

89/03(a)

United States
Environmental Protection
Agency

Office of Air Quality
Planning and Standards
RTP, NC 27711

Air

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Benzene Waste Operations NESHAP Workshop

Speaker Slide Copies

NESHAP

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Overview of Rule

BENZENE WASTE NESHAP:

OVERVIEW

OVERVIEW

- **Authority and History**
- **Concepts**
- **Compliance Dates**
- **Overview of Workshop**

AUTHORITY FOR SUBPART FF

- Section 112 of the Clean Air Act before 1990
- EPA lists pollutants as hazardous
- Regulate sources
- "Ample Margin of Safety to Protect the Public Health"

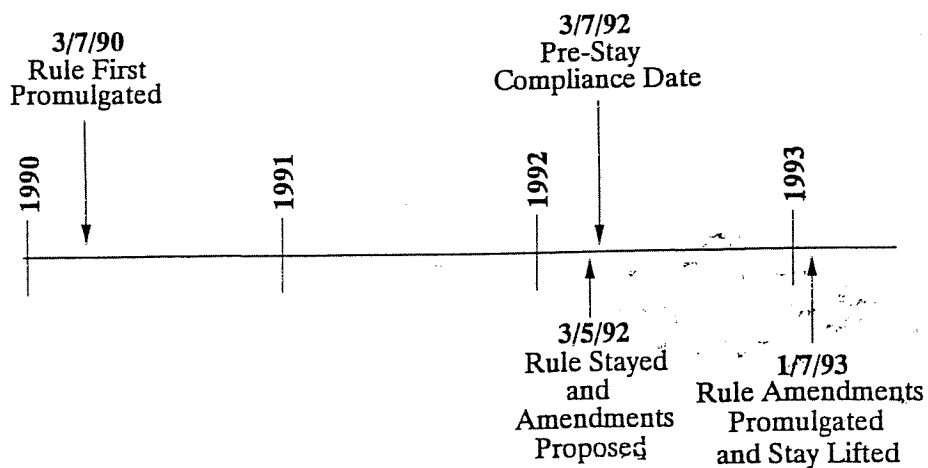
"Old" Versus "New" Section 112

Item	"Old" 112	"New" 112
Pollutants covered	EPA required to list pollutants as hazardous	189 substances are listed in the Act for regulation
Sources covered	Within 180 days of listing, EPA required to propose standards--not specific on which sources	EPA must publish a list of categories (11/91) and proceed to set standards on a mandated schedule (11/92)

"Old" Versus "New" Section 112 (continued)

Item	"Old" 112	"New" 112
Basis of standards	Standards must provide "ample margin of safety" to protect public health	Initial standards based on MACT; residual risk standards 8-9 years later
Compliance deadline	New sources at startup; existing sources 90 days after promulgation; 2-year waiver possible	New sources at startup; standards may allow up to 3 years for existing sources with another year possible

HISTORY OF BENZENE WASTE NESHAP



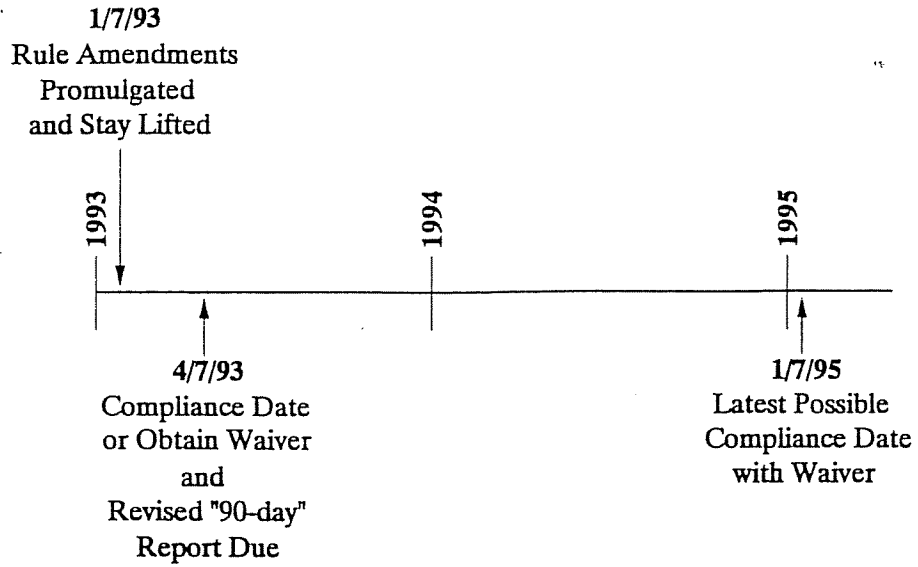
CONCEPT OF HEALTH-BASED RULE

- **Decide "Acceptable" Risk**
 - All health information
 - Maximum individual risk < 1 in 10,000
- **Set standards providing Ample Margin of Safety**
 - All health information
 - Cost, economics, technological feasibility
 - Minimize population with risk > 1 in 1,000,000

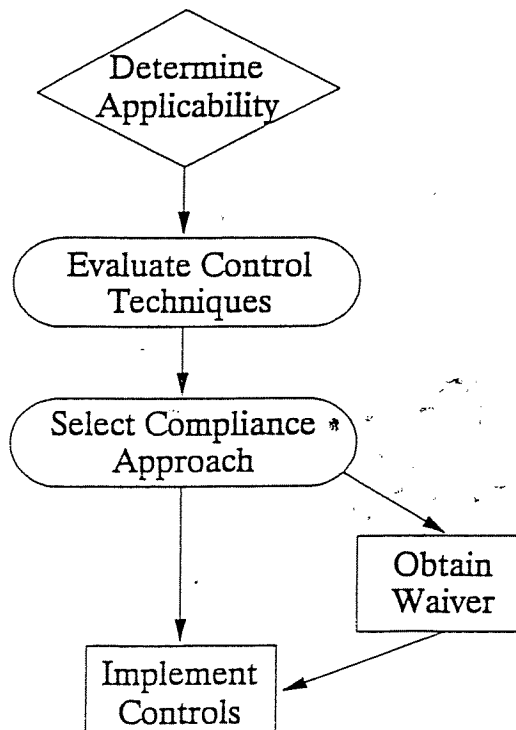
IMPLEMENTATION FOR BENZENE WASTE OPERATIONS RULE

- **Quantity of benzene in wastes decides whether to control air emissions**
- **Treat or recycle affected wastes**
- **Manage wastes prior to and during treatment in units equipped with air emission controls**

COMPLIANCE DATES



SUBPART FF FLOW DIAGRAM



APPLICABILITY

- Discuss Total Annual Benzene (TAB)
- Provide examples
- Reporting
- Focal Points
 - Common misconceptions in TAB determinations
 - New aspects of TAB including the averaging of benzene in turnaround wastes

CONTROL AND TREATMENT REQUIREMENTS

- Review the control and treatment requirements for waste management and treatment units and wastewater treatment systems
- Provide illustrations of acceptable controls
- Focal Points
 - New provisions for organic wastes managed in tanks
 - Common questions and misconceptions

COMPLIANCE ALTERNATIVES

- Present compliance alternatives for facilities that must control
 - Basic control alternative
 - 1 Mg/yr target for process wastewater
 - 6 Mg/yr Treat to Target benzene quantity
- Focal Points
 - 2 Mg/yr exemption for basic control alternative
 - 6 Mg/yr treat to target benzene quantity

WAIVER GUIDANCE

- Introduce waiver guidance document
- Overview of the waiver policy
- Focal points
 - Application process
 - How to determine mitigation goal
 - Actions to achieve mitigation target

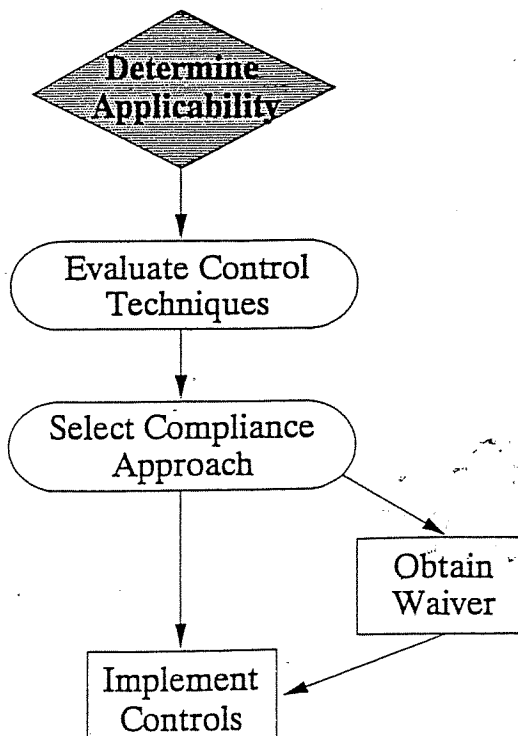
PANEL DISCUSSION

- Discuss misconceptions/problem areas
- Provide discussions of specific questions raised by industry

Facility Applicability

BENZENE WASTE NESHA: FACILITY APPLICABILITY

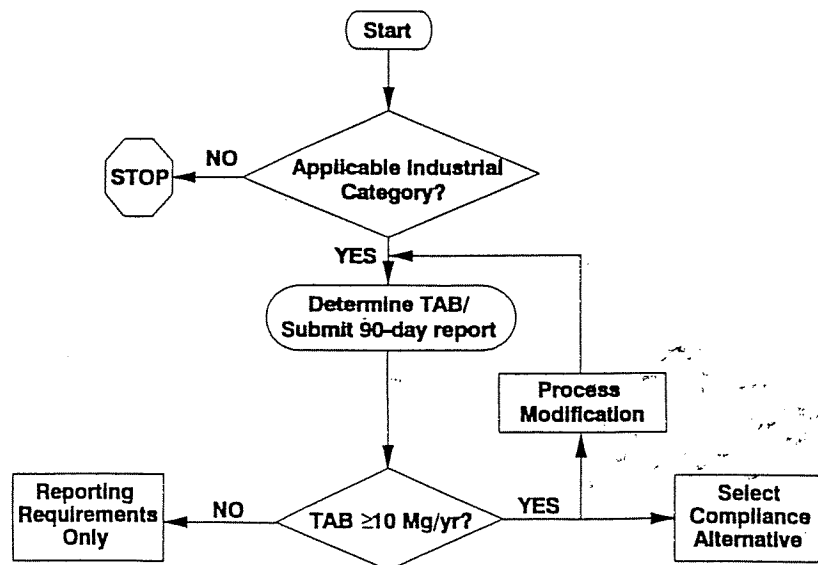
SUBPART FF FLOW DIAGRAM



OVERVIEW

- (1) Industrial Categories
- (2) Determining Total Annual Benzene (TAB)
- (3) Initial and Annual Reporting Requirements
- (4) Applicability Examples

FLOW DIAGRAM FOR APPLICABILITY DETERMINATION



(1) INDUSTRIAL CATEGORIES

- Chemical manufacturing plants
- Petroleum refineries
- Coke by-product recovery plants
- Hazardous waste TSDF that receive wastes from the above facilities

APPLICABILITY TO TSDF

- When TSDF handles sufficient benzene waste from affected categories
- When wastes are received from facility where they need to be controlled

(2) DETERMINING TOTAL ANNUAL BENZENE (TAB)

- Wastes
- Point of Generation
- Process Unit Turnaround Wastes
- Remediation Wastes
- Areas of Confusion

Determining TAB

What is TAB?

