  
and Excluded

**Target** (showing when done: 42,44,45)

export	import	39 to 19 (to end)	check	sent
file name (name target date): target				

**Excluded** (showing when done: 42,44,45 )

Excluded	export	import				39 to 19 (to end)	check	sent
Unify								
	Clear 44	43 to 42 (to end)	42 to 43 (replace)	"Chemical of Concern" (to beginning of 29)	29 to 42 (to end)	39 to 37 (to end)		
Procite								
file name (name excluded date): excluded								

Total

---

### Quality Assurance of EFED Reports and ProCite Files

Once the chemical report file and the ProCite files have been created, another staff member performs quality assurance checks on each of the files created. This person must be familiar with the steps in creating the report and ProCite files.

The chemical report is spot checked for any anomalies. If any anomalies are found, they are reported to the staff member who created the file.

Each ProCite file is checked for formatting errors and to confirm that records are in the correct file according to its status. For example, all records in the Acceptable file are LITE EVAL CODED (COC) in field 17. If any questions arise or errors are found, it is reported to the staff member that created the files to rectify. Note that no records should be “marked” in the ProCite files when they are forwarded to EFED.

Once all files are quality assured they are forwarded to EFED/EPA.

### Sending EFED/EPA Completed Files (Chemical report and ProCite)

Once the chemical report file and the ProCite files have been created and quality assured, they are forwarded to the EFED/EPA staff by email with attachments (See example below). A copy of the email without attachments is forwarded to the Contract staff member who is responsible for updating project status tables and the Contract project manager.

#### Example Email:

The data for Chlorophacinone Refresh 2011 are available in the attached Excel spreadsheet.

Chlorophacinone Refresh 2011.xlsx

All publications have been received for Chlorophacinone Refresh.

The Chlorophacinone Refresh ProCite files are attached below:

Chlorophacinone Refresh acceptable January 2011.pdt

Chlorophacinone Refresh acceptable January 2011.pdx

Chlorophacinone Refresh not acceptable January 2011.pdt

Chlorophacinone Refresh not acceptable January 2011.pdx

Chlorophacinone Refresh target January 2011.pdx

Chlorophacinone Refresh target January 2011.pdt

Chlorophacinone Refresh excluded January 2011.pdt

Chlorophacinone Refresh excluded January 2011.pdx

Be sure to include both files needed for the ProCite files namely .pdx and .pdt

Special notes are made in the emails to EPA regarding the status of publications that

are still on order, have not yet been reviewed and the coding of TARGET2012/WEEDS/PESTS species papers due to limited data.

If there are papers that remain on order at the time of completion the following is noted in the email:

“Note that there are X publications that have not been received.”

If there are papers that have yet to be reviewed but otherwise are acceptable, the following is noted in the email:

“Note that there are X publications that have been received and have not yet been reviewed.”

If the TARGET2012/WEEDS/PESTS species papers have been coded for a chemical due to the limited number of publications available the following is noted in the email:

“Data for target species was coded for “Chemical name” as per the SOP; this is due to the limited number of publications for this chemical of concern.”

### **Large files in Zip format**

If the files are large, convert them to a zip file format. There will be a message in LotusNotes when you try to send files that are too large for the mail system. In the Lotus Notes mail message, click on the Attach File Icon, find and highlight the files you are sending and right click. From the right click menu, select WinZip and choose: Add to “file name”. Go to My Computer and find the zip file created (ex. Esfenvalerate Refresh 2013\_ProCite files.zip). Right click and say yes to security risk comment. Choose “rename” and change the file extension to .zpt (ex. Esfenvalerate Refresh 2013\_ProCite files.zpt). Confirm the change. Go back to Lotus Notes and attach the file to the message.

### **Instructions for Word compatible output requests:**

1. Use the output format found “ECOTOX Report Style.pos” Make sure file is copied to your ProCite software (C:\Program Files\ProCite5\Styles), so the style is found your dropdown list.
2. You may need to move ProCite data fields, so they will output properly before printing. Mark the citations you want to print.
3. Within ProCite, under “File”, select, “Print Bibliography”
  - a. Select the output “ECOTOX Report Style” as the output style using the Output Style browse option.
  - b. Within the Print Bibliography area, select “Configure” and modify “Reference List” options to as needed for proper fields exporting and other customization. Remember to set “Configure Bibliography” (within the Print Bibliography menu) to Show Notes, Abstract, Call Number and Keywords fields for each ProCite file.
  - c. When all parameters selected, click on “Save” and view the output to in Word or WordPad to ensure it is accurate and add standard header names.

“ECOTOX Report Style.pos” expects the data to be in these data fields for output:

Field #1 (Author)

Field #4 (Title)

Field #8 (Effect codes)

Field #10 (Journal/source)

Field #19 (Exp. Route)

Field #20 (Year)

Field #22 (Volume)

Field #24 (Issue)

Field #25 (Pages)

Field #40 (Database)

Field #42 (ECOREF#, Chemical of Concern)

Field #44 (EFED Status)

Field #45 (Keyword)



