Environmental Information Exchange Network

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CAER RESEARCH AND DEVELOPMENT PROJECTS

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Abstract

The Combined Air Emission Reporting (CAER) project is starting an implementation phase, with a Product Design Team composed of representatives from emissions programs at state, local, tribal (SLT) agencies and the EPA, managing a series of research and development (R&D) projects. This presentation introduces the new work on these R&D projects and describes how they support proposed CAER future state. This presentation will also describe in more detail one example of a prior collaborative project to improve access to, and search and management of, Source Classification Codes (SCC) data used to identify emissions processes in a standardized manner.

Product Design Team (PDT)

- 12 member team made up of SLTs, EPA and Environmental Council of States (ECOS) program staff
- Includes observers from National Association of Clean Air Agencies (NACAA), Association of Air Pollution Control Agencies (AAPCA), E-Enterprise
- PDT meeting weekly since Oct. 2016 to design and manage ‘first round’ of R&D projects
  - Key consideration is that the project support the CAER project objectives
  - General scope and product defined for each project

PDT Process and Role

- PDT uses an iterative process of R&D project identification, design and prioritization for future rounds of R&D projects
- PDT also investigating the programmatic scope and requirements for a potential full-scale pilot project involving a ‘common emission form’ approach for a shared emissions reporting platform

Research and Development Teams

- Research and Development (R&D) Teams are formed around each project identified by the PDT
  - Purpose is to accomplish a discrete piece of work initiated by the PDT
  - Small number of experts (3-5) convened in a relatively short period of time (3 to 5 months) to solve a very specific problem related to CAER implementation
  - Team consists of SLT and EPA program staff with topic expertise
  - Form and function of each team is left for members to establish
  - Regular reporting to PDT

Research and Development Teams, continued

- Five “first round” R&D project teams formed at end of 2016 and projects began in early 2017
- Targeting June 2017 timeframe for completion of ‘first round’ projects

PDT “First Round” R&D Projects

- The 5 R&D Projects are:
  - QA/QC
  - GHG Emissions Mapping Study
  - TRI/NEI/SLT Program Crosswalk
  - Emissions Data Design
  - SCC/Emission Factors

QA/QC

Purpose-Identify and evaluate of a common set of emissions data QA/QC procedures for shared emission reporting.

Products-

- Compiled list of existing QA/QC procedures included in EPA and SLT programs
- Survey sent to SLTs to review QA/QC list and include additional checks
- Evaluate the potential for automating QA/QC checks

This project will identify a common set of QA/QC procedures that can be implemented/utilized through a shared electronic service by SLTs and EPA as part of a common emissions reporting system.

GHG Emissions Mapping Study

Purpose-Pilot study to map emission data in the EPA's national Greenhouse Gas Reporting Rule (GHGRP) to example state greenhouse gas reporting program(s).

Products-

- A complete mapping of emissions from facilities that are subject to both national and the state GHGRP programs under the specified sectors for the pilot states.
- A document that specifies procedures for mapping the national GHGRP to state GHGRP programs at a sector level.

These products will inform the final CAER product of GHG emissions data available in multiple programs.

TRI/NEI/SLT Program Crosswalk

Purpose-Research consistency and possible workflows for sharing of emissions data between TRI, SLTs and NEI -- Phase 1

Products-

- A cross walk for chemicals between TRI and NEI, and vice versa
- Survey of SLTs that incorporate TRI data into their state programs
- Document identifying differences in terminology and reporting requirements

This project will develop a uniform procedure for the mapping of pollutant codes across programs for use in a common emission reporting system as part of CAER's future state.

Emissions Data Design

Purpose-Establish and document a data model with basic core set of emissions-related data elements to support reporting through a common emissions form (CEF).

Products-

- List of common emissions-related data elements from SLT programs as well as GHG, CEDRI and TRI and the relationships between data elements.
- Survey of SLTs that identifies the additional emissions-related data elements

This project will concentrate on the data fields needed across programs to develop a common emission reporting form as envisioned in the CAER.

SCC/Emission Factors

Purpose-Scoping study for identifying problems and solutions with SCCs and WebFIRE that will meet SLT, NEI, NATA, and CEDRI/ERT requirements under the CAER project.