The total annual mass of benzene
contained in certain wastes
determined at their point of generation

What is a WASTE?

- Waste defined very broadly
 - Results from industrial, commercial, mining or agricultural operations, or from community activities
 - Is discarded, or is being accumulated, stored, or treated prior to being discarded, recycled, or discharged
- Different from RCRA definition
- Most materials that are not product meet this definition

WASTES EXEMPTED FROM SUBPART FF

- Gases or vapors
- Wastes contained in segregated stormwater sewer systems

WHICH WASTES ARE INCLUDED IN TAB?

- The total annual mass of benzene contained in all wastes that contain > 10% water
- Also, annual mass of benzene in wastes that are added or mixed and the resulting wastes contain > 10% water

DEFINITION OF POINT OF WASTE GENERATION {clarification}

- Point of generation is "prior to handling or treatment"
- Waste management unit/production process distinction
 - Is operation an "integral part"
 - Materials that never leave a production process are not wastes
- Waste management units that change waste characteristics

WHERE TAB IS DETERMINED SPECIAL CASES

- Wastes received by a TSDF from offsite
- Sour water strippers {new}
- Subpart L Coke by-product plants

CALCULATION OF TAB

$$TAB = \sum_{i=1}^n (Q_i C_{benzene, i})$$

TAB = total annual benzene (Mg/yr)

Q = annual waste quantity (Mg/yr)

$C_{benzene}$ = flow weighted annual average benzene concentration (weight fraction)

n = number of benzene waste streams "containing" > 10 % water

Determining TAB

ANNUAL WASTE QUANTITY

- Highest annual quantity of waste managed from most recent 5 years
- Maximum design capacity, or maximum waste generation rate

Determining TAB

FLOW-WEIGHTED ANNUAL AVERAGE BENZENE CONCENTRATION

- Ways to determine benzene concentration
 - knowledge of wastes
 - direct measurement
 - combination of knowledge and measurement
- In case of dispute, Agency may require measurement

AVERAGING OF TURNAROUND WASTES {new}

- Definition of Process Unit Turnaround
 - shutting down a process unit
 - purging the contents of a process unit
 - maintenance or repair work
 - restarting process unit
- Wastes generated from process unit turnarounds may be averaged in TAB, if turnarounds occur at least 2 years apart

AVERAGING OF TURNAROUND WASTES (continued)

- Method - Divide quantity of waste generated at most recent turnaround by time period between last two turnarounds
- Include in TAB determination every year until next turnaround (when you recalculate)
- Averaging is an option; not required
- If elected, must be done consistently

AVERAGING OF TURNAROUND WASTES (example)

- Process turnaround in May 1988 and May 1991
- Waste generated from 1991 turnaround
 - 175 Mg total waste
 - contains 2 weight percent benzene
 - contains > 10% water
- Contribution to TAB:

$$\frac{(175 \text{ Mg total waste})}{3.0 \text{ years}} \times \frac{(0.02 \text{ Mg benzene})}{\text{Mg total waste}} = 1.2 \text{ Mg/yr}$$

WASTES FROM ON-SITE REMEDIAL ACTIVITIES {new}

- Not included in TAB
- If facility has TAB ≥ 10 Mg/yr, wastes are subject to the same control requirements as other wastes

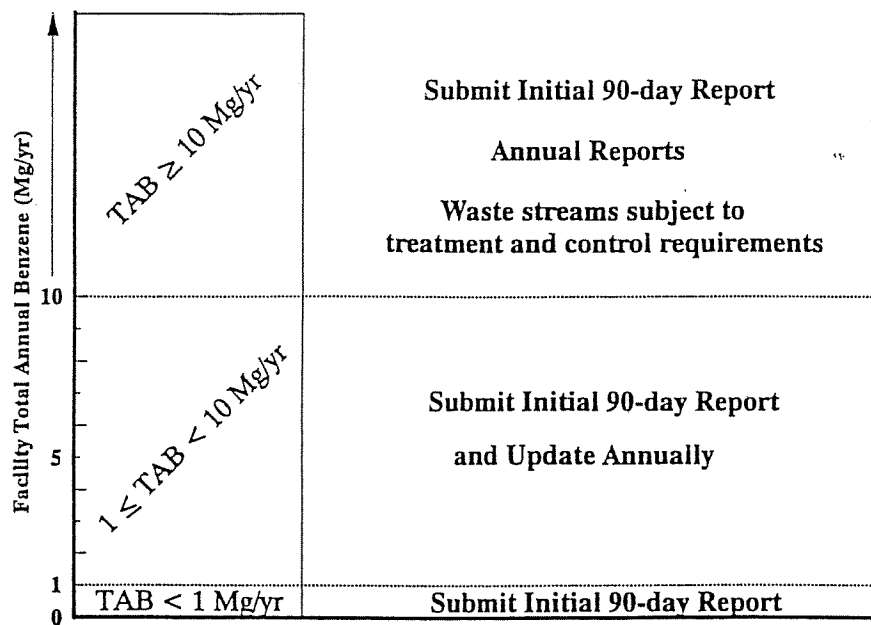
COMMON AREAS OF CONFUSION

- Organic wastes that are discharged to the sewer
- Determinations made prior to treatment
- Wastes exempted from control
- Multiple phase wastes
- Materials that are sold
- Recycled materials

(3) INITIAL AND ANNUAL REPORTS

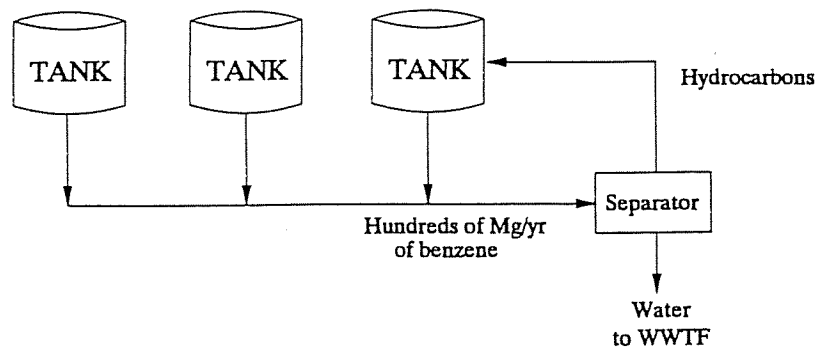
- Due 90 days from promulgation from ALL facilities (April 7, 1993)
- Characteristics of each waste stream (includes organics)
- Demonstration of how any exemption or special case will be used