## APPENDIX A: EFED BIBLIOGRAPHIC FIELDS

Field Number	Information Contained in Field
02	Reference ID - not to be confused with ECOREF number
03	Title
04	Author(s)
05	Date
06	Notes - This field contains information not found in the other fields, but may be useful for understanding the history of the paper (i.e. ordering history/status of the paper, whether a microfiche has been printed or filed, past Ecoref number the paper was given before rejected, data maintenance issues, etc.)
07	Keyword - All NON-APPLICABLE papers require an appropriate reject reason term placed in this field (i.e. REVIEW, IN VITRO, NO SPECIES, etc.)
09	Starting page
10	Ending page
11	Periodical title
12	Volume
15	Issue number
17	<p>Special Project Status</p> <ul style="list-style-type: none"> <li>Provides the status of EFED papers and other special project papers (see examples in the bullets below for chemical of concern Atrazine (ATZ))</li> <li>If the paper has been skimmed for EFED, you will see OK (ATZ) or NO ENDPOINT (ATZ), TARGET2012 (ATZ), etc.</li> <li>If the paper has been coded for EFED you will see LITE EVAL CODED (ATZ)</li> <li>If the paper has not been touched by EFED, field 17 will be blank or non-specific (i.e. OK, NO) or will have another special project's info coded in them (TRV, PCB, etc.)</li> </ul>
18	ECOREF number
21	<p>Reviewer/Reason</p> <ul style="list-style-type: none"> <li>Currently all EFED documents downtown are checked out to: apilli</li> <li>This can be a helpful field when searching for papers still at the Contractor site. The person who has the paper should have their initials and project code in this field</li> </ul>

Field Number	Information Contained in Field
22	<p>Source</p> <ul style="list-style-type: none"> <li>• This field provides information on how the paper was identified as having an EFED chemical of concern.</li> <li>• If found by a standard literature search (i.e. SD ATZ 2/5/06, CSA ATZ 2/5/06, Toxline ATZ 2/5/06)</li> </ul>
23	<p>Call Back Status</p> <ul style="list-style-type: none"> <li>• This field identifies if a paper was called back from the EPA files. It also shows which project called the paper back and for what chemical. Tag the chemical (RECALL COC) as they are located. Use "FIND COC" to tag papers located at offsite location.</li> </ul> <p>Example of an EFED call back: "Called back from MED for EFED September DZ – 6/5/06"</p>
26	<p>Database</p> <ul style="list-style-type: none"> <li>• A – Aquatic paper</li> <li>• T – Terrestrial paper</li> <li>• AT – both Aquatic and Terrestrial</li> </ul>
27	<p>Order Status (Note: this field does not indicate whether the paper is reviewed for EFED; only field 17 will say that)</p> <ul style="list-style-type: none"> <li>• UR – Paper is unreviewed for ECOTOX</li> <li>• A – Paper is reviewed for ECOTOX ACQUIRE – EFED uses these papers for downloads (AL = Aquatic coded using EFED Coding Guidelines SOP).</li> <li>• T – Paper is reviewed for ECOTOX TERRATOX – EFED uses these papers for downloads (TL = Terrestrial coded using EFED Coding Guidelines SOP).</li> <li>• NON-APPLICABLE – Paper was skimmed and found to be NON-APPLICABLE for ECOTOX. It is automatically a NON-APPLICABLE for EFED as well. There should be a reject reason KEYWORD in Field 07 as well. Field 17 will also get a reject reason starting with the word "NO" followed by the reject reason "ABSTRACT", "METHODS", "MIXTURE", etc.</li> <li>• ILL – date. Paper is on order.</li> <li>• AUTH - date. Paper is on order via author email request.</li> <li>• COPY REQUEST – date. Paper is being copied from the MED library</li> <li>• COMM – date. Paper is being ordered through a commercial vender.</li> </ul>
29	<p>Route/Media</p> <ul style="list-style-type: none"> <li>• WATER, SOIL, AQUA, INJECT, ORAL, ENV, TOP, UNK, MIXTURE</li> <li>• This information tells us the organism's environment (WATER) as well as how it was given the chemical dose (INJECT). This information is found at the bottom of skimmed papers.</li> </ul>
30	<p>Special Project Chemical</p> <ul style="list-style-type: none"> <li>• Chemical of concern abbreviations found in the paper are reported in this field (i.e. ATZ, CBL, PRO, etc.).</li> </ul>

<b>Field Number</b>	<b>Information Contained in Field</b>
31	<p>Major Effect Group</p> <ul style="list-style-type: none"> <li>• ACC, BEH, BCM, CEL, GRO, PHY, etc.</li> <li>• This field contains the effects tested in the paper. Effects are found at the bottom of skimmed papers.</li> </ul>
32	<p>Sub-database</p> <ul style="list-style-type: none"> <li>• This field contains abbreviations for the types of organisms in the paper (RODE, INSECT, P, FISH, INVERT, DOM, DOMA, etc.) This can be used to tell if the paper deals with an EFED target organism, or a non-target organism.</li> <li>• The term "EFED" is also in this field if the paper was skimmed OK for an EFED chemical of concern.</li> </ul> <p>Codes for other projects may be found in this field, as well (i.e. TRV, CAD, etc.) or indicating a LITBIB REVIEW paper, using the code: LITBIB.</p>

#### Paper Processing Date Fields

<b>Field Number</b>	<b>Information Contained in Field</b>
20	<p>Reference Status</p> <ul style="list-style-type: none"> <li>• All existing papers that have been pulled from EPA files get a date in this field once they arrive at the Contractor site.</li> </ul>
25	<p>Received Date</p> <ul style="list-style-type: none"> <li>• This is the date the paper was first received by the Contractor in the downtown office.</li> <li>• All newly ordered papers will get a date in this field upon arriving at the downtown office.</li> <li>• If there is not a date in this field, the paper is still on order and we have not received it.</li> </ul>
28	<p>Return to EPA Date</p> <ul style="list-style-type: none"> <li>• This is the date the paper was returned to the EPA files.</li> <li>• If there is a date in this field, the paper is in the EPA holdings and will have to be called back if needed.</li> <li>• If there is no date in this field, the paper is either still at the Contractor site, or is On Order.</li> </ul>

