Thought Starter on Reporting in Categories

This is a thought starter piece to develop what Reporting in Categories could look like, specifically for inorganic byproducts that are recycled, reprocessed, or reused. This version is based on discussions and comments from the Negotiating Committee Categories Workgroup, for further discussions by the Negotiating Committee during the September 13-14, 2017, meeting.

1) **Requirements for reporting in categories**:
   a) In order to report in a category, must meet these criteria:
      - Inorganic chemical substance
        - Definition: Any chemical substance which does not contain carbon or contains carbon only in the form of carbonato [=CO3], cyano [-CN], cyanato- [-OCN], isocyano [-NC], or isocyanato [-NCOJ groups, or the chalcogen analogues of such. groups. (Definition from the IUR regulations 51FR113, 21447 June 12, 1986)
        - Note: organometallics are organic substances
      - Byproduct
        - Definition: *Byproduct* means a chemical substance produced without a separate commercial intent during the manufacture, processing, use, or disposal of another chemical substance(s) or mixture(s). (40 CFR 704.3, referenced by 40 CFR 711.3)
      - Recycled, reprocessed, or reused
        - From CDR FQs: For purposes of CDR, a manufactured chemical substance is being recycled, remanufactured, reprocessed, or reused when that substance or a component of a UVCB substance is recovered and reused. EPA generally expects that this data element would apply to many byproduct substances, but that product finishing, which does not involve removing a chemical substance from a waste stream, would not qualify as recycling for purposes of this data element. (source: TCSA CDR FQs https://www.epa.gov/chemical-data-reporting/2016-chemical-data-reporting-frequent-questions)
        - *Note:* RCRA states a material is recycled (for hazardous waste purposes) if it is used, reused, or reclaimed. In the same section (40 CFR 261.1(b)), there are definitions for when a material is "reclaimed" and "used or reused." I think the RCRA definition of reclaimed would include reprocessed.
   b) Can chose to report as listed on the Inventory

2) What are the Categories?

In the development of this list, we considered that the categories needed to provide sufficient characterization for EPA to use for initial prioritization efforts (e.g., chemical oriented, not process oriented)

Categories from TRI:

Antimony Compounds	Cobalt Compounds	Selenium Compounds
Arsenic Compounds	Copper Compounds	Silver Compounds
Barium Compounds	Lead Compounds	Thallium Compounds
Beryllium Compounds	Manganese Compounds	Vanadium Compounds
Cadmium Compounds	Mercury Compounds	Zinc Compounds
Chromium Compounds	Nickel Compounds	

Additional Categories suggested by Working Group members:

Aluminum Compounds	Molybdenum Compounds	Osmium Compounds
Calcium Compounds	Palladium Compounds	Sodium Compounds
Iridium Compounds	Platinum Compounds	Tellurium Compounds
Iron Compounds	Rhenium Compounds	Tin Compounds
Gold Compounds	Ruthenium Compounds	

Comments from EPA regarding the additions to the TRI categories: The categories should be more limited than are in this list. For example, substances such as calcium compounds or sodium compounds should not be included.

See Alternate Category Proposal, Appendix A

3) Exclusions from category reporting and EPA's ability to obtain information on specific chemicals.

a) Are there certain substances that should be excluded from category reporting and required to be reported as individual substances, as listed on the Inventory?
   i) Work Plan chemicals
   ii) TRI specifically listed chemicals
   iii) Substances that are the subject of certain TSCA actions (e.g., TSCA section 5(a)(2) SNURS, TSCA section 5(b)(4) rules, TSCA section 6 rules, etc.)

b) Build into the regulations the ability for EPA to obtain CDR information on a specific substance that may be reported within a category, in situations where the need for such information is identified (e.g., future prioritized chemicals). For example, have the ability to:
   i) Contact sites that reported under the category to determine if they were reporting for the particular chemical of interest and, if so, have them submit the CDR information specific to that substance (without waiting for the next CDR submission period).
   ii) If the whole category was identified to be of interest, enable EPA to contact the reporting sites to identify the specific chemical substance that was reported.
   iii) Build into the CDR ICR the ability to do these collections of information if the number of sites reporting to the category is greater than 9 sites. (9 sites or fewer don't require an ICR)

   Note: Comments from working group members:
   - This is critical to this approach. Use of the categories really should be contingent on EPA having the ability to get additional information in a timely and simple fashion if needed and this should be stipulated in the regulations.
   - What if EPA comes back to the byproduct manufacture that reported via category for more specific chemical component information at some point in the future? Specifically, if a company is tracking annual production volumes by category, but then is suddenly asked for volumes on the specific component – might be problematic

4) How do you report in the Categories?

a) First determine that you are qualified to report via category (e.g., inorganic byproduct that is being recycled, reprocessed, or reused).

b) Determine if you meet the reporting threshold. Here are two potential methods. *Are there others? What are the pros/cons of each of these methods?*

i) Method 1: Determine based on ***total*** volume of byproduct stream (This is similar to reporting for UVCB substances under CDR)

Example: Total volume of byproduct stream for the year is 80,000 lbs, which is above the reporting threshold of 25,000 lbs. The byproduct stream is comprised of compounds that fit into three of the categories. Report the appropriate volume (or %PV) for each category, as follows:

Silver Compounds	10%
Copper Compounds	85%
Zinc Compounds	5%

Note: Comments from working group member:

- This method seems to be straightforward and gets EPA more robust data vs option 2 – e.g. report all constituents.
- The entire quantity is byproduct, and the characteristics/constituents of the entire byproduct quantity should be reported.