REPORTING REQUIREMENTS BY TOTAL ANNUAL BENZENE (TAB) LEVEL

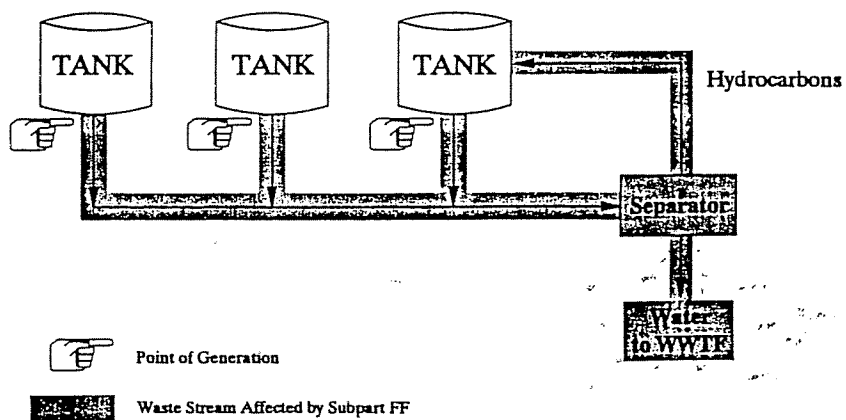


(4) EXAMPLES

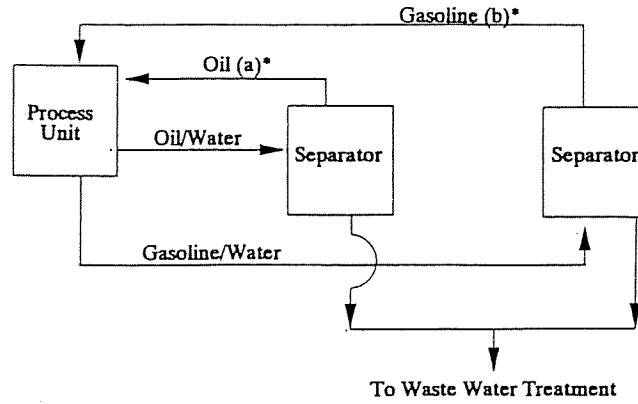
EXAMPLE 1



EXAMPLE 1

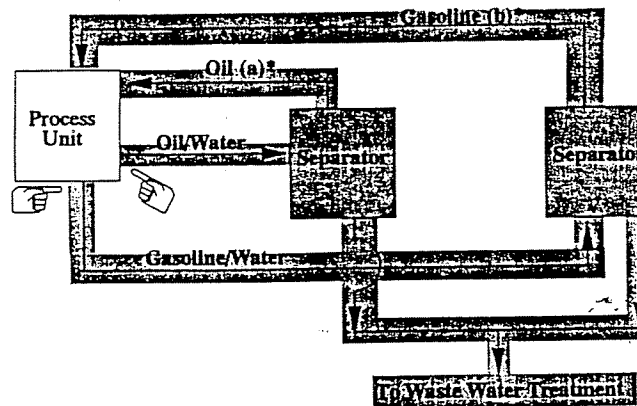


EXAMPLE 2



* (a) and (b) represent over 50% of material entering separators

EXAMPLE 2



* (a) and (b) represent over 50% of material entering separators

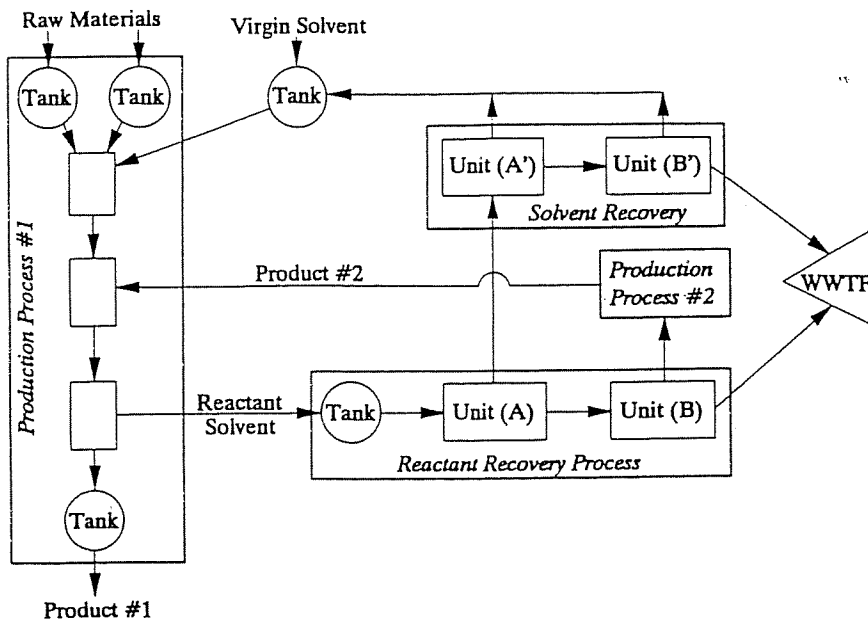


Point of Generation

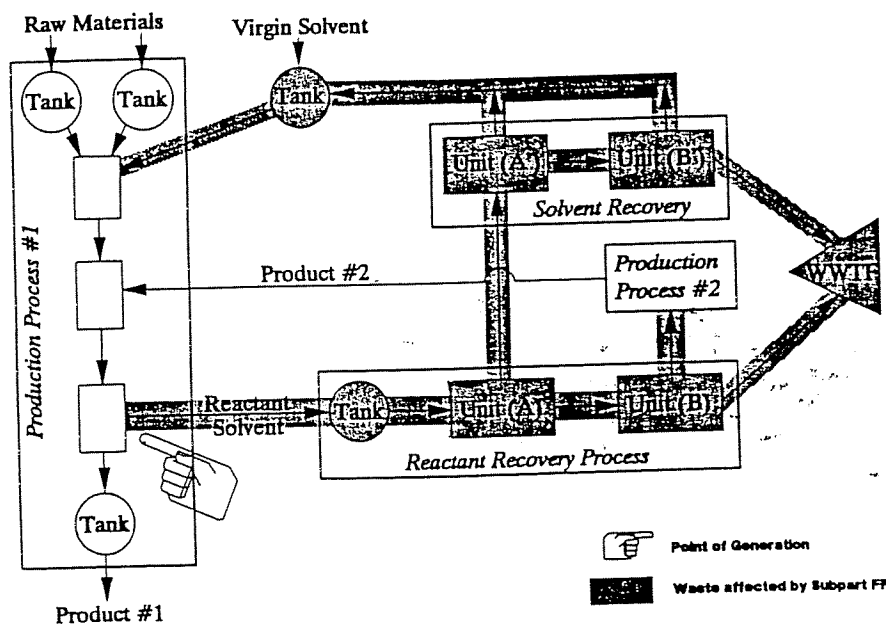


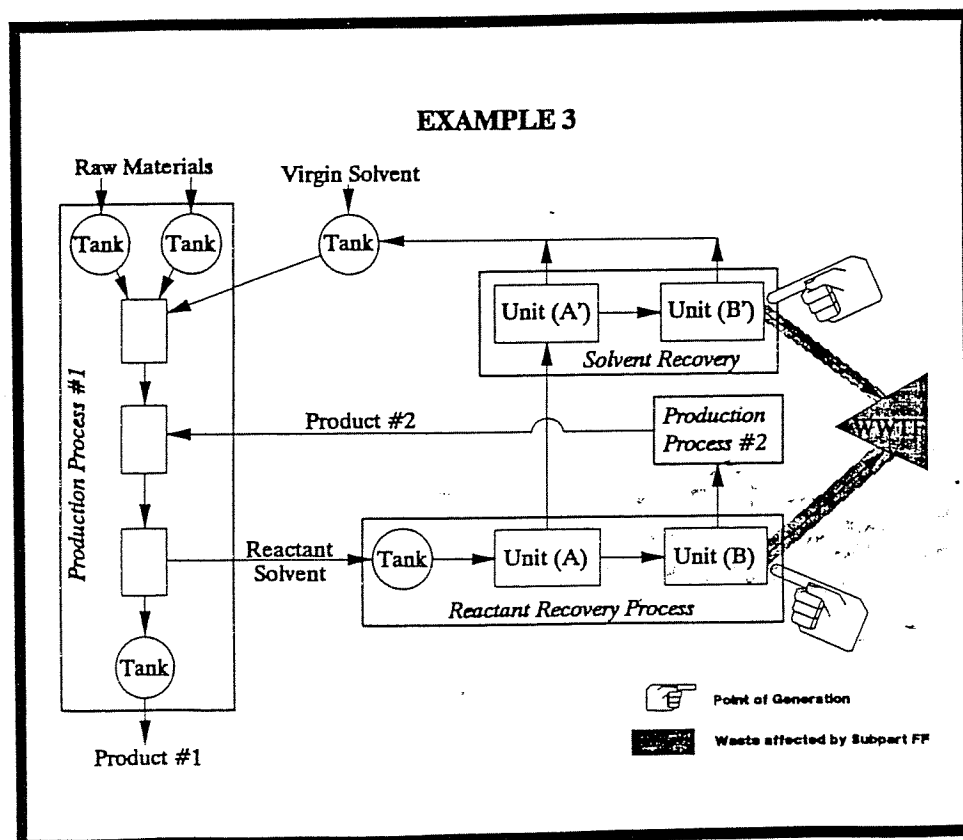
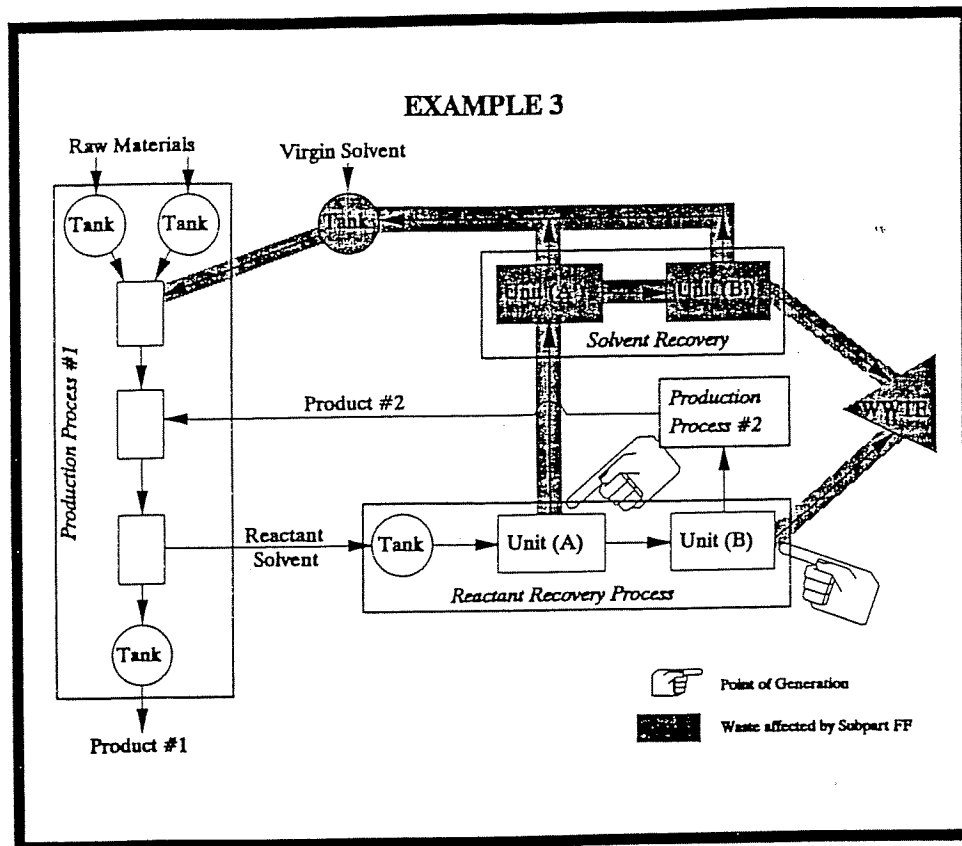
Waste affected by Subpart FF

EXAMPLE 3



EXAMPLE 3





ADDITIONAL SLIDES NOT USED IN THE PRESENTATION

Determining TAB

ORGANIC WASTES DISCHARGED TO THE SEWER

- New aqueous waste generated where it hits the sewer
- Benzene component must be included in TAB
- Example: Pump purge for maintenance

Determining TAB

DETERMINATIONS MADE PRIOR TO TREATMENT

- Treatment not allowed to lower TAB
- Process modifications to lower TAB are allowed

Determining TAB

WASTES EXEMPTED FROM CONTROL ARE IN TAB

- Even if streams may be exempt from control requirements, the benzene in these streams must be included in TAB

Determining TAB

MULTIPLE-PHASE WASTES

- Determine the concentration of benzene and water content in both phases, and weighted averages
- If weighted average water content is $> 10\%$ by volume benzene in all phases must be included in TAB

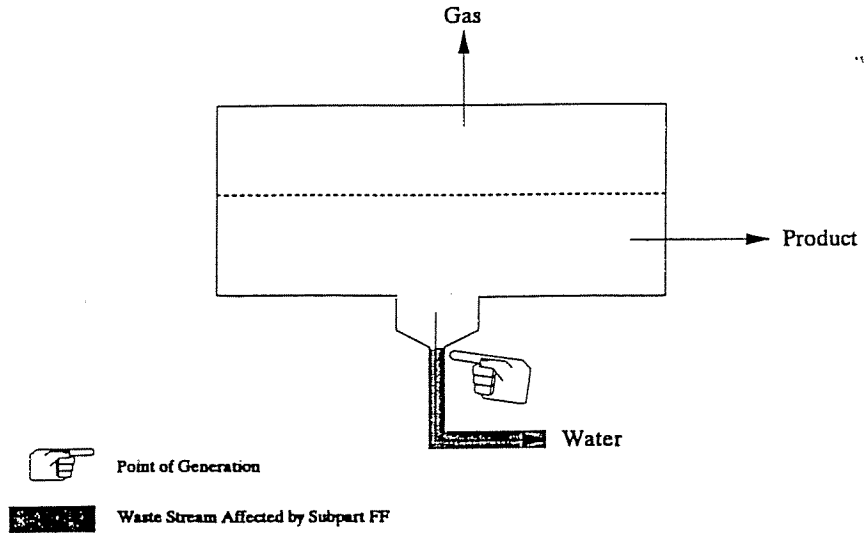
MATERIALS THAT ARE SOLD

- Definition of waste does not differentiate based on end use
- Benzene in materials with $> 10\%$ water that are sold must be included in TAB
- Subject to control if at a facility with $TAB \geq 10$ Mg/yr