## APPENDIX B: EFED REPORT FIELDS

Excel Column Designator	Field Name	Description
<b>A</b>	CAS Number	Chemical Abstracts Service (CAS) registry number of chemical tested
<b>B</b>	Chemical Name	Name associated with the chemical tested
<b>C</b>	Is Chemical Also Tested as a Mixture (YES/NO)	Is the tested chemical also tested as a Mixture
<b>D</b>	Chemical Grade	Chemical grade
<b>E</b>	Chemical Formulation	Chemical formulation
<b>F</b>	% Purity	Purity of the test chemical
<b>G</b>	Chemical Analysis Method	Reports if chemical analysis is measured or unmeasured
<b>H</b>	Species Number	Internal Number assigned by ECOTOX/EFED to species tested
<b>I</b>	Age	Species age
<b>J</b>	Age Unit	Species age unit
<b>K</b>	Lifestage	Species lifestage
<b>L</b>	Organism Initial Weight (unit)	Initial weight of organism
<b>M</b>	Phylum	Phylum of species tested, auto-populated based on taxonomy/species number
<b>N</b>	Class	Class of species tested, auto-populated based on taxonomy/species number

<b>Excel Column Designator</b>	<b>Field Name</b>	<b>Description</b>
<b>O</b>	Order	Order of species tested, auto-populated based on taxonomy/species number
<b>P</b>	Family	Family of species tested, auto-populated based on taxonomy/species number
<b>Q</b>	Genus	Genus of species tested, auto-populated based on taxonomy/species number
<b>R</b>	Species	Species of species tested, auto-populated based on taxonomy/species number
<b>S</b>	Common Name	Common name of species tested
<b>T</b>	Plant/Animal	Denotes if the test species is a plant or animal, auto-populated based on taxonomy
<b>U</b>	Habitat	Denotes if the test is conducted on aquatic or terrestrial species
<b>V</b>	Test Loc	Test Location (Lab/Field)
<b>W</b>	Media	The type of Exposure Media
<b>X</b>	Exp Type	Method of chemical delivery in the experiment
<b>Y</b>	Exposure Route Groups	ECOTOX Exposure Route Groups
<b>Z</b>	Doses and unit	Tested doses and units
<b>AA</b>	Number of Conc	Number of concentrations tested
<b>AB</b>	Only Conc Tested	Only one concentration tested
<b>AC</b>	Test ID	ECOTOX Location/Result Number for records imported into the EFED system
<b>AD</b>	Endpoint 1 Result ID	Result Identification (corresponds to Endpoint 1)

<b>Excel Column Designator</b>	<b>Field Name</b>	<b>Description</b>
<b>AE</b>	Endpoint 2 Result ID	Result Identification (corresponds to Endpoint 2)
<b>AF</b>	Effect Group	ECOTOX/EFED Effect Group Code
<b>AG</b>	Effect	ECOTOX/EFED Effect Code
<b>AH</b>	Meas Desc	ECOTOX Measurement Description
<b>AI</b>	Meas	ECOTOX/EFED Measurement Code
<b>AJ</b>	Endpt1	Endpoint 1 - The quantification of an observed effect obtained through statistics or other means of calculation for the express purpose of comparing equivalent effects (e.g., LC50). ECOTOX Appendix T identifies and defines the ECOTOX/EFED endpoint codes.
<b>AK</b>	Endpt2	Endpoint 2 ( see above) - this is the companion endpoint, i.e. LOAEL if applicable
<b>AL</b>	Response Site	Response site
<b>AM</b>	Effect Percent (Endpoint 1)	Effect percent of response (corresponds to Endpoint 1)
<b>AN</b>	Effect Percent (Endpoint 2)	Effect percent of response (corresponds to Endpoint 2)
<b>AO</b>	Trend (Endpoint 1)	Trend of the response (corresponds to Endpoint 1)
<b>AP</b>	Trend (Endpoint 2)	Trend of the response (corresponds to Endpoint 1)
<b>AQ</b>	Endpoint 1 Final Weight (unit)	Final weight of organism and unit (corresponds to Endpoint 1)
<b>AR</b>	Endpoint 2 Final Weight (unit)	Final weight of organism and unit (corresponds to Endpoint 2)
<b>AS</b>	Dur Mean Orig Op	Mean Duration operator as reported by the author
<b>AT</b>	Dur Mean Orig	Mean Duration as reported by the author

<b>Excel Column Designator</b>	<b>Field Name</b>	<b>Description</b>
<b>AU</b>	Dur Min Orig Op	Mean Duration operator as reported by the author
<b>AV</b>	Dur Min Orig	Mean Duration as reported by the author
<b>AW</b>	Dur Max Orig Op	Mean Duration operator as reported by the author
<b>AX</b>	Dur Max Orig	Mean Duration as reported by the author
<b>AY</b>	Dur Unit Orig	Duration Unit as reported by author
<b>AZ</b>	Dur Preferred Mean Op	Mean Preferred Duration value operator
<b>BA</b>	Dur Preferred Mean	Mean Duration converted electronically to days, when possible. If not possible, Duration Original (Author reported duration) is retained.
<b>BB</b>	Dur Preferred Min Op	Min Preferred Duration value operator
<b>BC</b>	Dur Preferred Min	Min Duration converted electronically to days, when possible. If not possible, Duration Original (Author reported duration) is retained.
<b>BD</b>	Dur Preferred Max Op	Max Preferred Duration value operator
<b>BE</b>	Dur Preferred Max	Max Duration converted electronically to days, when possible. If not possible, Duration Original (Author reported duration) is retained.
<b>BF</b>	Dur Unit Preferred	Preferred Duration Unit
<b>BG</b>	Conc Type	Concentration Type denotes the type of chemical used
<b>BH</b>	Conc #1 Ion	Denotes the ion for the concentration, if reported
<b>BI</b>	Conc #1 Author Reported Mean Op	Mean Concentration Value 1 (corresponds to Endpoint 1) as reported by author operator