Product-

- Survey form for SLTs that will identify the issues and challenges in the current SCC and WebFIRE systems that SLT, NEI, and CEDRI/ERT/WebFIRE programs are facing.
- Prepare a document outlining the results of the survey and prioritize suggestions for standardizing the SCC and WebFIRE systems.

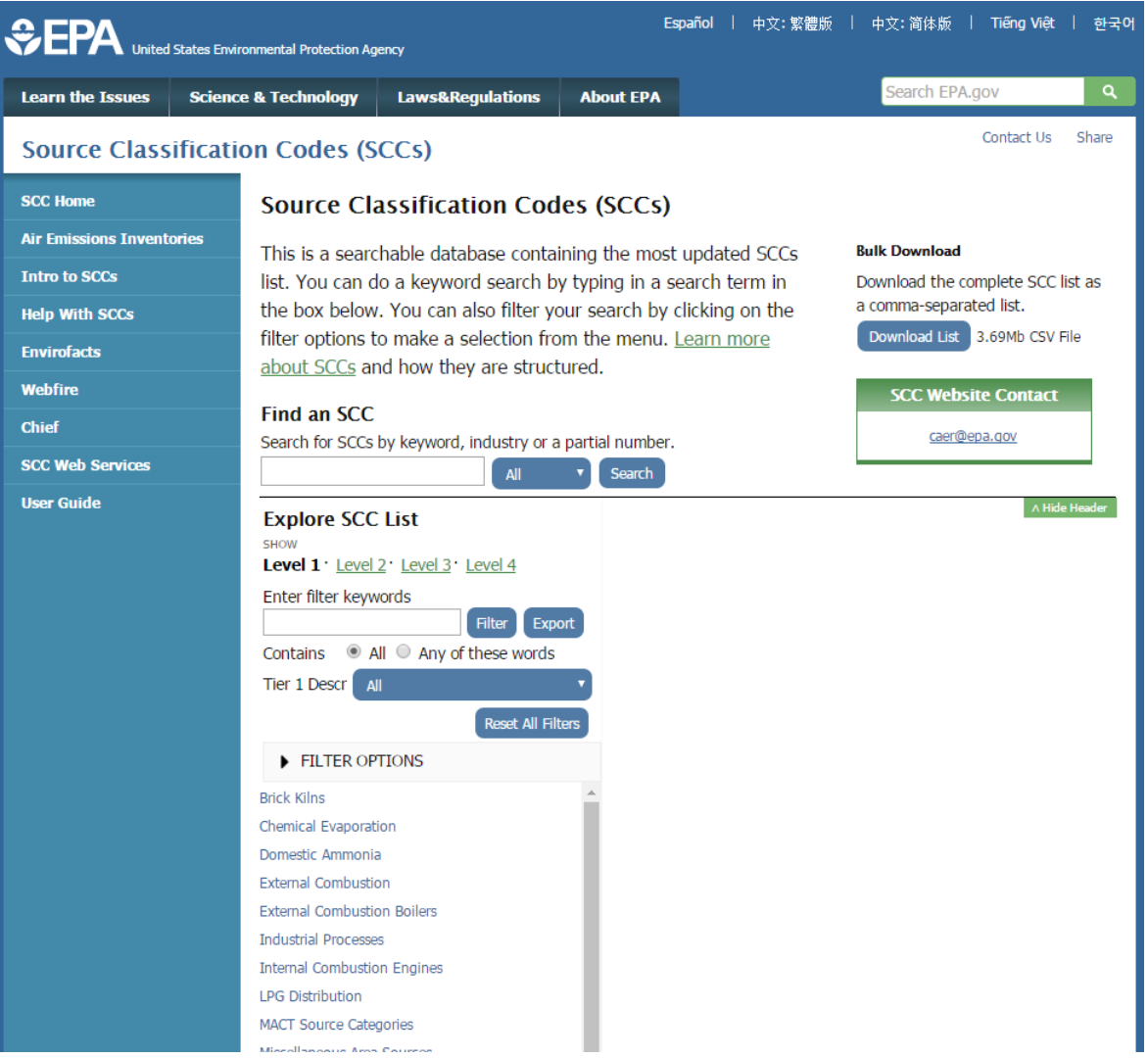
This project will summarize the issues and challenges in the current SCC system and provide suggestions for standardizing the SCC and WebFIRE system to better support the “future state” of CAER.