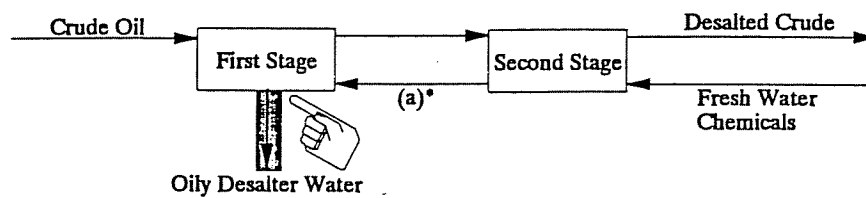
RECYCLED MATERIALS

- If material is accumulated, stored, or treated prior to recycling, it is a waste
- Wastes that are recycled without leaving the production process do not have a point of generation and are not counted in TAB
- Benzene in recycled wastes that contain $> 10\%$ water must be included in TAB

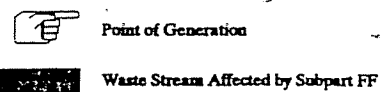
SEPARATOR VESSEL



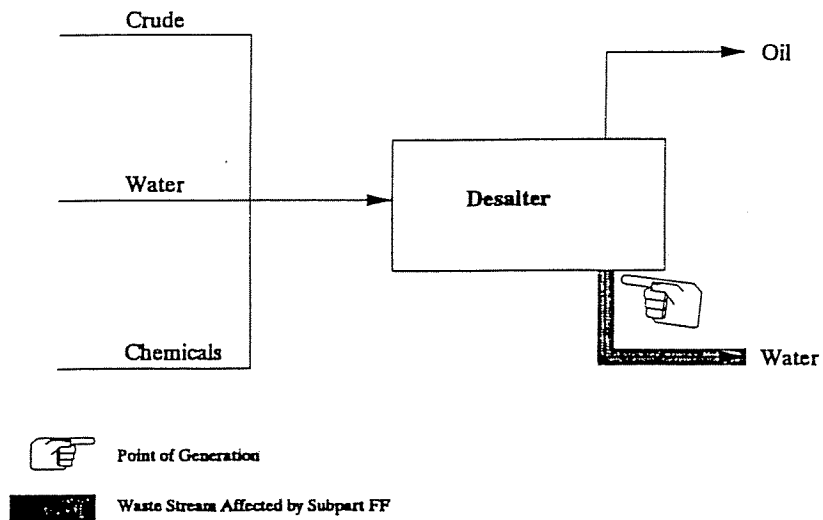
TWO-STAGE DESALTER



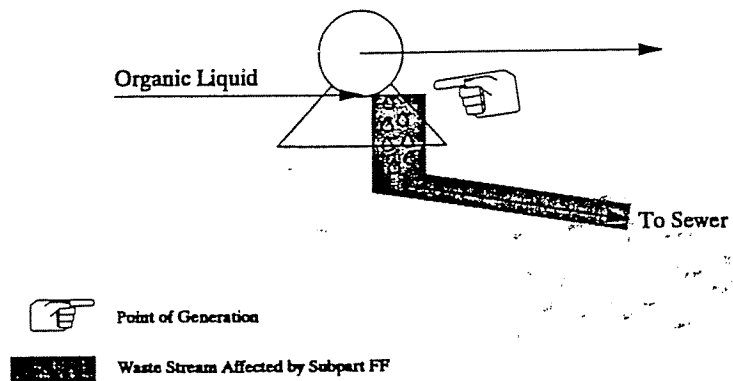
Note: (a) is a mixture of brine and oil



DESALTER



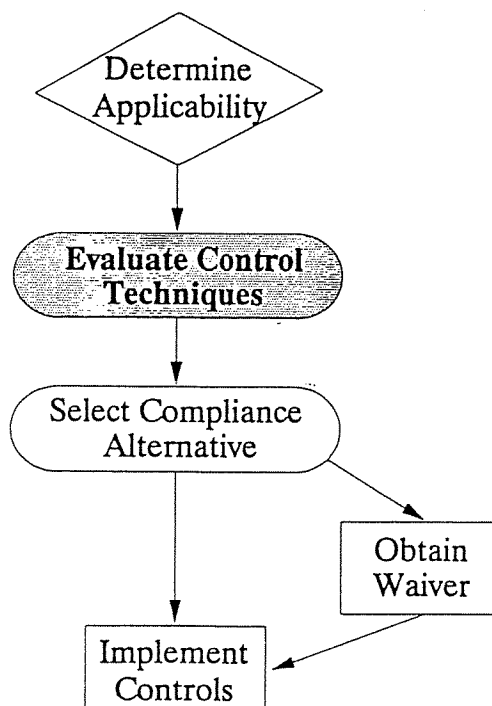
PUMP DRIPS



Control Requirements

**BENZENE WASTE NESHAAP:
CONTROL AND TREATMENT
REQUIREMENTS**

SUBPART FF FLOW DIAGRAM



PURPOSE

- **Describe the control requirements for specific units**
- **Review the treatment and dilution provisions**

BASIC REQUIREMENTS

- **In general, manage wastes with 10 ppmw or more benzene in controlled units until recycled or treated**
- **Some units controlled by covers/suppression; others are enclosed and vented to control device**
- **Recycle to production process, treat to less than 10 ppmw, or remove/destroy 99 percent of benzene**

WASTE MANAGEMENT UNITS

- **Individual drain systems**
 - drains
 - junction boxes
- **Tanks**
- **Containers**
- **Surface impoundments**
- **Oil-water separators**

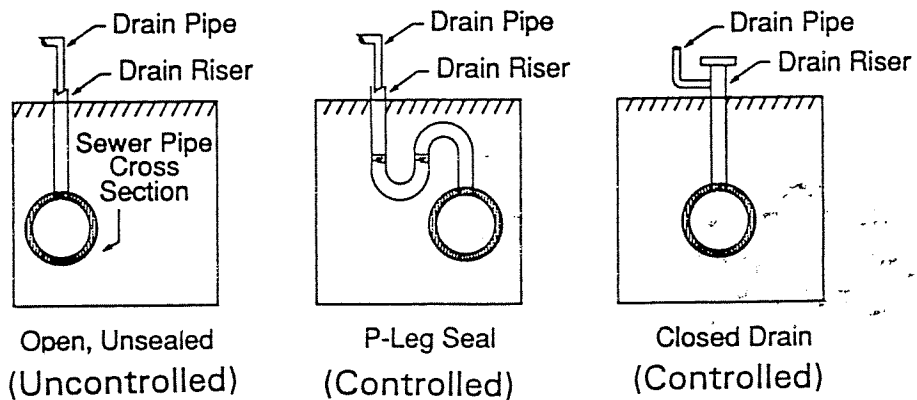
INDIVIDUAL DRAIN SYSTEM

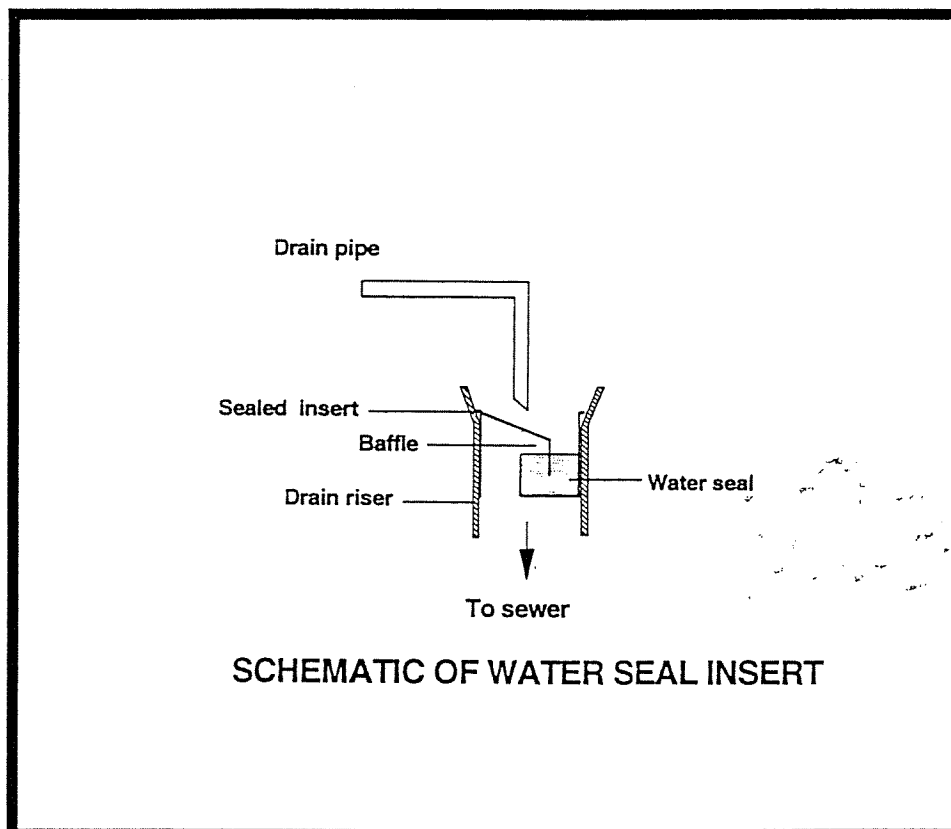
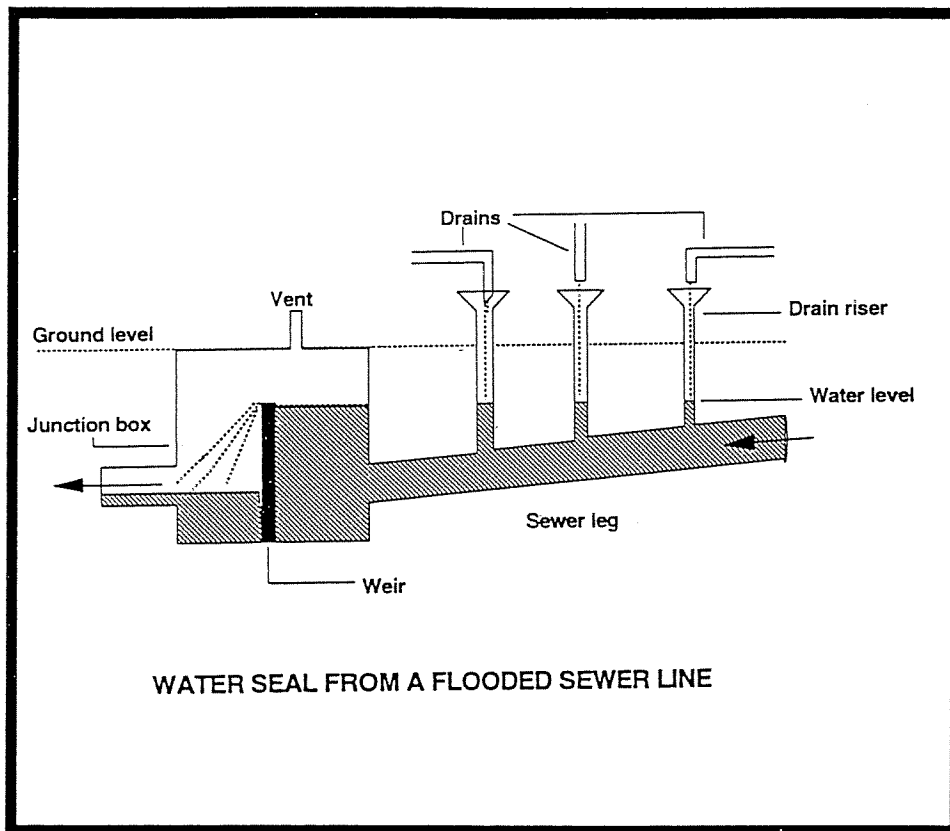
- **Conveys waste to another waste management unit; includes drains, junction boxes, and sewer lines**
- **In general, cover/enclose and vent to a control device**
- **Alternative controls are acceptable (e.g., water seals)**
- **Principle is to prevent free flow of vapors in system**