<b>Excel Column Designator</b>	<b>Field Name</b>	<b>Description</b>
<b>BJ</b>	Conc #1 Author Reported Mean	Mean Concentration Value 1 (corresponds to Endpoint 1) as reported by author
<b>BK</b>	Conc #1 Author Reported Min Op	Min Concentration Value 1 (corresponds to Endpoint 1) as reported by author operator
<b>BLH</b>	Conc #1 Author Reported Min	Min Concentration Value 1 (corresponds to Endpoint 1) as reported by author
<b>BM</b>	Conc #1 Author Reported Max Op	Max Concentration Value 1 (corresponds to Endpoint 1) as reported by author operator
<b>BN</b>	Conc #1 Author Reported Max	Max Concentration Value 1 (corresponds to Endpoint 1) as reported by author
<b>BO</b>	Conc Units Author Reported	Concentration Unit 1 (corresponds to Endpoint 1) as reported by author
<b>BP</b>	Conc #1 Purity Adjusted Mean Op	Mean Concentration Value 1 (Purity Adjusted) operator
<b>BQ</b>	Conc #1 Purity Adjusted Mean	Mean Concentration converted electronically based on the purity and/or molecular weight of the compound. If not reported, no conversion. If the concentration is measured or based on active ingredient no conversion.
<b>BR</b>	Conc #1 Purity Adjusted Min Op	Min Concentration Value 1 (Purity Adjusted) operator
<b>BS</b>	Conc #1 Purity Adjusted Min	Min Concentration converted electronically based on the purity and/or molecular weight of the compound. If not reported, no conversion. If the concentration is measured or based on active ingredient no conversion.
<b>BT</b>	Conc #1 Purity Adjusted Max Op	Max Concentration Value 1 (Purity Adjusted) operator
<b>BU</b>	Conc #1 Purity Adjusted Max	Max Concentration converted electronically based on the purity and/or molecular weight of the compound. If not reported, no conversion. If the concentration is measured or based on active ingredient no conversion.
<b>BV</b>	Conc #1 Purity Adjusted in Preferred Unit Mean Op	Mean Concentration Value 1 (Purity Adjusted) converted to a standard unit operator



<b>Excel Column Designator</b>	<b>Field Name</b>	<b>Description</b>
<b>BW</b>	Conc #1 Purity Adjusted in Preferred Unit Mean	Mean Concentration Value 1 (Purity Adjusted) converted to a standard unit (All aquatic organisms: mg a.i./L; All terrestrial vertebrates: mg a.i./kg-bw, mg a.i./kg(food), lb a.i./A; Terrestrial plants: lb a.i./A; Terrestrial invertebrates: mg a.i./kg-bw, mg a.i./kg(food), mg/kg-soil, lb a.i./A, ug a.i./bee (honey bees and other bees)) when possible. If not possible, Concentration Value Purity Adjusted is retained
<b>BX</b>	Conc #1 Purity Adjusted in Preferred Unit Min Op	Min Concentration Value 1 (Purity Adjusted) converted to a standard unit operator
<b>BY</b>	Conc #1 Purity Adjusted in Preferred Unit Min	Min Concentration Value 1 (Purity Adjusted) converted to a standard unit (All aquatic organisms: mg a.i./L; All terrestrial vertebrates: mg a.i./kg-bw, mg a.i./kg(food), lb a.i./A; Terrestrial plants: lb a.i./A; Terrestrial invertebrates: mg a.i./kg-bw, mg a.i./kg(food), mg/kg-soil, lb a.i./A, ug a.i./bee (honey bees and other bees)) when possible. If not possible, Concentration Value Purity Adjusted is retained
<b>BZ</b>	Conc #1 Purity Adjusted in Preferred Unit Max Op	Max Concentration Value 1 (Purity Adjusted) converted to a standard unit operator
<b>CA</b>	Conc #1 Purity Adjusted in Preferred Unit Max	Max Concentration Value 1 (Purity Adjusted) converted to a standard unit (All aquatic organisms: mg a.i./L; All terrestrial vertebrates: mg a.i./kg-bw, mg a.i./kg(food), lb a.i./A; Terrestrial plants: lb a.i./A; Terrestrial invertebrates: mg a.i./kg-bw, mg a.i./kg(food), mg/kg-soil, lb a.i./A, ug a.i./bee (honey bees and other bees)) when possible. If not possible, Concentration Value Purity Adjusted is retained
<b>CB</b>	Conc#2 Ion	Denotes the ion for the concentration, if reported
<b>CC</b>	Conc #2 Author Reported Mean Op	Mean Concentration Value 1 (corresponds to Endpoint 1) as reported by author operator
<b>CD</b>	Conc #2 Author Reported Mean	Mean Concentration Value 1 (corresponds to Endpoint 1) as reported by author
<b>CE</b>	Conc #2 Author Reported Min Op	Min Concentration Value 1 (corresponds to Endpoint 1) as reported by author operator
<b>CF</b>	Conc #2 Author Reported Min	Min Concentration Value 1 (corresponds to Endpoint 1) as reported by author
<b>CG</b>	Conc #2 Author Reported Max Op	Max Concentration Value 1 (corresponds to Endpoint 1) as reported by author operator
<b>CH</b>	Conc #2 Author Reported Max	Max Concentration Value 1 (corresponds to Endpoint 1) as reported by author