SCC Tool and Web Service Project

- Source Classification Codes (SCC) are used to define different types of activities that generate emissions
  - Used by SLTs and EPA to develop and collection emissions estimates
- Project Objective: Provide up-to-date SCC list at a publically accessible web page or through a shared web service
- Migrated SCC list to EPA's code set management tool
  - Centrally managed
  - Served out to partners' data systems via web service
- Developed a web search page that allows a user to easily find codes

Other Examples of Code Set Management as a Shared Service

- TRIBES: the current list of federally recognized tribes
- NAICS: the current list of North American Industrial Classification System codes (used to identify industrial processes). Historical lists are also available.
- Pesticides SmartLabel: centrally-managed pick lists for Pesticide label building applications

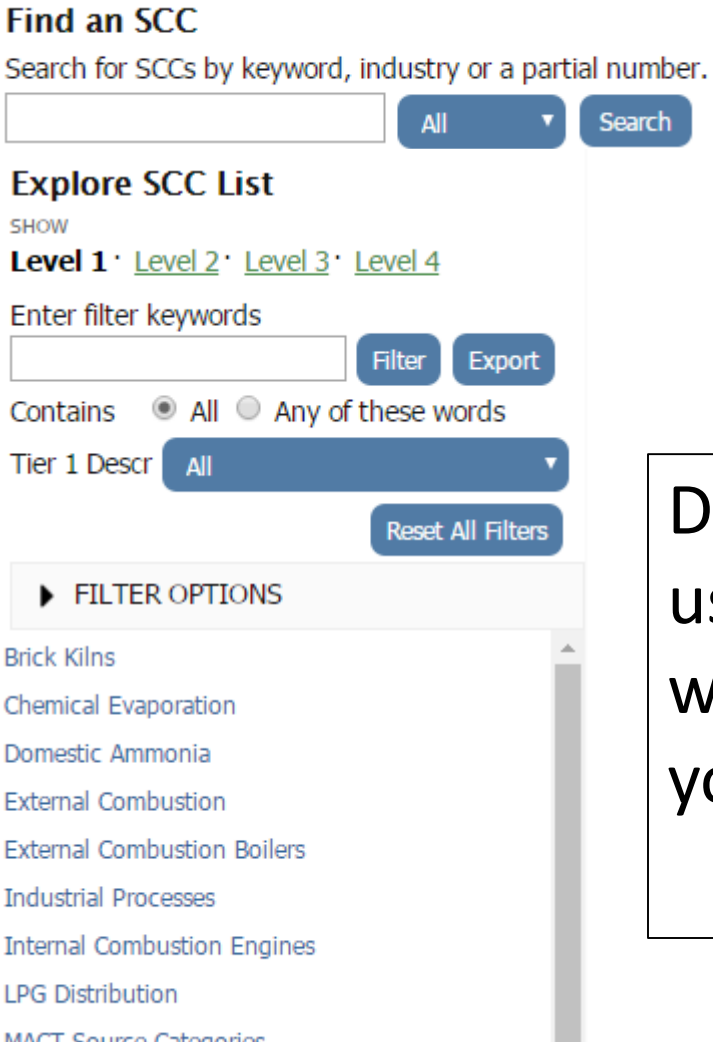


SCC Web Search

www.epa.gov/scc

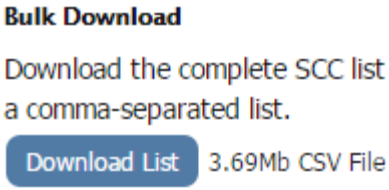
Search by keyword, industry, or a partial number

Download whole list, or export search results



Search for code you need using keyword, industry, or partial number

Drill-down using multiple ways to find your SCC



Download complete list of SCCs

Find an SCC

Search for SCCs by keyword, industry or a partial number.

