

Source Reduction Evaluation Review and Plan (Plan)

Guidance Manual Chapter 5

*Pollution Prevention and Hazardous Waste
Source Reduction and Management Review
Act (SB 14)*



What Will Be Covered

- Required contents of the Plan
- Major waste streams determination
- Evaluation of source reduction measures: approaches and evaluation factors
- Checking Plan completeness
- Options for Small Businesses – General and industry specific checklists

Source Reduction Evaluation Review and Plan (Plan)

- **REVIEW** of the processes and operations at your facility
- Identify and **EVALUATE** source reduction opportunities for processes or activities that generate hazardous wastes
- **PLANNING** - tool to document and implement source reduction measures

GENERATOR gets involved

The Plan

Must convey understanding of:

- flow of materials and the processes that generate hazardous wastes
- facility's review and evaluation of potential source reduction measures

Major Steps in Preparing the Plan

1. Provide general site and facility information
2. Look at waste-generating processes and list all SB 14-applicable wastes
3. Determine major waste streams
4. List potential source reduction measures for each major waste stream
5. Evaluate source reduction measures for each major waste stream
6. Select source reduction measures and set implementation schedule
7. Establish numerical goal
8. Certify

1. General Site Information

- Name, location, telephone number
- EPA Identification Number
- Standard Industrial Classification (SIC) code and NAICS Code
- Brief description of business or activity
- Length of time company has been at present site
- Major products manufactured
- Number of employees
- General description of site operation with block diagram

2. Identify SB 14 applicable wastes

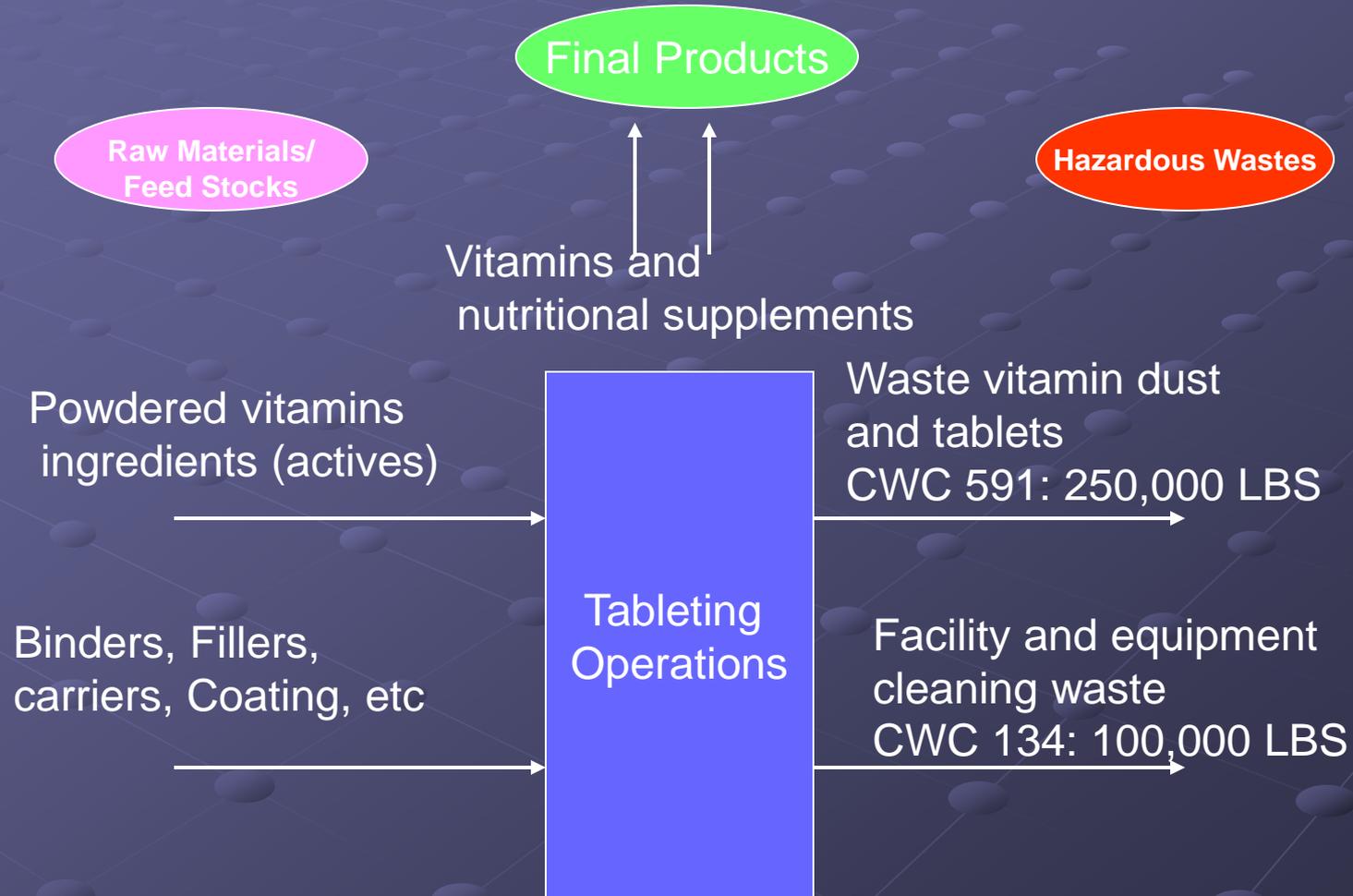
- Use information gathered when determining if you are subject to SB 14
- Only list SB 14-applicable waste streams
 - Include California Waste Code (CWC)
 - Describe the waste and how it is generated
 - How much was generated in 2010 in lbs?