<b>Excel Column Designator</b>	<b>Field Name</b>	<b>Description</b>
<b>CI</b>	Conc #2 Purity Adjusted Mean Op	Mean Concentration Value 1 (Purity Adjusted) operator
<b>CJ</b>	Conc #2 Purity Adjusted Mean	Mean Concentration converted electronically based on the purity and/or molecular weight of the compound. If not reported, no conversion. If the concentration is measured or based on active ingredient no conversion.
<b>CK</b>	Conc #2 Purity Adjusted Min Op	Min Concentration Value 1 (Purity Adjusted) operator
<b>CL</b>	Conc #2 Purity Adjusted Min	Min Concentration converted electronically based on the purity and/or molecular weight of the compound. If not reported, no conversion. If the concentration is measured or based on active ingredient no conversion.
<b>CM</b>	Conc #2 Purity Adjusted Max Op	Max Concentration Value 1 (Purity Adjusted) operator
<b>CN</b>	Conc #2 Purity Adjusted Max	Max Concentration converted electronically based on the purity and/or molecular weight of the compound. If not reported, no conversion. If the concentration is measured or based on active ingredient no conversion.
<b>CO</b>	Conc #2 Purity Adjusted in Preferred Unit Mean Op	Mean Concentration Value 1 (Purity Adjusted) converted to a standard unit operator
<b>CP</b>	Conc #2 Purity Adjusted in Preferred Unit Mean	Mean Concentration Value 1 (Purity Adjusted) converted to a standard unit (All aquatic organisms: mg a.i./L; All terrestrial vertebrates: mg a.i./kg-bw, mg a.i./kg(food), lb a.i./A; Terrestrial plants: lb a.i./A; Terrestrial invertebrates: mg a.i./kg-bw, mg a.i./kg(food), mg/kg-soil, lb a.i./A, ug a.i./bee (honey bees and other bees)) when possible. If not possible, Concentration Value Purity Adjusted is retained
<b>CQ</b>	Conc #2 Purity Adjusted in Preferred Unit Min Op	Min Concentration Value 1 (Purity Adjusted) converted to a standard unit operator
<b>CR</b>	Conc #2 Purity Adjusted in Preferred Unit Min	Min Concentration Value 1 (Purity Adjusted) converted to a standard unit (All aquatic organisms: mg a.i./L; All terrestrial vertebrates: mg a.i./kg-bw, mg a.i./kg(food), lb a.i./A; Terrestrial plants: lb a.i./A; Terrestrial invertebrates: mg a.i./kg-bw, mg a.i./kg(food), mg/kg-soil, lb a.i./A, ug a.i./bee (honey bees and other bees)) when possible. If not possible, Concentration Value Purity Adjusted is retained
<b>CQ</b>	Conc #2 Purity Adjusted in Preferred Unit Max Op	Max Concentration Value 1 (Purity Adjusted) converted to a standard unit operator

<b>Excel Column Designator</b>	<b>Field Name</b>	<b>Description</b>
<b>CS</b>	Conc #2 Purity Adjusted in Preferred Unit Max	Max Concentration Value 1 (Purity Adjusted) converted to a standard unit (All aquatic organisms: mg a.i./L; All terrestrial vertebrates: mg a.i./kg-bw, mg a.i./kg(food), lb a.i./A; Terrestrial plants: lb a.i./A; Terrestrial invertebrates: mg a.i./kg-bw, mg a.i./kg(food), mg/kg-soil, lb a.i./A, ug a.i./bee (honey bees and other bees)) when possible. If not possible, Concentration Value Purity Adjusted is retained
<b>CT</b>	Conc Units Preferred	Standard unit (All aquatic organisms: mg a.i./L; All terrestrial vertebrates: mg a.i./kg-bw, mg a.i./kg(food), lb a.i./A; Terrestrial plants: lb a.i./A; Terrestrial invertebrates: mg a.i./kg-bw, mg a.i./kg(food), mg/kg-soil, lb a.i./A, ug a.i./bee (honey bees and other bees)) when possible. If not possible, original units are retained
<b>CU</b>	pH	pH
<b>CV</b>	Hardness	Hardness value for the test system
<b>CW</b>	Hardness Unit	Hardness Unit
<b>CX</b>	Organic Matter Value	Organic Matter value for the test system
<b>CY</b>	Organic Matter Unit	Organic Matter Unit
<b>CZ</b>	Organic Matter Type	The type of Organic Matter in the test system
<b>DA</b>	Ref #	Internal Reference Number assigned by ECOTOX/EFED to Reference
<b>DB</b>	Author	Author of the Reference
<b>DC</b>	Title	Title of the Reference
<b>DE</b>	Source	Citation of the Reference
<b>DF</b>	Publication Year	Publication year of the Reference
<b>DG</b>	Comments	Additional comments made during the review of the paper into the EFED system. These include chemical, species, experimental design, and other effects that do not have an explicit data field in the EFED system.



## APPENDIX C: EFED REPORT LOGIC STANDARDIZED CONCENTRATIONS

### EFED Report concentration conversion logic

Thursday, April 21, 2016

This logic is derived from the Responses received from EFED (Kris Garber) in March 2016.

#### Purity and Ion adjustments

##### Purity

Adjustments by the Purity are made for the following conditions.

- a. Chemical Analysis Method is not Measured (U or NR)
- b. Concentration Type is not 'A' = active part (F, T, D, L, or U)
- c. Ion code is NR

The author reported concentration is multiplied by the purity percentage. If 'NR' is entered, the purity is assumed to be 100%. For example, the purity is 65%. If the concentration was 100 ug/g, the purity adjusted concentration would be 65 ug/g.

##### Ion

Adjustment for Ion is made if Ion code is NR.

The author reported concentration is multiplied by the Ion percent of the total compound, e.g. Hg is 80% of Methylmercury chloride. If the concentration was 100 ug/g, the ion adjusted concentration would be 80 ug/g. If this concentration is in a molar unit, the concentration is adjusted for the ion molar weight, not the tested compound molar weight.

Note that ions could have a double adjustment first for Purity, then for Ion. For example, Caspan (a methylmercury chloride product) has a purity is 65%. If the concentration was 100 ug/g, the purity adjusted concentration would be 65 ug/g. Then adjusting for the mercury ion, 80% of the total compound, the final adjusted concentration would be 51.9 ug/g.