oil kiln | All | Search

Want to *Explore* the SCC list instead? Explore SCC List

Facet Name	Type	Count
Induration: Grate/**Kiln**, Coal & **Oil**-fired, Acid Pellets	SCC Level Four	1
Induration: Grate/**Kiln**, Coal & **Oil**-fired, Flux Pellets	SCC Level Four	1
Induration: Grate/**Kiln**, Gas & **Oil**-fired, Acid Pellets	SCC Level Four	1
Induration: Grate/**Kiln**, Gas & **Oil**-fired, Flux Pellets	SCC Level Four	1
Other **Kiln**: **Oil** Fired	SCC Level Four	1
Periodic **Kiln**: **Oil**-fired	SCC Level Four	1
Presinter Thermal Processing: Fuel **Oil**-fired **Kiln**	SCC Level Four	1
Roller **Kiln**: Fuel **Oil**-fired	SCC Level Four	1
Shuttle **Kiln**: Fuel **Oil**-fired	SCC Level Four	1
Tunnel **Kiln**: Fuel **Oil**-fired	SCC Level Four	1
Tunnel **Kiln**: **Oil**-fired	SCC Level Four	1

Keyword search by “oil kiln”

“Periodic Kiln: Oil-fired” details page

∧ Hide Header

Level 4 Detail

SCCLevel 1		SCCLevel 2		SCCLevel 3
Industrial Processes	>	**Mineral Products**	>	**Brick and Structural Clay Products Manufacture**

Periodic Kiln: Oil-fired [30500315]

SCC CODE	30500315
STATUS	Active
MAP TO	
LAST INVENTORY YEAR	
DATA CATEGORY	Point
DESCRIPTION	
SHORT NAME	
SECTOR	Industrial Processes - NEC
USAGE NOTES	
LAST UPDATED	11/21/2016
TIER 1	Other Industrial Processes
TIER 2	Mineral Products
TIER 3	Other

Explore SCC List

SHOW

Level 1 · Level 2 · Level 3 · Level 4

Enter filter keywords

Filter Export

Contains (•) All ( ) Any of these words

Tier 1 Descr All

Reset All Filters

▸ FILTER OPTIONS

- Brick Kilns
- Chemical Evaporation
- Domestic Ammonia
- External Combustion
- External Combustion Boilers
- Industrial Processes
- Internal Combustion Engines
- LPG Distribution
- MACT Source Categories
  - Agricultural Chemicals Production
  - Cellulose-based Resins
  - Consumer Product Manufacturing Facilities
  - Fibers Production Processes
  - Food and Agricultural Processes
  - Inorganic Chemicals Manufacturing

∧ Hide Header

Level 1 Detail

MACT Source Categories

LEVEL 2 SUB-CODES

- Agricultural Chemicals Production
- Cellulose-based Resins
- Consumer Product Manufacturing Facilities
- Fibers Production Processes
- Food and Agricultural Processes
- Inorganic Chemicals Manufacturing
- Miscellaneous Polymers
- Miscellaneous Processes
- Miscellaneous Processes (Chemicals)
- Miscellaneous Resins
- Styrene or Methacrylate Based Resins
- Vinyl-based Resins