Waste Generating Processes

Figure 2. Block Flow Diagram
(example format-not required by SB 14)

Site name: Vita Pharmaceuticals

Reporting Year: 2014

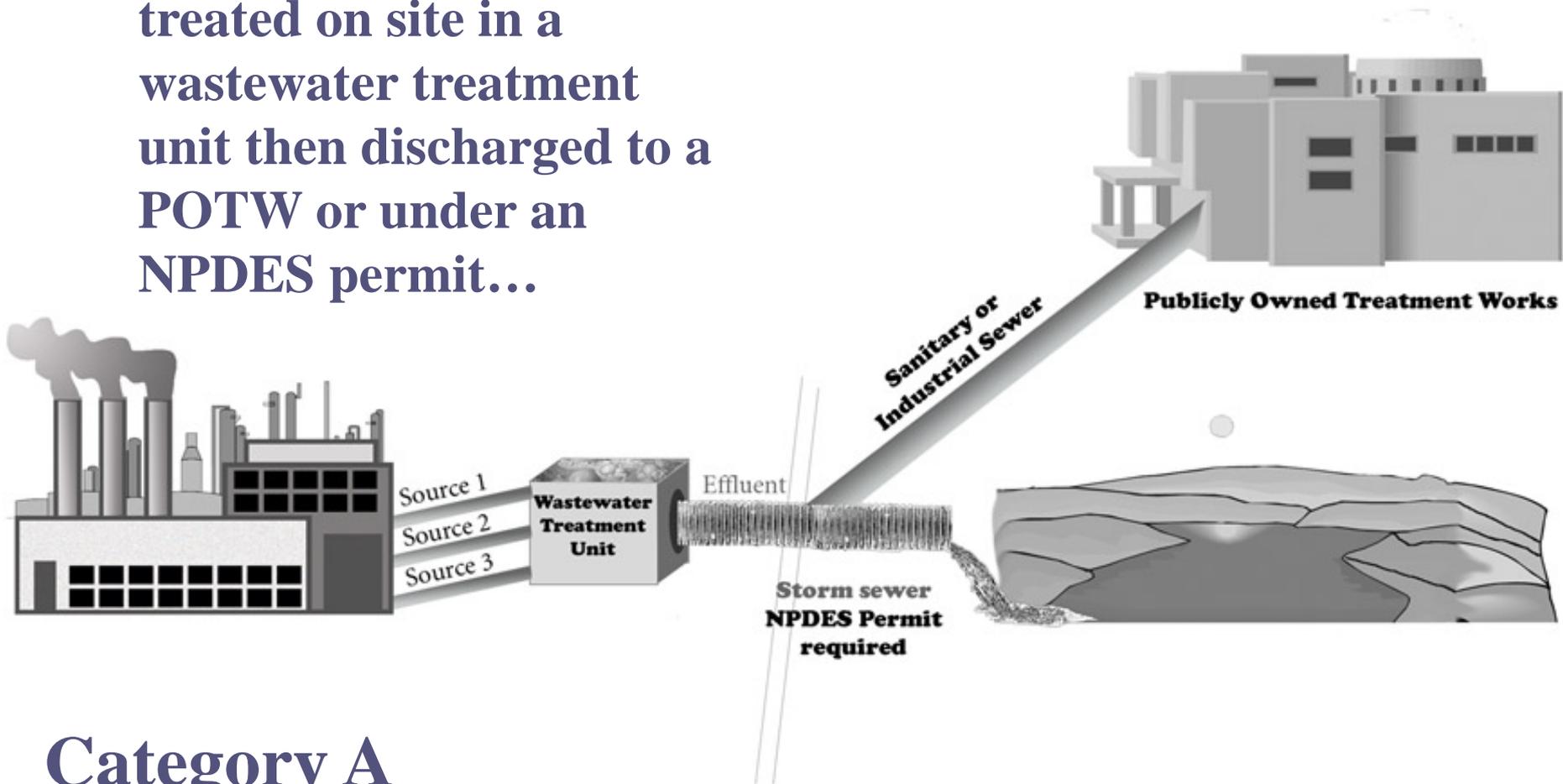


3. Identify Major Waste Streams

- SB 14 does not require generators to address source reduction for every routine waste stream -