#### Conversions by Species Group and Exposure Type

##### 1. Aquatic taxa, the standard unit requested by EFED is a.i. mg/L.

- If the Exposure Type is via the water (both lab and field)(AQUA or ENV group codes and NOT I, D)
  - Convert to ai mg/L, if not possible, no conversion
- If the Exposure Type is via Oral, Gavage or Injection (OR, GV, I or INJECT group codes),
  - Convert to a.i. mg/kg bdwt
  - If the unit contains 'food', 'fd' or 'diet', then convert to a.i. mg/kg food

- If the Exposure Type is Diet (D, DT, or FD),
  - Convert to AI mg/kg food
  - If the unit contains 'bdwt', 'bw', 'body wt', 'bwt' recalculate to mg/kg bdwt
- If the exposure is via drinking water (DR)
  - Convert to ai mg/L
  - If the unit contains 'bdwt', 'bw', 'body wt', 'bwt' recalculate to mg/kg bdwt
- If the exposure Type is Choice, Gestation, Topical or Lactation (C, CH, GE, or LC or TOP group),
  - No conversion
- Molar units
  - Convert to AI mg/L.

**2. Terrestrial Plants, the standard unit requested by EFED is a.i. lb/acre.**

- If the units can be converted to a.i. lb/acre (check if ozacre factor valued)
  - Convert to a.i. lb/acre.
- If units cannot be converted to a.i. lb/acre (check if ozacre factor NOT valued)
  - leave as the author reports

**3. Terrestrial Vertebrates, the standard units requested by EFED are a.i. mg/kg bdwt, a.i. mg/kg food or a.i. lb/acre.**

Lab and Field Exposures

- If the Exposure Type is via Oral, Gavage or Injection (OR, GV or INJECT group codes),
  - Convert to a.i. mg/kg bdwt
  - If the unit contains 'food', 'fd' or 'diet', then convert to mg/kg food
- If the Exposure Type is Diet (DT, or FD),
  - Convert to AI mg/kg food
  - If the unit contains 'bdwt', 'bw', 'body wt', 'bwt' recalculate to mg/kg bdwt
- If the exposure is via drinking water (DR)
  - Convert to ai mg/L
  - If the unit contains 'bdwt', 'bw', 'body wt', 'bwt' recalculate to mg/kg bdwt
- If the exposure Type is Choice, Topical or Environmental (CH, LC, GE, TOP group, ENV Group)
  - No conversion
- Molar Units
  - No conversion

Field Exposures

- If a field exposure (Field N, Field A, Field U) and can be converted to AI lb/acre (check if ozacre factor valued)
  - Convert to AI lb/acre,

- If a field exposure (Field N, Field A, Field U) and units cannot be converted to a.i. lb/acre (check if ozacre factor NOT valued)
  - No conversion

**4. Terrestrial Invertebrates, the standard units requested by EFED are a.i. mg/kg bdwt, a.i. mg/kg food, a.i. mg/kg soil or a.i. lb/acre.**

Lab and Field Exposures

- If the Exposure Type is via Oral, Gavage or Injection (OR, GV or INJECT group codes),
  - Convert to a.i. mg/kg bdwt
  - If the unit contains 'food', 'fd' or 'diet', then convert to mg/kg food
- If the Exposure Type is Diet (DT, or FD),
  - Convert to AI mg/kg food
  - If the unit contains 'bdwt', 'bw', 'body wt', 'bwt' recalculate to mg/kg bdwt
- If the exposure is via drinking water (DR)
  - Convert to ai mg/L
  - If the unit contains 'bdwt', 'bw', 'body wt', 'bwt' recalculate to mg/kg bdwt
- *If the exposure Type is Choice, Topical or Environmental (CH, LC, GE, TOP group, ENV Group)*
  - *If the unit contains 'soil', 'media', recalculate to mg/kg soil*
  - *Else, No conversion*
- Molar units
  - No conversion

Field Exposures

- If a field exposure (Field N, Field A, Field U) and can be converted to AI lb/acre (check if ozacre factor valued)
  - Convert to AI lb/acre
- If a field exposure (Field N, Field A, Field U) and units cannot be converted to a.i. lb/acre (check if ozacre factor NOT valued)
  - No conversion

**5. For Hymenoptera, the standard units requested by EFED are a.i. ug/org or a.i. ug/g bdwt **Note: that ug/g conversion is the same as mg/kg conversion, just update the unit to ug/g.****

Lab and Field Exposures

- If the Exposure Type is Diet (DT, or FD),
  - Convert to AI ug/g food
    - If the unit contains 'bdwt', 'bw', 'body wt', 'bwt' recalculate to mg/kg bdwt
    - If the unit contains '/org' or '/bee' convert to ug/org

- If the exposure is via drinking water (DR)
  - Convert to ai mg/L
    - If the unit contains 'bdwt', 'bw', 'body wt', 'bwt' recalculate to mg/kg bdwt
    - If the unit contains 'org' or 'bee' convert to ug/g org
- If the exposure Type is Choice or Environmental (CH, LC, GE, ENV Group)
  - No conversion
- If the exposure Type is Topical (TOP group)
  - Convert to ug/g org
- Molar units
  - No conversion

#### Field Exposures

- If a field exposure (Field N, Field A, Field U) and can be converted to AI lb/acre (check if ozacre factor valued)
  - Convert to AI lb/acre,
- If a field exposure (Field N, Field A, Field U) and units cannot be converted to a.i. lb/acre (check if ozacre factor NOT valued)
  - No conversion

#### 6. Terrestrial Fungi, the standard unit requested by EFED, None requested.

- If the units can be converted to a.i. lb/acre (check if ozacre factor valued)
  - Convert to a.i.lb/acre.
- If units cannot be converted to a.i. lb/acre (check if ozacre factor NOT valued)
  - leave as the author reports



## APPENDIX D: EFED REPORT INITIAL DATA QA

1. Choose upcoming chemical (typically ~3mo from due date).
2. Create New Report in UNIFY
  - a. Manage EFED/Skim by Chemical Reports tab.
    - i. Create new report by selecting the green plus area within the 'Reports in Selected Group' tab.
    - ii. Choose your chemical of interest and select the EFED checkbox. Leave the Refresh box unchecked to eliminate confusion with the existing report.
    - iii. Select all COC's in report group. This information can be found in the ECOTOX Schedule for EFED Pesticides.docx. Use the Start Date 01/01/1900. The End Date will be the date the chemical is due.
    - iv. Select submit. The report is now created.