Explore SCC List

SHOW

Level 1 · Level 2 · Level 3 · Level 4

Enter filter keywords

Filter Export

Contains All Any of these words

Tier 1 Descr All

Reset All Filters

FILTER OPTIONS

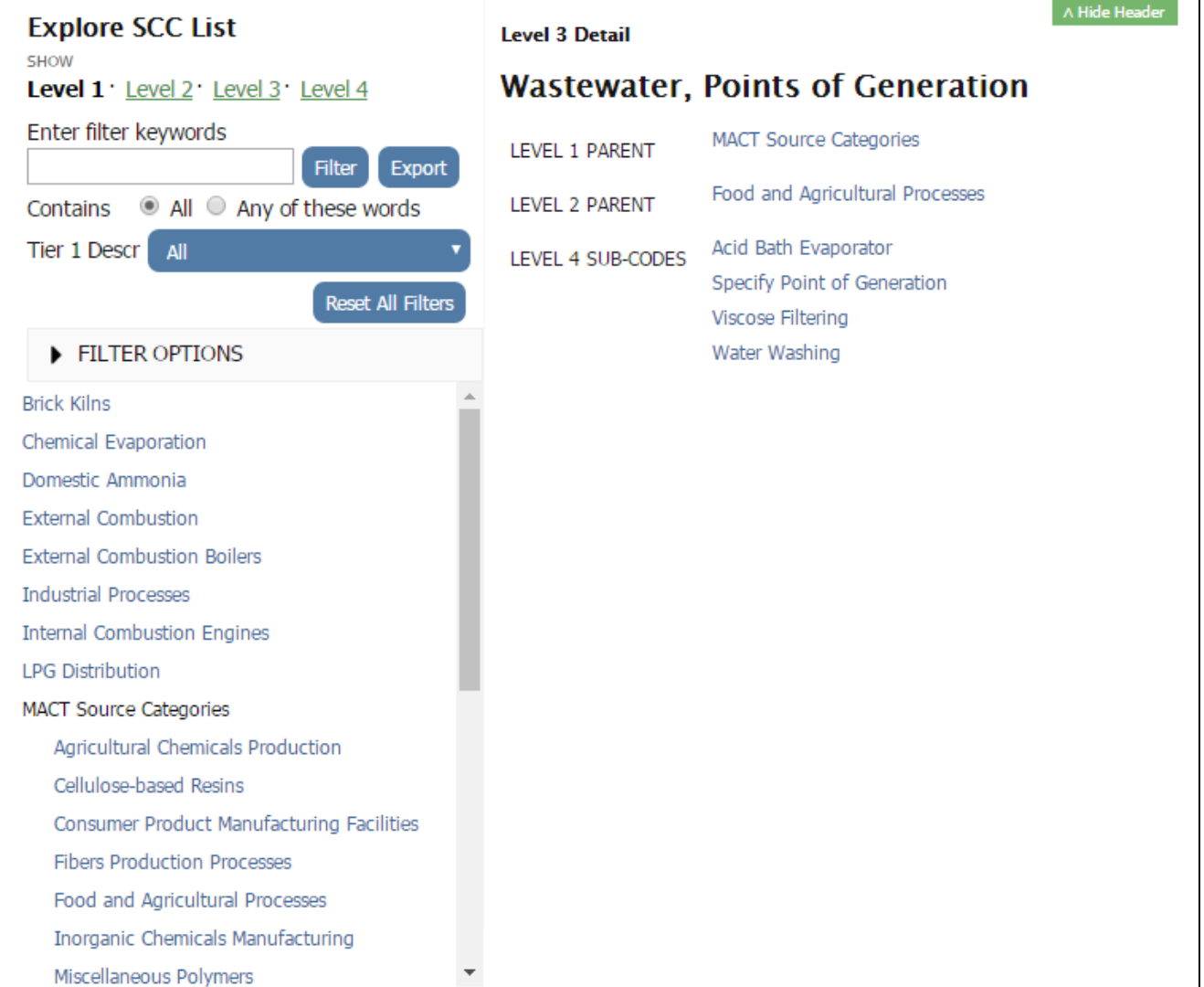
- Brick Kilns
- Chemical Evaporation
- Domestic Ammonia
- External Combustion
- External Combustion Boilers
- Industrial Processes
- Internal Combustion Engines
- LPG Distribution
- MACT Source Categories
  - Agricultural Chemicals Production
  - Cellulose-based Resins
  - Consumer Product Manufacturing Facilities
  - Fibers Production Processes
  - Food and Agricultural Processes
  - Inorganic Chemicals Manufacturing

Hide Header

Level 2 Detail

Food and Agricultural Processes

LEVEL 1 PARENT	MACT Source Categories
LEVEL 3 SUB-CODES	Cellulose Food Casing Manufacture
	Equipment Leaks
	Wastewater, Aggregate
	Wastewater, Points of Generation


Explore SCC List
SHOW
Level 1 · Level 2 · Level 3 · Level 4
Enter filter keywords
Filter
Export
Contains All Any of these words
Tier 1 Descr
All
Reset All Filters
FILTER OPTIONS
Brick Kilns
Chemical Evaporation
Domestic Ammonia
External Combustion
External Combustion Boilers
Industrial Processes
Internal Combustion Engines
LPG Distribution
MACT Source Categories
Agricultural Chemicals Production
Cellulose-based Resins
Consumer Product Manufacturing Facilities
Fibers Production Processes
Food and Agricultural Processes
Inorganic Chemicals Manufacturing
Miscellaneous Polymers
Hide Header
Level 3 Detail
Wastewater, Points of Generation
LEVEL 1 PARENT
MACT Source Categories
LEVEL 2 PARENT
Food and Agricultural Processes
LEVEL 4 SUB-CODES
Acid Bath Evaporator
Specify Point of Generation
Viscose Filtering
Water Washing