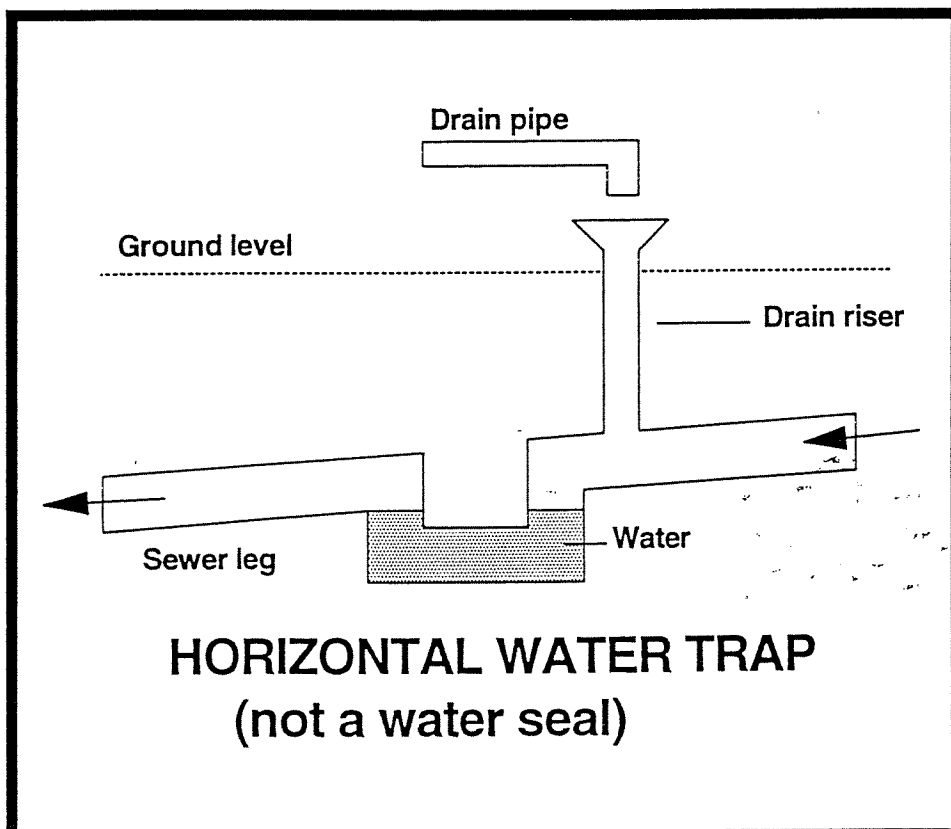
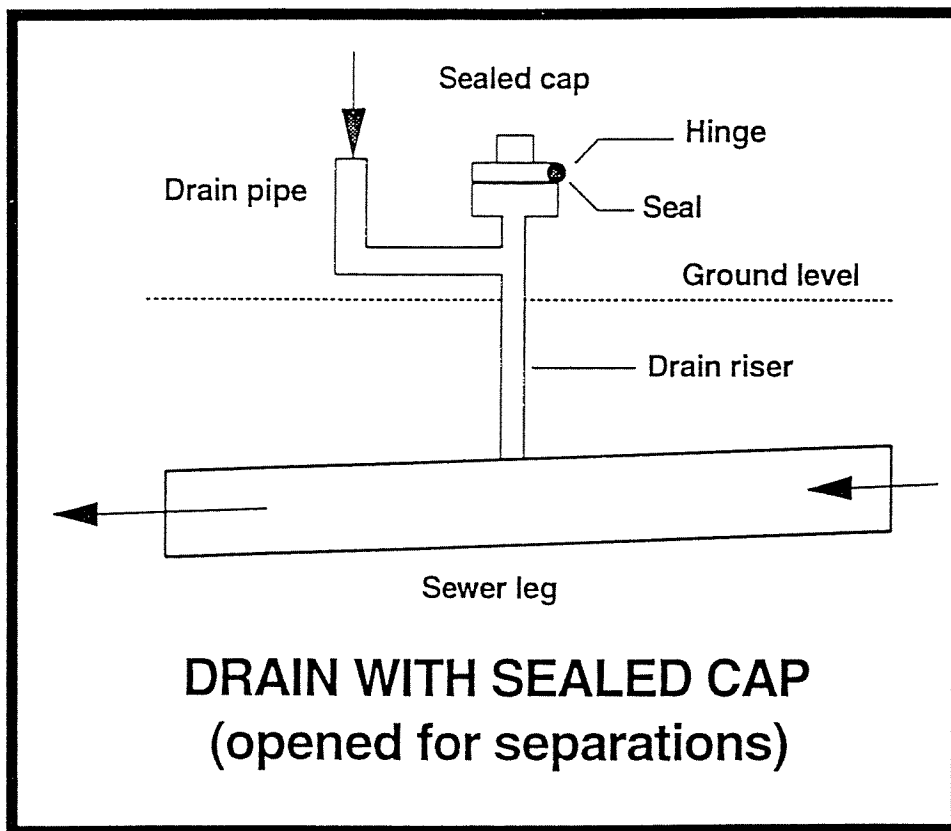
CONTROLS FOR DRAINS

- **Hardpiped to process unit**
- **Tightly-sealed cap or plug**
- **Water seal in vertical leg**

Individual Drains



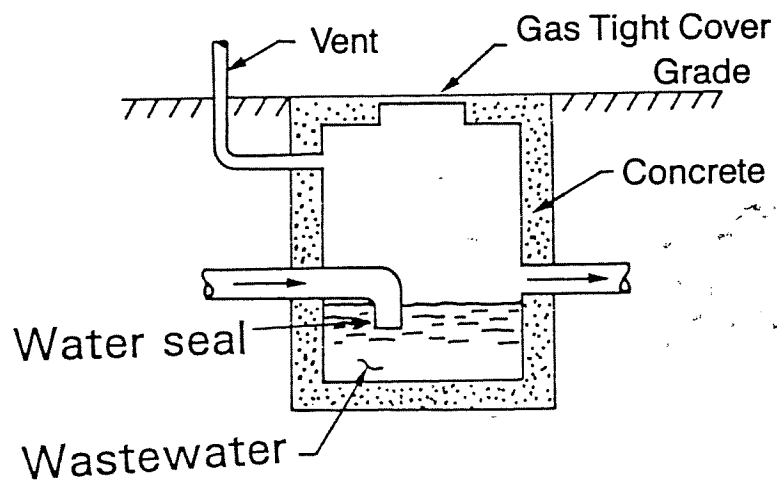


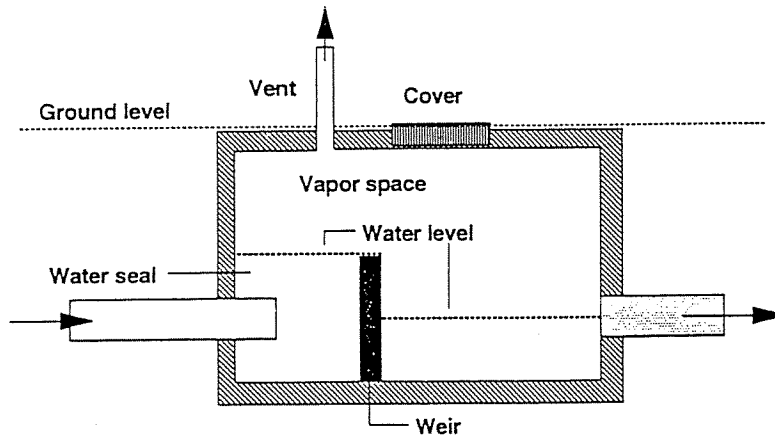


CONTROLS FOR JUNCTION BOXES

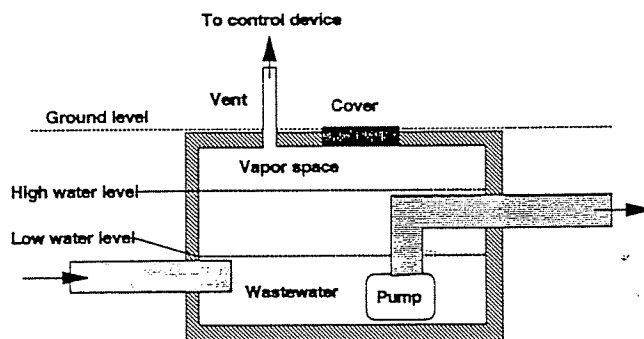
- Cover and vent to a control device, or
- Cover, install water seal, and monitor to show no flow through vent during normal operation

Typical Junction Box

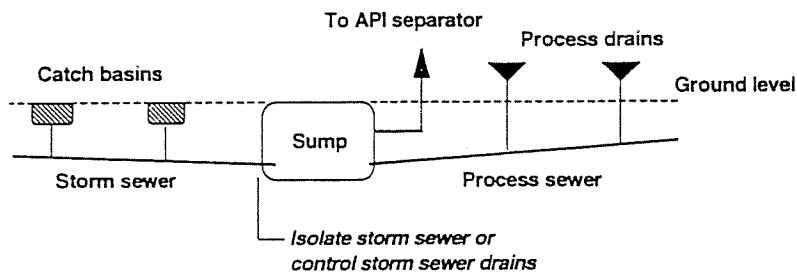




JUNCTION BOX WITH WEIR AND WATER SEAL



JUNCTION BOX WITH CHANGING WATER LEVEL



COMBINING STORM AND PROCESS SEWER LINES

TANKS

- Fixed roof vented to a control device
- Fixed roof with internal floating roof
- External floating roof
- Fixed roof alone acceptable for organic wastes if: (1) tank is below size cutoff and (2) waste is below vapor pressure cutoff [NEW]