The screenshot displays the UNIFY system interface for creating a new EFED report. On the left is a sidebar with navigation options: Import Refs, Upload ISSNs, Add Reference, Search Refs, Ref To Order QA, Recall Refs, Order Refs, Process Refs, Receive Refs, Assign Refs, QA N/A Refs, Return Refs, MED File Refs, Tag Refs, EFED/Skim by Chemical Reports, Manage Authors, Manage Journals, Manage Sources, Manage Batches, Manage Dups, and Manage EFED/Skim by Chemical Reports. The main panel shows two tabs: 'EFED Report Groups: (Click to View Reports In Group)' and 'Reports in Selected Group: (Click to View COCs In Report)'. The 'EFED Report Groups' tab lists various report groups with their due dates, with 'June 1, 2016 (06/01/2016)' selected. The 'Reports in Selected Group' tab shows a list of COCs, with 'EFED Flumioxazin REFRESH' selected. A dialog box titled 'Reports in Selected Group: (Click to View COCs In Report)' is open, showing the 'Main Report' as 'Flumioxazin', 'Refresh' as unchecked, and 'EFED' as checked. Below this, another dialog box titled 'Reports in Selected Group: (Click to View COCs In Report)' shows the 'COC' as 'FMX', 'Start Date' as '01/01/1900', and 'End Date' as '06/01/2016'. A 'submit' button is visible at the bottom right of the dialog.

3. Choose the **EFED/Skim by Chemical Reports** tab in the UNIFY side bar.

- a. Expand the pane that your newly created report has been placed.
- b. Run your newly created report.
- c. Notice the Report Name as well as the code dates. Choose the report that matches the information set up in step 2.
  - i. Running the report ensures that references associated with the selected COC's are accounted for and displayed in the excel file we will generate in the next step.

> Assign Refs > QA N/A Refs > Return Refs > MED File Refs > Tag Refs > EFED/Skim by Chemical Reports > Messages Authors		Collapse June 1, 2016			
		Last Run	Report Name	Codes	On Order/Recall
Deliver	Run		Flumioxazin	FMX (01/01/1900-06/01/2016)	
Deliver	Run	04/04/2016 at 08:25 PM	Not Acceptable	Reviewed (Acceptable)	
					EFED Report Old LiteEval Report
					View

#### 4. Select EFED Report.

- a. All CAS #'s associated with the selected COC's will be displayed. If any rows are displayed that do not have a chemical name assigned they should be forwarded to chemical verification staff for assignment before generating the report. UNIFY will not allow a user to generate a report until all errors are resolved.
- b. Once all COC's have names, select the appropriate report type
  - i. EFED Full Summary Report for Non-Metal toxicants
  - ii. EFED Full Summary Report (Multiple Conc Types and Temperatures) for Metals.
- c. Choose Excel as a Report Type and select Generate Report.
- d. Save the newly generated file in the folder corresponding to the contract, chemical, and report date.

In this case:

- i. N:\CSRA info\Database (offsite) Work Orders\SMAVCS3 2016 - Jan 2017\EFED\EFED Reports\June 2016\Flumioxazin\Flumioxazin Report QA

#### Flumioxazin - June 1, 2016

The following table represents the CAS Numbers and their corresponding Chem Name is present for any CAS Number, please select the CAS Number you would

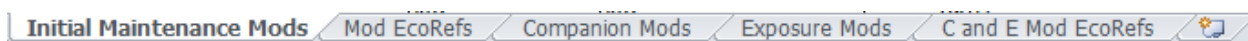
CAS Number	Chemical Name	Ion Molecular Weights	Start Date	End Date
103361097	<input checked="" type="checkbox"/> Flumioxazin	N/A	01/01/1900	06/01/2016

☒ EFED Full Summary Report  
☐ EFED Full Summary Report (Multiple Conc Types and Temperature)  
☐ EFED Full Summary (OW/TRV Report Excel Format)

Report Type:

#### 5. Initial QA Concerns

- a. QA is concerned with updating coding completed prior to Unify. QA is focused on the following data fields (elimination of the Code 'NC' and coding agreement between data fields)
  - i. Chemical Grade
  - ii. Chemical Formulation
  - iii. % Purity
  - iv. Conc Type
  - v. Chemical Analysis Method
  - vi. Conc Units Author Reported
  - vii. Diet and Oral exposures appropriately assigned (for conversion)
  - viii. NC exposure types
- b. Ensure all of the above columns are in agreement with one another based on current coding paradigm, e.g. Conc Type = A if Grade is T (technical).
  - i. Request an update to all NC and blank cells.  
 Note: Purity reported as 100% in the spreadsheet can result from NR or NC in UNIFY as well as 100% actually being reported.
  - ii. Create a new tab titled 'Mod EcoRefs' and populate it with changes to be made. Forward the spreadsheet to Mod staff for updating.