- evaluation required only for **major waste streams**
- Major Waste streams are those that are greater than 5% by weight of the total annual quantity of SB 14 wastes generated at the site.
- Before calculating major waste streams, be sure to...

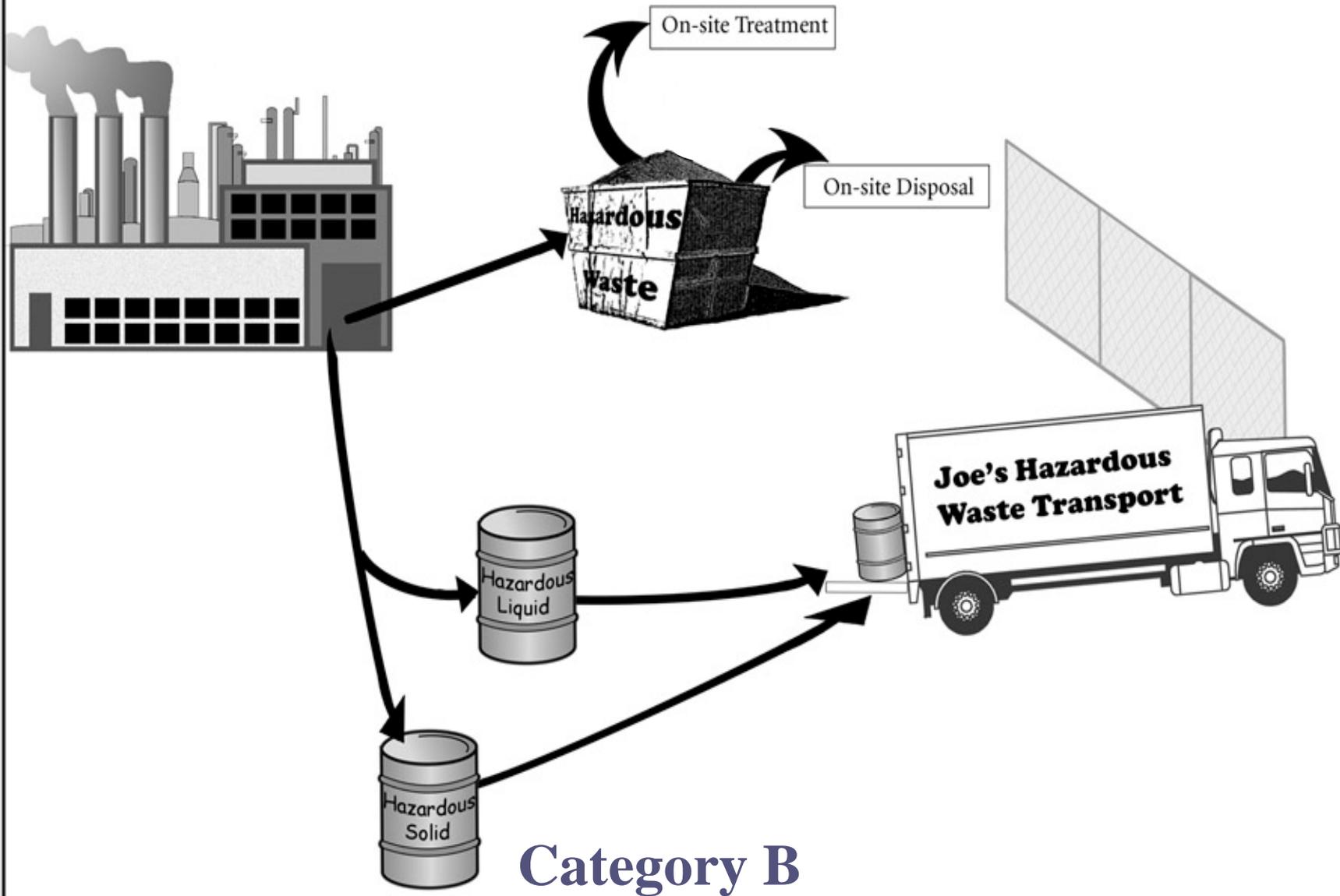
Distinguish wastes that are...