CONTAINERS

- Cover and use submerged filling when pumping
- Can be open during loading if not filled by pumping (e.g., sludge loaded from a conveyor belt)
- Cover and vent to a control device during treatment

SURFACE IMPOUNDMENTS

- Formed primarily of earthen materials, designed to accumulate waste with liquids, not an injection well
- Cover and vent to a control device
- May be more practical to pretreat to remove benzene or to replace with a tank

OIL-WATER SEPARATORS

- Includes separation unit plus forebay, skimmers, weirs, sludge hoppers, bar screens, etc.
- Control with fixed roof vented to a control device, or use a floating roof, or a combination

TREATMENT UNITS

- Comply with standards for applicable type of unit (e.g., most treatment units are probably tanks)
- Generally controlled with closed vent system and control device
- Primary condenser (e.g., main condenser on a steam stripper) is considered a part of waste management unit; therefore, control condenser vent

CLOSED-VENT SYSTEMS AND CONTROL DEVICES

- Monitor or secure bypass lines
- Combustion devices: 95% control of organics, 20 ppmv organics at exit, or meet residence time and temperature requirements
- Flares: meet established EPA flare specifications
- Vapor recovery and alternative controls: 95% control of organics or 98% control of benzene [NEW]

NEGATIVE PRESSURE CLOSED-VENT SYSTEMS [NEW]

- Applicable to various waste management units
- Allows opening on unit if negative pressure
- Purpose is to reduce explosion hazard
- No detectable emissions
- Pressure must be monitored

TREATMENT REQUIREMENTS

- Recycle to production process, or
- Remove 99 percent or more of the benzene from the waste, or
- Reduce benzene in waste to less than 10 ppm without aid of dilution, or
- Incinerate and achieve 99 percent or more destruction

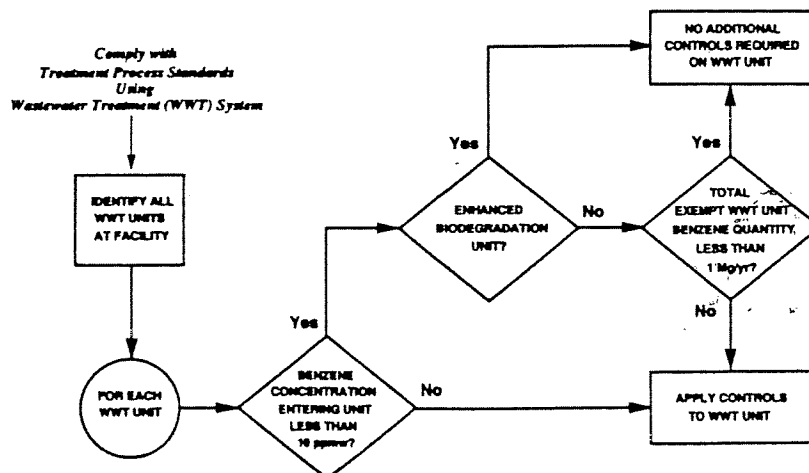
DILUTION PROVISIONS

- Dilution not allowed for complying with 10 ppm limit
- Can mix for purpose of facilitating treatment
- Document that less than 10 ppm in treated waste obtained without aid of dilution, or remove 99%
- Special provisions for wastewater system as a treatment process

TREATMENT PROCESS STANDARDS

- Provisions for mixing process wastewater, drawdown, or leachate with other wastes in a WWT system
- Applicable unless using target benzene quantity option
- Control until benzene quantity in exempt units less than 1 Mg/yr and concentration less than 10 ppm
- Don't count benzene entering enhanced bio unit if it's the first unit exempted from controls

ALTERNATIVE TREATMENT PROCESS STANDARD



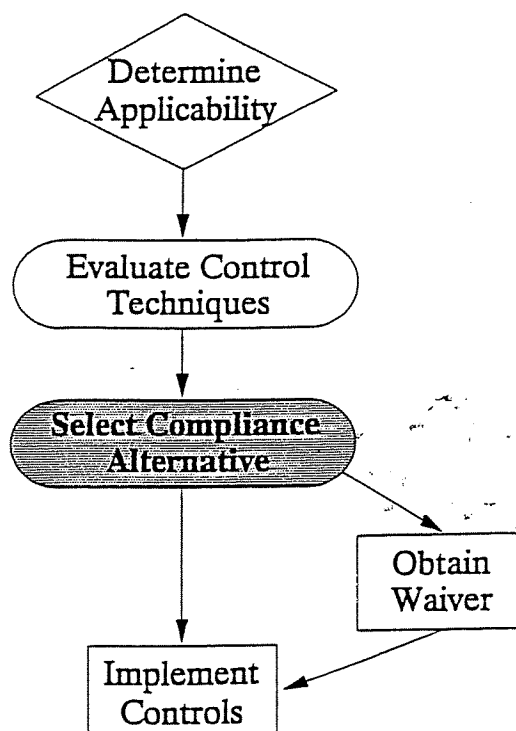
SUMMARY

- **Controls: vent to a control device; water seals on drains and junction boxes; floating roofs; fixed roof alone for certain cases**
- **95% total organics or 98% benzene for control device**
- **Recycle to production process, treat to below 10 ppm (no dilution), or remove/destroy 99% of benzene**
- **Alternative treatment standard for wastewater**

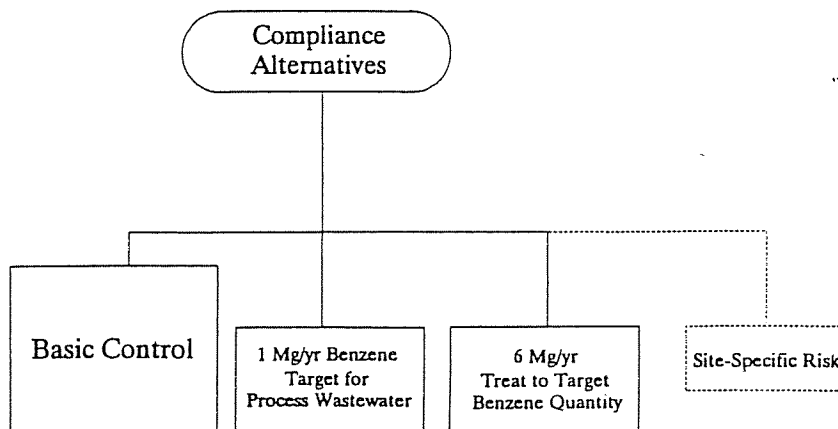
Compliance Alternatives

BENZENE WASTE NESHA: COMPLIANCE ALTERNATIVES

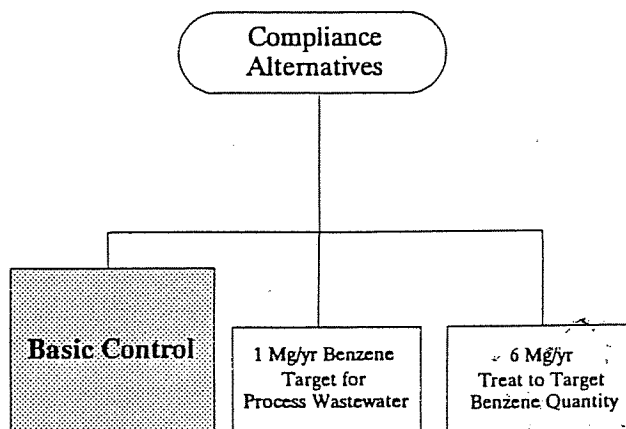
SUBPART FF FLOW DIAGRAM



COMPLIANCE ALTERNATIVES AVAILABLE TO FACILITIES THAT MUST CONTROL
(i.e., facilities with TAB of 10 Mg/yr or greater)



COMPLIANCE ALTERNATIVES AVAILABLE TO FACILITIES THAT MUST CONTROL
(i.e., facilities with TAB of 10 Mg/yr or greater)



BASIC CONTROL ALTERNATIVE

§61.342(c)

- Treat or recycle affected wastes
- Control air emissions from management units prior to and during treatment
- Mixing of wastes allowed
- Dilution is not acceptable treatment
- Treatment can occur onsite or offsite

Basic Control Alternative

TREATMENT AND CONTROL REQUIREMENTS

- All benzene waste streams must be treated and controlled unless exemption criteria apply
- Exemptions are different from TAB exemptions

CONTROL EXEMPTIONS

§61.342(c)(2) and (c)(3)

- Waste streams containing < 10 ppmw benzene
 - Exemptions for > 10 ppmw benzene waste streams
 - Low flow process wastewater streams
- OR
- Any combination of streams whose total benzene content ≤ 2.0 Mg/yr {new}

LOW FLOW PROCESS WASTEWATER EXEMPTIONS

(c)(3)(i)

- Process wastewater streams may be exempted from control if:
 - flow rate is ≤ 0.02 l/min, or
 - total waste quantity is < 10 Mg/yr
- Used only with basic control alternative, NOT WITH
 - 6 Mg/yr benzene treat to target BQ, or
 - 1 Mg/yr benzene target for wastewater

2 Mg/yr EXEMPTION {NEW}

§61.342(c)(3)(ii)

- Allows flexibility in deciding which streams to control
- Allows exclusion of any streams from control
- Benzene contained in exempted streams must total ≤ 2 Mg/yr

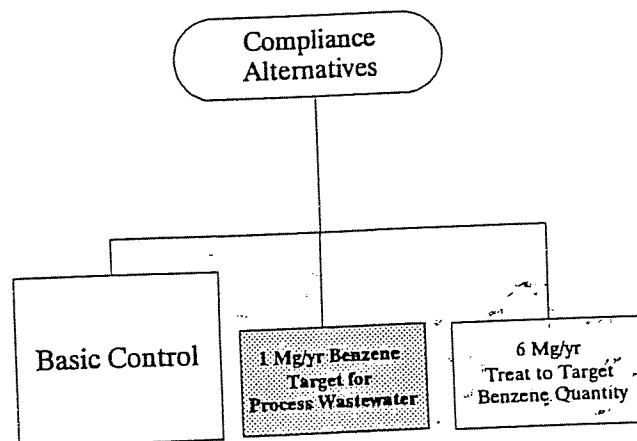
2 Mg/yr EXEMPTION PROCEDURES

- Determine benzene content of each waste stream at the point of waste generation
- Select waste streams for 2 Mg/yr exemption
- Separately identify waste streams being exempted in initial and annual reports