Explore SCC List

SHOW

Level 1 · Level 2 · Level 3 · Level 4

Enter filter keywords

Filter Export

Contains All Any of these words

Tier 1 Descr All

Reset All Filters

FILTER OPTIONS

- Brick Kilns
- Chemical Evaporation
- Domestic Ammonia
- External Combustion
- External Combustion Boilers
- Industrial Processes
- Internal Combustion Engines
- LPG Distribution
- MACT Source Categories
  - Agricultural Chemicals Production
  - Cellulose-based Resins
  - Consumer Product Manufacturing Facilities
  - Fibers Production Processes
  - Food and Agricultural Processes
  - Inorganic Chemicals Manufacturing
  - Miscellaneous Polymers

Hide Header

Level 4 Detail

SCCLevel 1		SCCLevel 2		SCCLevel 3
MACT Source Categories	>	**Food and Agricultural Processes**	>	**Wastewater, Points of Generation**

Acid Bath Evaporator [62582503]

SCC CODE	62582503
STATUS	Active
MAP TO	
LAST INVENTORY YEAR	
DATA CATEGORY	Point
DESCRIPTION	
SHORT NAME	
SECTOR	Industrial Processes - NEC
USAGE NOTES	
LAST UPDATED	3/20/2012
TIER 1	Waste Disposal & Recycling
TIER 2	Industrial Waste Water
TIER 3	Other

SCC Web Services

The SCC Web Services provides an interface to the terms and descriptions that are related to Source Classification Codes (SCC) found in the Terminology Services (TS) registry.

The web services provided allow searching for SCCs by name or facet, as well as querying an SCC by its code. JSON, XML, or CSV output is returned.

Query Services

Search SCCs by Facet

```
GET /SCC
```

Summary

This service queries SCCs by one or more facet. When searching a facet, all four facet parameters (facetName[], facetValue[], facetQualifier[], facetMatchType[]) must be supplied.

Parameters

Name	Description
facetName[]	The name of the facet to search. Multiple facet names may be passed, separated by the pipe (|) character. Possible facet names include: Activity Value Required?, Code, Data Category, ERT Valid, History, Last Updated Date, SCC Level Four, SCC Level One, SCC Level Three, SCC Level Two, Sector, Status, Tier 1 Code, Tier 1 Description, Tier 2 Code, Tier 2 Description, Tier 3 Code, Tier 3 Description
facetValue[]	The value to search for the specified facetName. Multiple values may be passed, separated by the pipe (|) character.
facetQualifier[]	The qualifier to use when searching the specified facetName. Possible values: contains, begins, exact. If omitted, contains is used by default.
facetMatchType[]	The type of match to perform when searching. Possible values: all_words, any_word, whole_phrase. If omitted, all_words is used by default.
sortFacet	The facet to sort results by. If omitted, the results are sorted by code.

https://ofmpub.epa.gov:443/sccwebservices/v1/SCC/2303020000

URL to call details for SCC code

Results Sample


```
{
   "code":"2303020000",
   "attributes":{
      "Tier 3 Description":"Primary",
      "Activity Value Required?":"No",
      "Tier 3 Code":"01",
      "Sector":"Industrial Processes - Ferrous Metals",
      "Tier 2 Code":"02",
      "SCC Level Four":"Total",
      "Tier 1 Description":"Metals Processing",
      "SCC Level One":"Industrial Processes",
      "Status":"Active",
      "Tier 2 Description":"Ferrous Metals Processing",
      "Data Category":"Nonpoint",
      "Last Updated Date":"3/14/2012",
      "SCC Level Two":"Primary Metal Production: SIC 33",
      "Tier 1 Code":"05",
      "SCC Level Three":"Iron and Steel Foundries"
   }
}
```