

Cyanide PBR Self Inspection Checklist

Cyanide Waste Determination (If CN is non-haz, PBR not required)

- Facility's cyanide waste determined not to be hazardous by
 Fish Bioassay **OR** Calculation of toxicity

Eligible wastes and treatments available

(You may choose any option(s) from "source" column and pair it with any option(s) from the "treatment" column. If you are treating spent process solutions, see back for guidance/additional requirements)

Source	Treatment
Rinse waters	Hypochlorite addition
Equipment rinsate (incl. txfr containers)	Alkaline Chlorination (Cl gas bubbler)
Anode bag rinsate (bags must be reused)	Peroxide/ozone (w/ or w/out UV)
Laboratory wastes	Electrochemical oxidation
Ion exchange regenerant ¹	Ion exchange
Empty container rinsate (container must be reused)	Reverse Osmosis
Spent solutions ONLY	
Spent process solutions	Electrowinning
	Dilution/bleeding

¹ Facility must by zero discharge for all of **this** waste- treated regenerant can **NOT** be sewerred or evaporated. Other treated cyanide wastes and plating wastes may be disposed.

The following waste minimization /elimination efforts are in place (all must be present except where noted):

- Holding racks **OR** Drain boards that return drag out to bath 67450.11(d)(4)(A)
- Countercurrent rinsing (where multiple rinses are used) 67450.11(d)(4)(B)
- SB 14 review **OR** Environmental Management System **OR** Environmental Performance Evaluation Plan 67450.11(d)(4)(C)(1-3)
 (Each of above should specifically address possible elimination of CN with alternative solutions)
- Training plan and records that specifically address CN handling employees (plating and waste) specifically to include 67450.11(d)(4)(D)
 - drag out reduction bath life extension
 - bath maintenance/contaminant minimization
 - spill/splash minimization in plating process
 - spill response

Each of the following existing PBR-required items have been updated to include CN: Tank integrity and containment calcs; Waste analysis plan; Closure cost estimate; Closure plan; Facility and Unit notification pages (Brief guidance for many of these items can be found on the last page of this checklist)

Spent Process Solution Dilution 67450.11(d)(7)

(To bleed/dilute spent process solutions into treatment systems, following rules apply)

Waste is bled into solution (below) that already contains CN and is to be treated for cyanide removal/destruction

- process rinse waters
- equipment rinsate

Waste minimization efforts above are being met

Waste Analysis Plan addresses how facility will ensure that 5000 ppm limit will not be exceeded once process solution is bled into other wastes to be treated.

- Analysis is by method 9010 for total cyanide
- Sampling frequency is stated (and is consistent with batch treatment²)

Filter cake from ANY/ALL onsite treatment is recycled at a metals recovery facility

OR

Filter cake from ANY/ALL onsite treatment is further treated at World Resources or other partial reclaimer

OR

Determined not to be amenable for recycling

Justification statement prepared (annually, by Jan 30 **for any non-recycled sludge from prior year**) and includes:

- Chemical composition of sludge
 - Types of metals and concentrations
 - CN concentration
 - Water content
 - volume of residual NOT recycled
- Chemical composition of spent solutions
 - Volume treated
 - Types of metals and concentrations
 - CN concentration
- Cost Estimates (in \$/lb or \$/gal)
 - Offsite disposal of residual solids, including treatment
 - Offsite recycling of residual solids
 - Offsite treatment of residual solids
 - Onsite treatment of process solutions
- Statement of decision
 - Technological based
 - Economic based
- IF ANY: Additional info that influenced or formed basis of decision not to recycle residual solids

Spent Process Solution Electrowinning 67450.11(d)(6)

(To electrowin spent process solutions, following rules apply)

- Solution being treated contains metals that are being recovered
- Waste minimization efforts above are being met

²Frequency should be tied to consistency of batch make up. If batches are substantially similar in content, frequency of testing may be expanded. If batches are not generated in same manner each time, frequency may need to be adjusted to account for batch by batch variation.

PBR Document Guidance

Waste Analysis Plan:

A plan that includes the following elements that describes how you (the facility) will know what wastes are being treated in your treatment system, and that your system is designed to handle that waste:

- What constituents are expected to be present (e.g. pH, cyanide, zinc, copper)
- Test methods to be used in the analysis of any samples.
 - Test methods must be SW-846 approved. Test methods for analysis of wastewater will not be accepted (e.g. for cyanide method 9010/9015 instead of wastewater method 200.1)
- Methods to be used to collect samples
- Frequency of sampling
 - Frequency of sampling will depend on consistency of waste entering waste treatment system. Remember, the Waste Analysis Plan is a way for you to be sure what waste is entering you treatment system and that the system can handle the waste.
 - For batch treatments, you may want to increase frequency of sampling or explain the controls used to ensure that the waste being batch treated is consistent between batches.

Tank integrity and secondary containment assessment:

Existing treatment systems should have tank system assessments that:

- Describes the tank system (Configuration, size, materials, age, etc)
- Demonstrates that the system was installed without damaging the system
- Demonstrates that the system has enough integrity to treat/hold waste
- Is equipped with adequate secondary containment

Addition of cyanide treatment tank(s) to the system will result in amending the existing tank assessment to address all of the above noted items for any tank that is used to treat cyanide wastes. Please note that containment calculations may need to be revised due to cyanide waste volumes. Guidance for items to be included in a tank system assessment can be found at:

www.unidocs.org/hazmat/hazardous-waste/index.html

Closure Plan, Closure Cost Estimate and Financial Assurance:

Plan and cost estimates must be revised to include all cyanide activities, including:

- Accounting for max volume of cyanide waste to be treated
- Decon and/disposal of cyanide tanks and system parts (e.g. piping, pumps)
- Description of how and when system will be closed

If additional costs of cyanide closure push the cost of closure above \$10,000, a financial mechanism must be provided. If a financial mechanism exists, it must be amended to include any new costs.