2 Mg/yr EXEMPTION RESTRICTIONS

- Benzene in exempted turnaround waste counted in year generated (not averaged)
- Used only with basic control alternative, NOT WITH
 - 6 Mg/yr benzene treat to target BQ, or
 - 1 Mg/yr benzene target for wastewater
- Cannot be used in conjunction with exemption for low flow wastewater streams {§61.342(c)(3)(i)}

COMPLIANCE ALTERNATIVES AVAILABLE TO FACILITIES THAT MUST CONTROL (i.e., facilities with TAB of 10 Mg/yr or greater)

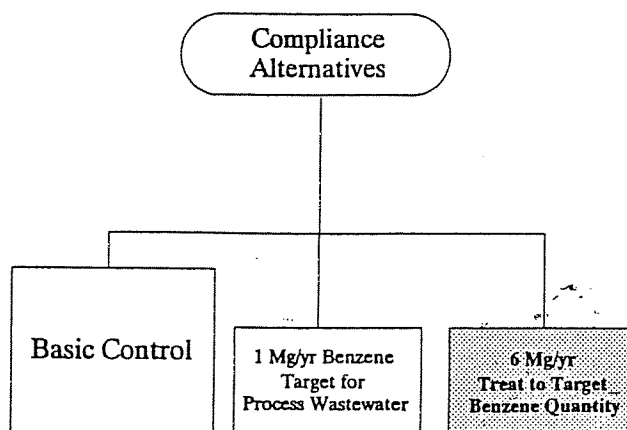


1 Mg/yr BENZENE TARGET FOR PROCESS WASTEWATER ALTERNATIVE

§61.342(d)

- Allows facilities to choose which process wastewater streams to control
- Sum of benzene contained in all controlled and uncontrolled process wastewater streams must be less than 1 Mg/yr
- Wastes that are not process wastewater must be controlled to meet the basic control requirements

COMPLIANCE ALTERNATIVES AVAILABLE TO FACILITIES THAT MUST CONTROL (i.e., facilities with TAB of 10 Mg/yr or greater)



6 Mg/yr TREAT TO TARGET BENZENE QUANTITY (BQ) ALTERNATIVE

§61.342(e)

- Allows facilities to choose which combination of aqueous (i.e., > 10% water) waste streams to control
- Sum of benzene contained in all aqueous waste streams where they enter the first uncontrolled unit must be less than 6 Mg/yr
- Organic waste streams (< 10% water) must be controlled

6 Mg/yr Treat to Target BQ Alternative

WHO CAN USE TREAT TO TARGET BQ ALTERNATIVE?

- Option open to all facilities with TAB of 10 Mg/yr or greater
- Most beneficial to facilities with TAB not significantly over 10 Mg/yr

WHAT IS INCLUDED IN BQ?

- Mass of benzene in all waste streams containing > 10% water, including:
 - streams containing ≤ 10 ppmw benzene
 - remediation wastes
 - wastes sent offsite
 - streams that become aqueous
 - turnaround wastes in the year they are generated
- Organic wastes not included, but must be controlled

WHERE IS BQ DETERMINED?


§61.355(k)

- Waste streams that are not controlled:
 - at the point of waste generation
- Waste streams managed in units equipped with Subpart FF controls:
 - at entrance to first uncontrolled unit
- Waste streams never managed in uncontrolled units
 - at discharge from the facility

WASTES SENT OFFSITE FOR TREATMENT

- Credit allowed for offsite treatment and control offsite proper documentation
- Same rules apply for location of BQ determination, i.e.,
 - at entrance to first uncontrolled unit, or
 - where the stream discharges from the offsite facility

SIMPLIFIED EXAMPLE OF USE OF 6 Mg/yr TREAT TO TARGET BQ OPTION



		Benzene Quantity Before Compliance	Benzene Quantity After Compliance
Aqueous Streams	Stream 1 (>10 ppm bz)	2 Mg/yr	2 Mg/yr [no treatment]
	Stream 2 (>10 ppm bz)	10 Mg/yr	1 Mg/yr [treatment]
	Stream 3 (<10 ppm bz)	5 Mg/yr	2 Mg/yr [treatment]
		Total BQ = 17 Mg/yr	Total BQ = 5 Mg/yr
Organic Stream	Stream 4	2 Mg/yr	2 Mg/yr [controlled units, then recycled]

DIFFERENCES IN TAB AND BQ

Area of Difference	TAB	BQ
Streams that are controlled and treated	Benzene determined at point of generation	Benzene determined prior to entering uncontrolled unit
Turnaround wastes	Benzene may be averaged over period between turnaround	Benzene included for year of turnaround
Remediation wastes	Benzene not included	Benzene included prior to entering uncontrolled unit

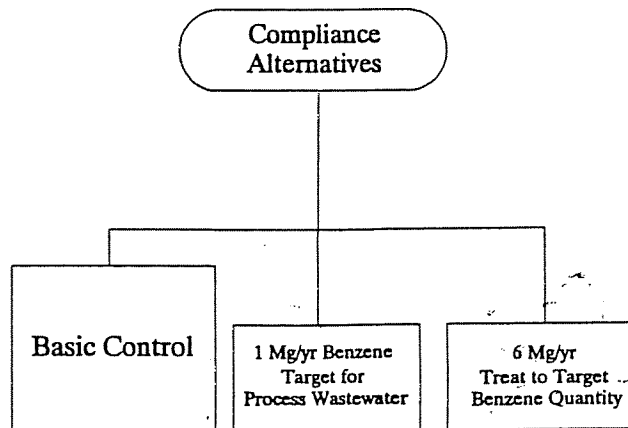
SPECIAL CONSIDERATIONS

- Double counting of benzene
- Enhanced biodegradation units
- Wastes sent offsite
 - Generator
 - TSDF

REPORTING AND RECORDKEEPING

- Subject to all reporting, recordkeeping, and monitoring requirements of Subpart FF
- Documentation required in annual report to demonstrate compliance with 6 Mg/yr Treat to Target BQ alternative
- Testing not necessarily required when using this alternative

COMPLIANCE ALTERNATIVES AVAILABLE TO FACILITIES THAT MUST CONTROL (i.e., facilities with TAB of 10 Mg/yr or greater)



Waiver Guidance

BENZENE WASTE NESHAP: WAIVER GUIDANCE

PURPOSE

- To provide an overview of the policy for granting waivers including:
 - dates of compliance
 - calculating mitigation goals
 - determining mitigation actions

MAIN POINTS

- **Meet the requirements of Subpart FF or have approved waiver on April 7, 1993**
- **Sources unable to comply may request a waiver for up to 2 years from effective date (January 7, 1995)**
- **Must have enforceable commitment to mitigate lost benzene reductions**
- **Must employ hierarchy of mitigation actions**

WAIVER POLICY GOALS

- **Obtain mitigating environmental benefits to compensate for lost benzene emission reductions**
- **Provide certainty to industry and reviewers about what entitles an applicant to a waiver**
- **Allow facilities to develop comprehensive, integrated compliance strategies**

WAIVER APPLICATION REQUIREMENTS

- Demonstrate need for waiver and explain why compliance delayed
- Submit Subpart FF compliance strategy and implementation schedule
- Calculate mitigation goal and credits; specify plan to mitigate the benzene emissions that result from extending compliance date (§61.342(b)(2))
- Submit information required by Section 61.357(a) of Subpart FF

DETERMINING MITIGATION GOAL

DETERMINING MITIGATION GOAL

- Estimate benzene emission reductions lost during the waiver period (April 7, 1993 until compliance)
- 2 approaches for estimating emissions
 - Facility TAB plus any benzene quantities excluded from TAB
 - Estimate benzene emissions from waste streams for different waste management units
- Multiply benzene emissions by 1.5 to obtain mitigation goal

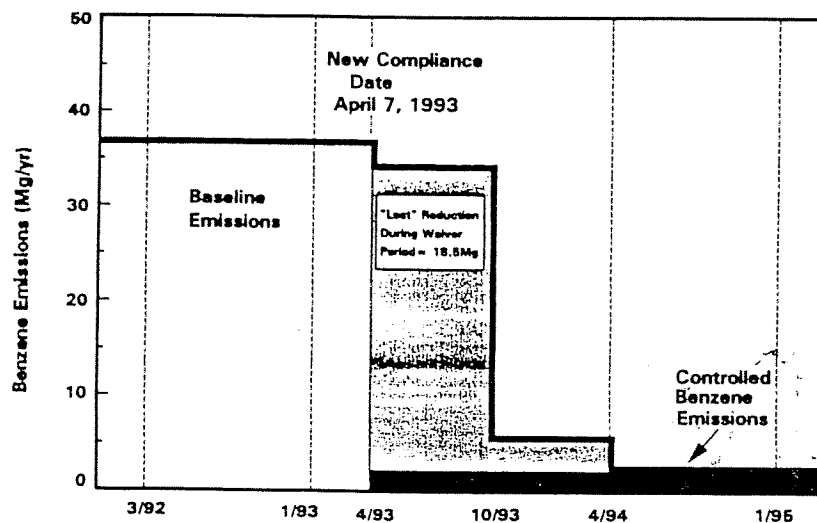
MITIGATION GOAL: EXAMPLE FACILITY

- Petroleum refinery plans to modernize process sewer system to comply with benzene waste operations NESHAP
- After Subpart FF controls, benzene air emissions reduced from baseline of 37 Mg/yr to 2 Mg/yr

MITIGATION GOAL

Example Facility: Phased compliance schedule

- Control slop oil tanks by 4/93;
benzene emission reduction = 2 Mg/yr
- Modifications to wastewater collection and treatment system by 10/93;
benzene emission reduction = 29 Mg/yr
- Tank drawdown piped to enclosed WWTS by 9/94;
benzene emission reduction = 4 Mg/yr



Example - Facility: Compliance Schedule With Benzene Reductions for 1/93 Rule

MITIGATION GOAL

Estimate "lost benzene emission reduction"
(LBER)

$$29 \text{ Mg/yr} \times 0.5 \text{ yr} = 14.5 \text{ Mg (WWTS)}$$

$$4 \text{ Mg/yr} \times 1.0 \text{ yr} = 4.0 \text{ Mg (tank drawdown)}$$

$$\text{LBER Total} = 18.5 \text{ Mg}$$

Calculate Mitigation Goal

$$\text{LBER} \times 1.5 = \text{Mitigation Goal}$$

$$18.5 \text{ Mg} \times 1.5 = 28 \text{ Mg}$$

MITIGATION HIERARCHY

MITIGATION HIERARCHY

1. Reductions in benzene air emissions from waste operations not controlled by Subpart FF
2. Reductions in benzene air emissions from other sources
3. Control of emissions of HAPs listed under §112 of CAA as amended in 1990, other than benzene
4. Control of non-HAP VOC emissions
5. Control of emissions of SO_x (maximum of 3 nationwide projects)