treated on site in a wastewater treatment unit then discharged to a POTW or under an NPDES permit...



Category A

...from those that are not



Category B

Determine Major Waste Streams

Example Calculation

- List your SB 14 applicable wastes and categorize them as either processed in a wastewater unit..... or not.

Hazardous Waste	Processed in WWTU	Weight, lbs.
Rinse water	Yes	713,900
Plating bath	Yes	8,340
Paint Waste	No	10,000
Solvent	No	1,500
Drums	No	5,400
Contaminated rags	No	500

Determine Major Waste Streams...

- Get the total of each waste group/category and the grand total of all SB 14-applicable wastes

Hazardous Waste	Processed in WWTU	Weight, lbs.
Rinse water	Yes	713,900
Plating bath	Yes	8,340
CATEGORY A	TOTAL	722,240
Paint waste	No	10,000
Solvent	No	1,500
Drums	No	5,400
Contaminated Rags	No	500
CATEGORY B	TOTAL	17,400
GRAND TOTAL (Category A+B)		739,640

Determine percent by weight of each waste stream

- For Category A wastes, calculate percent by weight based on the grand total of both Category A and B wastes

Haz. Waste	Processed in WWTU	Weight, lbs.	Percent by weight
Rinse water	Yes	713,900	$713,900/739,640 = 96\%$
Plating bath	Yes	8,340	$8,340/739,640 = 1\%$
CATEGORY A	TOTAL	722,240	
CATEGORY B	TOTAL	17,400	
GRAND TOTAL (Category A+B)		739,640	

Determination of Major Waste Streams...

- For Category B wastes, calculate percent by weight based on the **Category B subtotal**

<u>Haz. Waste</u>	<u>Processed in WWTU?</u>	<u>Weight</u>	<u>Percent by Weight</u>
Paint waste	No	10,000	$10,000/17,400 = 57\%$
Solvent	No	1,500	$1,500/17,400 = 9\%$
Drums	No	5,400	$5,400/17,400 = 31\%$
Contam. Rags	No	<u>500</u>	$500/17,400 = 3\%$

CATEGORY B TOTAL 17,400

Determination of Major Waste Streams - Example calculation

Hazardous Waste Stream	CWC	Weight in Pounds	Processed in wastewater treatment unit?	Percent by Weight	Major Waste Stream? (>5%)
Rinse Water	132	713,900	Yes	96% (1)	Yes
Plating Bath	792	8,340	Yes	1% (1)	No
Subtotal Category A		722,240			
Paint Waste	331	10,000	No	57% (2)	Yes
Solvent	214	1,500	No	9% (2)	Yes
Drums/containers	513	5,400	No	31% (2)	Yes
Contaminated Rags	551	500	No	3% (2)	No
Subtotal Category B		17,400			
Total (Category A+B)		739,640			

(1) Percentage calculated using total routine hazardous waste (739,640 lbs)

(2) Percentage calculated using total Category B routine waste (17,400 lbs)

Information on Major Waste Streams

- Total weight of major waste in 2014
- CWC
- Description of processes or activities generating the waste with corresponding block flow diagram
- Constituents which cause the waste to be hazardous

4. Identify Source Reduction Measures

● Sources of Information:

- In-house input from employees
- Equipment vendors and chemical suppliers
- Consultants
- Trade Associations
- DTSC Assessment Reports
- USEPA Publications and www.epa.gov/p2
- Internet – P2 topic hubs, key word searches

Five approaches to Source Reduction

- Consider at a minimum the five approaches mandated by SB 14:
 1. Input changes (e.g., raw material changes)
 2. Operational improvements (e.g., production scheduling, waste segregation, loss prevention)
 3. Production process changes (e.g., process automation, reuse within process)
 4. Product reformulation (e.g., change in design or composition of intermed. or final products)
 5. Administrative steps (e.g., training, inventory control, employee incentives)