- c. Assign companion endpoints.
  - i. Use the comment 'Only Conc Tested', Test ID, and Result ID to identify potential records from assigning companion endpoints.
6. Send email with records to be processed

E-mail Format Example:

---

SUBJECT: EFED Purity/Formulation/Grade Mods -- WO001 - Fipronil  
Chris-

Here are the steps to take for updating the Fipronil records. N:\CSRA info\Database (offsite) Work Orders\SMACVCS3 2016 - Jan 2017\EFED\EFED Reports\May 2016\Fipronil\Fipronil Report QA\Fipronil Report QA.xls.

The records that need modifications are on the NC mods tab. Please modify the following fields in Unify for all chemicals, Chemical Grade, Purity, Formulation and Radiolabel.

1. Locate the pdf.
2. Open unify and search for the reference number
3. Open the excel file to see if all or part of the records need to be modified.
4. Print the Coding sheets for the records to be modified.

5. Note the location of the paper (e.g. filed at EPA) so the paper can be returned to the correct status.
6. Check the paper out to you in Data Maintenance status.
7. Locate the chemical information in the paper
  - a. Grades usually use the term grade, e.g. Pharmaceutical Grade, but it is common to see Technical and Analytical without the term grade. These codes are located in Appendix B of the ECOTOX Code Appendix at N:\ECOTOX SOPs\REVIEW\ECOTOX Appendices\ECOTOX CODES APPENDIX\_draft.docx
 

\*\*\*\*If you find a chemical grade, Also updated the concentration type to A (unless only T,D,L conc types allowed) on the Test Information Tab.
  - b. Formulations are letter codes that follow a chemical name or may be described in the text. These codes are located in Appendix C of the ECOTOX Code Appendix at N:\ECOTOX SOPs\REVIEW\ECOTOX Appendices\ECOTOX CODES APPENDIX\_draft.docx
  - c. Update the Purity field if a percent is noted or if there is a number followed by WP for the chemical name.
  - d. Radiolabel is rare, so these will usually be NR. The common radiolabel codes used in text are located in Appendix D of the ECOTOX Code Appendix at N:\ECOTOX SOPs\REVIEW\ECOTOX Appendices\ECOTOX CODES APPENDIX\_draft.docx
8. Print and highlight the front page and page(s) where you located the information
9. Mark up coding sheet with changes
10. Make edits in Unity on the Chemical Information Tab, be sure to save.

If you have any questions, feel free to ask either Travis or me. Travis will be taking over this task in the future.

Thanks.

---

Subject: EFED Paraquat dichloride -WO01- Concentration Type Mods

Chris-

Please find the following spreadsheet: Paraquat dichloride QA.xlsx  
 N:\CSRA info\Database (offsite) Work Orders\SMACVCS3 2016 - Jan 2017\EFED\EFED Reports\July 2016\Paraquat dichloride\Paraquat dichloride QA

The records that need modifications are on the 'Initial Maintenance Mods' tab. Please modify the following field in Unify: Conc Type (highlighted in red in the spreadsheet).

Here are the steps to take for updating the Paraquat dichloride records.

1. Locate the pdf.
2. Open unify and search for the reference number
3. Open the excel file to see if all or part of the records need to be modified.
4. Print the Coding sheets for the records to be modified.
5. Note the location of the paper (e.g. filed at EPA) so the paper can be returned to the correct status.
6. Check the paper out to you in Data Maintenance status.
7. Locate the chemical information in the paper.

**\*\*Rules summarized from the ECOTOX CODES APPENDIX.doc\*\***

-If the chemical grade anything other than NR the conc type should be 'A'. If the chemical purity is  $\geq 80$  the conc type should be 'A'. If the formulation is CP, CRP, or PF the conc type should be 'A'. If none of these conditions is met, code the conc type as 'F'.

8. Print and highlight the front page and page(s) where you located the information
9. Mark up coding sheet with changes
10. Make edits in Unity on the Chemical Information Tab, be sure to save.

If you have any questions, feel free to ask me.

Thanks.










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Email for companion endpoints and updated exposure type.

---

**Subject:** EFED Methiocarb (MCB) Initial Report Maintenance QA

---

Calibri 10 **B** **I** **U**      **A**    

The Methiocarb Report QA spreadsheet located at: N:\CSRA info\Database (offsite) Work Orders\SMAVCS3 2016 - Jan 2017\EFED\EFED Reports\June 2016\Methiocarb\Methiocarb Report QA

is ready for your QA. Twelve references have been updated with the correct exposure type.

Result summary printouts and pdf's have been placed in your inbox.

Travis Karschnik  
ECOTOX Support, EPA SMAVCS3 Contract  
CSGov LLC, A CSRA Company

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- 
7. QA changes
  8. Update documentation
  9. Associated documentation:
    - a. N:\CSRA info\Database (offsite) Work Orders\SMAVCS3 2016 - Jan 2017\EFED\EFED Dose Conversion Logic

## Example EFED Report

(Double click within the table to scroll and view entire report in \*.doc format)

CAS Number	Chemical Name	Is Chemical Also	Chemical Grade	Chemical Formulation	% Purity	Conc Type
131341861	Fludioxonil	NO	T	PO	97.5	A
131341861	Fludioxonil	NO	T	NR	100	A
131341861	Fludioxonil	NO	NR	AI	25	F
131341861	Fludioxonil	NO	NR	C	100	A

## RELATED SOPS

Documentation related to EFED

- UNIFY Data Fields and Codes
- ECOTOX Literature Searches, Citation Identification and Skimming
- ECOTOX Literature Acquisition and Paper Processing
- EFED Coding Guidelines
- ECOTOX Chemical Verification and Entry Procedure
- EFED Chemical Verification, Literature Searching and Application of EFED Criteria
- SOPPhaselandII.wpd.docx
- Supplemental ECOTOX Guidance\_01-21-10.doc