MITIGATION ACTIONS

MITIGATION ACTIONS ALLOWED

- Not required by Federal, State or local regulations
- Beyond control levels required by Federal, State or local regulations
- In advance of future regulatory or legislative requirements, but not after the compliance date of the new requirements

MITIGATING ACTION RESTRICTIONS

- No credit for additional treatment for benzene removal for those streams controlled by the Subpart FF
- Incidental removal of pollutants other than benzene from a Subpart FF affected waste stream is not a mitigating action
- Mitigating credit not allowed for use of 98-percent device vs 95-percent control for Subpart FF sources

MITIGATION ACTION RESTRICTIONS (con't)

- No credit for process shutdowns/downsizing
- Credits cannot be accumulated before 3/7/92
- No credit for mitigating actions beyond 1/7/97

MITIGATION ACTIONS WEIGHTING FACTORS

- Emissions of benzene -
 - Not discounted to meet mitigation goal

MITIGATION ACTION WEIGHTING FACTORS (con't)

- Sources of HAPs
 - Discounted at a ratio of 1.1 Mg of HAPs to 1 Mg benzene goal
- Sources of VOCs (non-HAP)
 - Discounted at a ratio of 2.2 Mg of VOC to 1 Mg benzene goal
- Sources of SO_x
 - Discounted at a ratio of 2.2 Mg of SO_x to 1 Mg benzene goal
 - Only 3 SO_x projects nationwide

MITIGATION ACTIONS

- Concomitant emission reductions
 - Control of a particular pollutant may result in simultaneous control of other pollutants
 - Mitigation actions that result in reduction of other HAPs or VOCs receive credit at the proper discounting level

EXAMPLE FACILITY: MITIGATING ACTIONS

- Control condensate from flare system by 7/93;
benzene emission reduction = 1.0 Mg/yr
- Install secondary seals on floating roof tanks by
1/94; benzene emission reduction = 3.0 Mg/yr
- Increase equipment leak LDAR frequency by
4/93; benzene emission reduction = 1.0 Mg/yr
- Control marine vessel loading operations by
7/93; benzene emission reduction = 2.0 Mg/yr

MITIGATING CREDITS

Example Facility - Total benzene emission reductions

- *Condensate:* 1 Mg/yr x 3.5 yr = 3.5 Mg
- *Secondary Seals:* 3 Mg/yr x 3.0 yr = 9.0 Mg
- *Equipment Leaks:* 1 Mg/yr x 3.75 yr = 3.75 Mg
- *Marine Loading:* 2 Mg/yr x 3.5 yr = 7.0 Mg

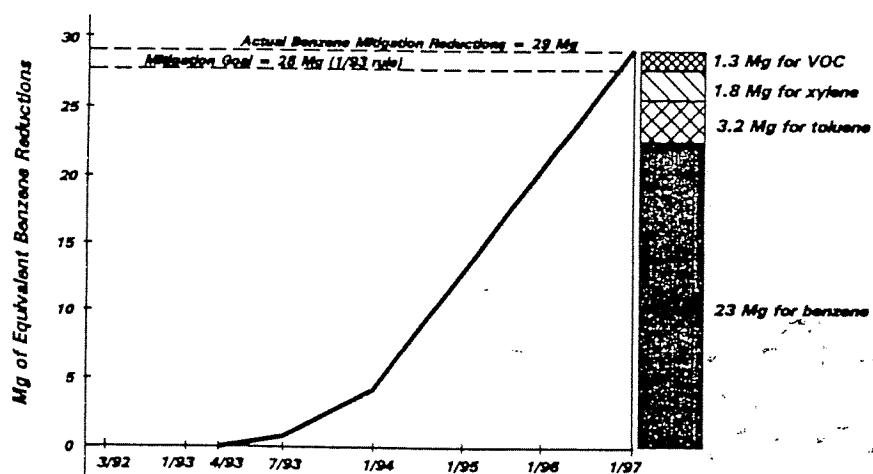
Total = 23 Mg benzene

Mitigation Credit = 23 Mg

MITIGATING CREDITS

Example Facility - HAP & VOC Emission Reductions

	Toluene	Xylene	VOC's
- Condensate	2.0	1.0	1.6
- Equipment Leaks	0.5	0.5	0.2
- Marine Loading	1.0	0.5	1.0
Totals (Mg)	3.5	2.0	2.8
	÷ 1.1	÷ 1.1	÷ 2.2
Mitigation Credits (Mg)	3.2	1.8	1.3



Example - Facility: Mitigating Benzene Reductions

SITE-SPECIFIC RISK OPTION

Facility owner/operator awaiting the development of Alternative Compliance Option must apply for waiver

SITE-SPECIFIC RISK OPTION (con't)

Application must reflect two-phase compliance path:

- Compliance with site-specific risk assessment-based compliance option; control to meet target risk
- Compliance with Subpart FF §61.343 through §61.349; without site-specific risk option

SITE-SPECIFIC RISK OPTION (con't)

- Mitigation goals and credits must be calculated without regard to site-specific risk assessment compliance option
- Mitigation goal may be reduced, if promulgated
- No additional time beyond waiver period for site-specific risk option (1/7/95)

REVIEW PROCESS

REVIEW PROCESS

- Facility must receive waiver approval by April 7, 1993
- Submit application to EPA Regional Office, State or other delegated Agency
- Agency will request additional supporting material, if necessary

REVIEW PROCESS (con't)

- Before denying a request, Agency will:
 - notify the company of intent to deny, and
 - provide time frame for additional information or arguments
 - Agency final determination 60 days after presentation of additional material or argument
- If approved, Agency will provide in writing a waiver with specific enforceable requirements

REVIEW PROCESS (con't)

- If source fails to achieve compliance by end of waiver period, subject to consent decree or other enforcement action
- If full compliance projected beyond 1/7/95, waiver not automatically denied; enter into consent decree beyond waiver period
- What happens if 4/7/93 arrives and waiver is still being reviewed?

SUMMARY

- All sources must be in compliance or received an approved waiver by April 7, 1993
- Waiver request must contain enforceable commitment to mitigate lost benzene emission reduction using hierarchy of mitigation actions
- No waiver will extend beyond January 7, 1995

BENZENE WASTE OPERATIONS NESHAAP - REGIONAL OFFICE CONTACTS FOR
SUBMITTAL OF WAIVER APPLICATIONS

<u>Region</u>	<u>Name (Mail Code)</u>	<u>Phone #</u>
I (Boston)	Carolyn Pina (APC) JFK Federal Building One Congress Street Boston, MA 02203-2211	(617) 565-3728
II (New York)	Harish Patel (AWM-ACB) Jacob K. Javits Federal Building 26 Federal Plaza New York, NY 10278	(212) 264-6683
III (Philadelphia)	Tom Kovach (3AT-23) 841 Chestnut Building Philadelphia, PA 19107	(215) 597-9318
IV (Atlanta)	Mirza Baig (APB) 345 Courtland Street NE Atlanta, GA 30365	(404) 347-5014
V (Chicago)	MI, WI - Gary Gulezian (AT-18J) IN, IL - Stephen Rothblatt (AR-18J) OH, MN - George Czerniak (AE-17J) 77 W. Jackson Boulevard Chicago, IL 60604-3507	(312) 353-8559 -2211 -2088
VI (Dallas)	Stanley Meiburg (6T) Mark Hansen (6T-ET) 1445 Ross Avenue, 12th Floor, Suite 1200 Dallas, TX 75202-2733	(214) 655-7200 (214) 655-7548
VII (Kansas City, KS)	Edwin Buckner (ARTX/ARBR) 726 Minnesota Avenue Kansas City, KS 66101	(913) 551-7621
VIII (Denver)	Patricia Hull 990 18th Street, Suite 500 Denver, CO 80202-2466	(303) 293-0946
IX (San Francisco)	David Carlson (A-3-3) 75 Hawthorne Street San Francisco, CA 94105	(415) 744-1143
X (Seattle)	Chris Hall (AT-082) 1200 6th Avenue Seattle, WA 98101	(206) 553-1949

DELEGATED STATE AGENCIES

The following states and localities have been delegated the authority to review and approve waiver applications (some states and local areas in EPA Region III may also have this authority; check with the Region III contact). When applying to these agencies, a copy of the waiver application should be mailed to the appropriate EPA Regional Office.

<u>State</u>	<u>Name</u>	<u>Phone #</u>
Alabama	George Sullivan, Air Division Department of Environmental Management 1751 Congressman W.L. Dickinson Drive Montgomery, AL 36109	(205) 271-7861
Arkansas	Department of Pollution Control and Ecology P.O. Box 9583 Little Rock, AR 72219	(501) 562-7444
Georgia	Marvin Lowry Air Protection, Environmental Protection Division Department of Natural Resources 4244 International Parkway, Suite 120 Atlanta, GA 30354	(404) 363-7000
Indiana	Woodard Smith, Office of Air Management Indiana Department of Environmental Management P.O. Box 6015 Indianapolis, IN 46206	(317) 232-8422
Kansas	William Spratlin Director, Air and Toxics Division 726 Minnesota Avenue Kansas City, KS 66101	
Maine	Kevin MacDonald State House Station 17, Upham Building 71 Hospital Street Augusta, ME 04333	
Michigan	Susan Parker, Air Quality Division Michigan Department of Natural Resources P.O. Box 30028 Lansing, MI 48909	(517) 373-2911
Mississippi	Wayne Anderson Air Quality Division - Office of Pollution Control Department of Environmental Quality P.O. Box 10385 Jackson, MS 39289	(601) 961-5171
Montana	Jeff Chaffee, Chief, Air Quality Bureau Department of Health and Environmental Services Cogswell Building Helena, MT 59620	(406) 444-3454

Nebraska	Jim Yeggy Nebraska Department of Environmental Quality Suite 400, The Atrium 1200 N Street Lincoln, NE 68509-8922	(402) 471-2189
Ohio	Paul Koval, Division of Air Control Ohio Environmental Protection Agency P.O. Box 1049 Columbus, OH 43216	(614) 644-3615
South Carolina	Jack Thornberry Bureau of Air Quality Control Department of Health and Environmental Control 2600 Bull Street Columbia, SC 29201	(803) 734-4552
Tennessee (2 localities have delegated authority)	Billy Grantham Knox County Department of Air Pollution Control Rob Rainey Air Pollution Control Division Nashville/Davidson County Metropolitan Health Dept.	(615) 521-2488 (615) 340-5653
Texas	Jeanne Philquist Texas Air Control Board 12124 Park 35 Circle Austin, TX 78753	(512) 908-1000
Utah	Burnell Cordner, Director, Division of Air Quality Department of Health P.O. Box 16690 288 North, 1460 West Salt Lake City, UT 84116-0700	(801) 536-4000
Wisconsin	Joe Brehm, Bureau of Air Management Wisconsin Department of Natural Resources P.O. Box 7921 Madison, WI 53707	(608) 267-7541