5. Evaluate Source Reduction Measures

- Must address the following seven factors:
 1. Expected change in the amount of hazardous waste generated
 2. Technical feasibility
 3. Economic evaluation
 4. Effects on product quality
 5. Employee health and safety implications
 6. Permits, variances, compliance schedules of applicable State, local, and federal agencies
 7. Releases and discharges

6. Select Source Reduction Measures

- Seven evaluation factors must have been addressed
- Describe selected measures

Example of Measure Evaluation

- Measure:
 - Replace **thimerosal** with a less toxic material (Reformulation)
 - **Technical feasibility:** To bring a new chemical in, only have to change procedures , no new equipment is needed
 - **Expected Change in Hazardous waste generation:** 6,000 lbs/year
 - **Effects on product quality:** unknown at time of report preparation, but no effects are expected.
 - **Permits/variances required:** FDA, State, Federal and an European FDA approval
 - **Effect on employee health and safety implications:** Decrease exposure to thimerosal
 - **Summary of Economic evaluation**

● Measure:

- Replace **thimerosal** with a less toxic material (Reformulation)

● Summary of Economic evaluation

- Capital Cost: \$ _____
- Operating Costs: \$ _____
- Maintenance Cost: \$ _____
- Waste Management Savings: \$10,000 (\$475.00/drum per disposal)
- Other Costs: \$ _____
- Payback period: _____
- Net Savings per year: \$ _____

Example of Measure Evaluation

● Measure:

- Replace thimerosal with a less toxic material (Reformulation)
 - **Further evaluation:** yes
 - **Implementation Schedule:** It has been started, but it will take 2 years

Information on Rejected Measures

- List source reduction measures rejected
- Rationale for rejection
- For waste streams found not to have viable source reduction alternatives, include description of good-faith effort undertaken to identify source reduction alternatives

Implementation Schedule

- Timetable for implementation of all selected source reduction measures
 - Estimate when (between 1/1/2014 and 12/31/18) each source reduction measure will be implemented.
 - Provide estimated dates (month/year) when each measure will be implemented and when it will be operational.
 - Document changes to schedule in the Plan.

7. Establish Numerical Goal

● Numerical Goal

- Facility-wide goal that reflects your source reduction vision and commitment

Source Reduction Goal (%) =

$$\frac{\text{Total HW reduced with optimized SR practices}}{\text{Total HW generated if SR practices were not implemented}} \times 100$$

8. Certifications

- Technical Certification

- Financial Certification

Technical Certification

● Who could certify:

- An engineer or and environmental assessor who is registered in California and has demonstrated expertise in hazardous waste management
- An individual in your company who is responsible for the processes and operations of the site, regardless of professional registrations

Technical Certification

- No required format, as long as the following are certified:
 - Plan identifies and addresses all major wastes
 - Five approaches to source reduction have been considered
 - Plan explains decision process used to determine which source reduction measures to implement
 - Plan does not merely shift hazardous waste from one environmental medium to another
- Example on page 44 of Guidance Manual

Financial Certification

● Who could certify:

- Owner
- Operator
- Responsible corporate officer
- Authorized individual

● Purpose:

- Intent is to ensure that the “person who is capable of committing the financial resources necessary to implement the Plan” is aware of its contents and the necessary monetary commitment.

● Must follow mandated language (CCR Title 22 Section 67100.13(e))

Review

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Appendix G: Completeness List

- Very useful tool to ensure completeness of the Plan.
- DTSC's Source Reduction Unit uses the Appendix G list when reviewing submitted SB 14 documents for completeness.

Small Business Options

- What is considered a small business?
 - California Government Code Section 11342.610
 - Can be found on page 25 of Guidance Manual
- Instead of preparing a full Plan...
 - Industry-Specific Hazardous Waste Minimization Checklist & Assessment Manuals **plus** Sections 1, 3, 4, 5, and 6 of the Compliance Checklist
[CCR Title 22 Section 67100.2(f)] **OR**
 - General Compliance Checklist (Doc. 004)

Option for Multiple Sites

- Generators that operate multiple sites with similar processes and waste streams may prepare a single, multiple-site Plan, Performance Report, and Summary Progress Report



“I have already implemented several measures and I can not find any additional approaches.”

There are no feasible technology or practices suitable to this wastestream
, am I still subject to SB14?

Questions?

Call DTSC's RAOs

● (916)