Comment on reporting thresholds: Reporting thresholds should broadly reflect inherent toxicity of the group; e.g. 25,000 lbs is much too high a threshold for elemental mercury, which is inherently more hazardous than, for example, nickel compounds. (Note from EPA: A lower threshold of 2,500 lbs is used for substances that are the subject of certain TSCA actions)

ii) Method 2: Determine based on volume of amount to be reported in each category (This is similar to reporting under TRI, or reporting of mixtures under CDR)

Example: There is only one byproduct manufactured at the reporting site. The total volume of the byproduct stream is 95,000 lbs, and is comprised of compounds that fit into three of the categories. The apportioned volume for each category is as follows:

Silver Compounds	10,000 lbs
Copper Compounds	80,000 lbs
Zinc Compounds	5,000 lbs

Report only the Copper Compounds; the other categories are below the reporting threshold.

Note: Comments from working group members:

- Do not support this approach. “Reporter” would still need to calculate “volume” for each constituent so why not report it?

- Should treat a category just as you treat a single compound or chemical, ie provide a volume.

5) **Q&As** *(are there others that should be added here?) (note that the responses are under review within EPA, as is this whole document)*

- How does reporting in categories dovetail with the Inventory?
  - The categories will not be added to the Inventory, and there is no connection between reporting by categories for CDR purposes and the listing requirements of the Inventory.

- What do I do if my byproduct is comprised of substances from several categories?
  - Report for all appropriate categories, pro-rating the PV according to the metals weight ratios.

- My byproduct contains water. Do I include the water in my calculations, or remove it?
  - Whether you include water in your calculations depends upon whether your byproduct is considered a UVCB (i.e., is it listed on the Inventory as a UVCB substance) or a mixture. If it is a UVCB substance, then water is likely considered to be part of the UVCB and it would be included in your calculations. If your byproduct is a mixture, then you should exclude the water from your calculations. Water is fully exempted from reporting under CDR. If you don't know if your substance is a UVCB or a mixture, include it in your calculations.

- If you opt for the reporting by categories option, do you only report those categories that you know will be recycled, or do you have to report on all categories in the byproduct?

- My byproduct is a mixture of organic and inorganic substances. How do I report using this category approach?
  - You can only report the portion attributable to the inorganic substances using the category approach. You would treat your byproduct as a mixture, and report the organic portion as a separate substance (or substances), as listed on the Inventory.

- The byproduct contains a mixture of metal compounds whose ratios cannot be precisely determined. The weight of parent metal, however, is precisely known. Do reporters make their threshold determination based upon the weight of the parent metal, or is there some other calculation EPA will require reporters to use?
  - Answer TBD
  - Notes: In TRI, "parent metal" is the elemental metal. *Reporting threshold* is determined by estimating the weight of the entire compound (including the weight of substances in the compounds that aren't the parent metal). *Release reporting* (the release/waste management quantities that are reported to TRI) only includes the weights of the parent metal within the compounds of that category… Thus, potential TRI facilities would at least be estimating the weight of the entire compound (to determine whether or not they need to report).

This is codified in 40 CFR 372.25(h):

> (h) Metal compound categories are listed in §372.65(c). For purposes of determining whether any of the thresholds specified in §372.25, §372.27, or §372.28 are met for metal compound category, the owner or operator of a facility must make the threshold determination based on the total amount of all members of the metal compound category manufactured, processed, or used at the facility. In completing the release portion of the reporting form for releases of the metal compounds, the owner or operator is only required to account for the weight of the parent metal released. Any contribution to the mass of the release attributable to other portions of each compound in the category is excluded.

- How can the list of categories be changed?
  - Petition process? Other process? TBD

- Wouldn't reporting via categories will possibly skew the metal production volumes, which may push them up higher for prioritization and risk evaluation work?

Appendix A: Alternate Proposals

Category names

1. Categories based on process:

- Slimes and sludges/residues, PGM refining
- Wastewater, PGM refining
- Oven ash, PGM refining
- Slimes and sludges/residues, PGM manufacturing
- Wastewater, PGM manufacturing

2, Use of CAS IDs from other sources, such as REACH. For example:

CAS RN: 98072-61-8 – Slimes and Sludges, precious metal refining

Description: Dry or wet residues resulting from hydro-metallurgical and/or electrolysis processes used in the refining of precious metals.

Slimes and sludges from precious metals refining generally contain precious and base metals, and insoluble inorganic compounds in varying concentrations.

3. Add other inorganic compounds. The list of categories seems very oriented toward basic metals, but there are many other inorganic compounds. Good example is hydrogen sulfide and acids—e.g., hydrofluoric acid. Consider broadening category scope to include acids. Other examples (compound versions):

- Ammonia
- Boron
- Cesium
- Cerium
- Gallium
- Germanium
- Iodine
- Lithium
- Magnesium
- Nitrogen
- Potassium
- Phosphorous
- Silica
- Strontium
- Sulfur
- Tantalum
- Titanium
- Tungsten
- Yttrium
- Hydrogen (e.g., hydrogen bromide, hydrogen chloride, hydrogen cyanide, hydrogen fluoride, hydrogen sulfide, water, etc.)