

MI DEQ & RETAP Pollution Prevention (P2) Training

P2 Assessments: Finding the Right Opportunities

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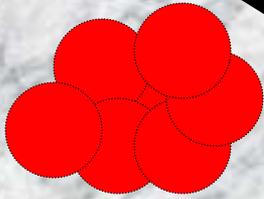
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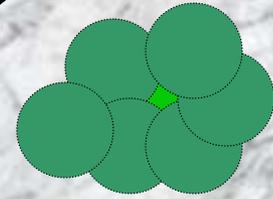
Kentucky Pollution Prevention Center (KPPC)



P2 Assessment



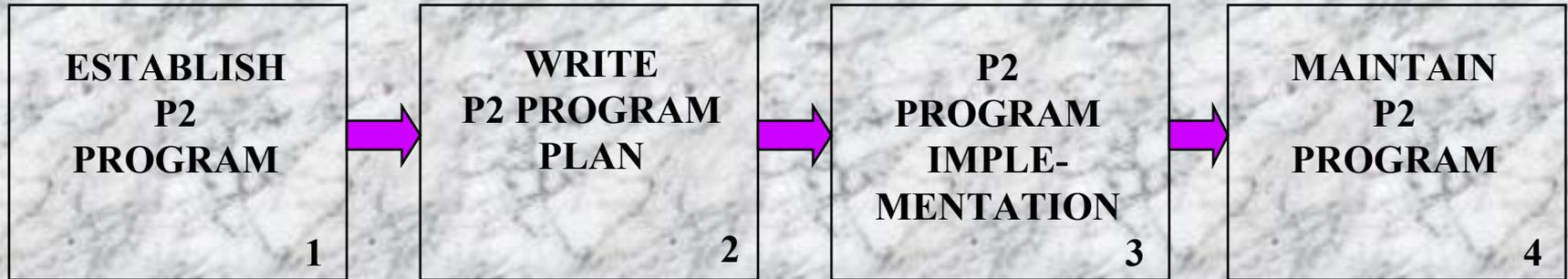
You Are Here



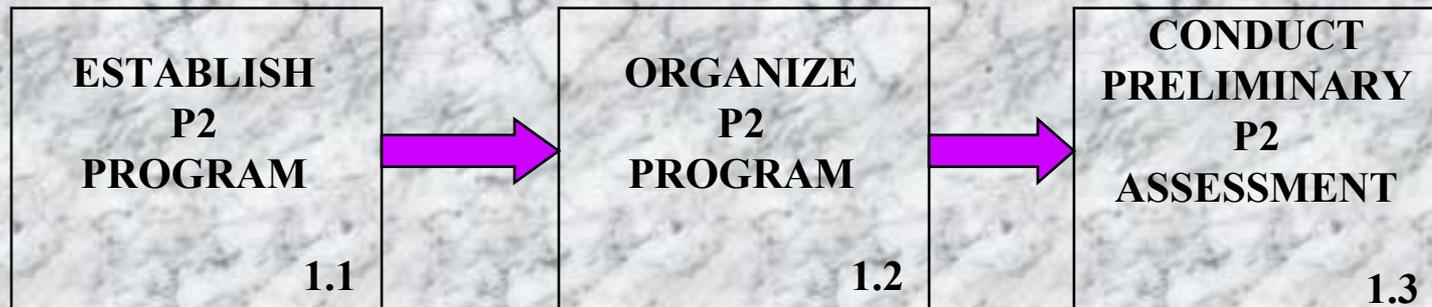
You Want To Be Here



Traditional P2 Approach Process Map



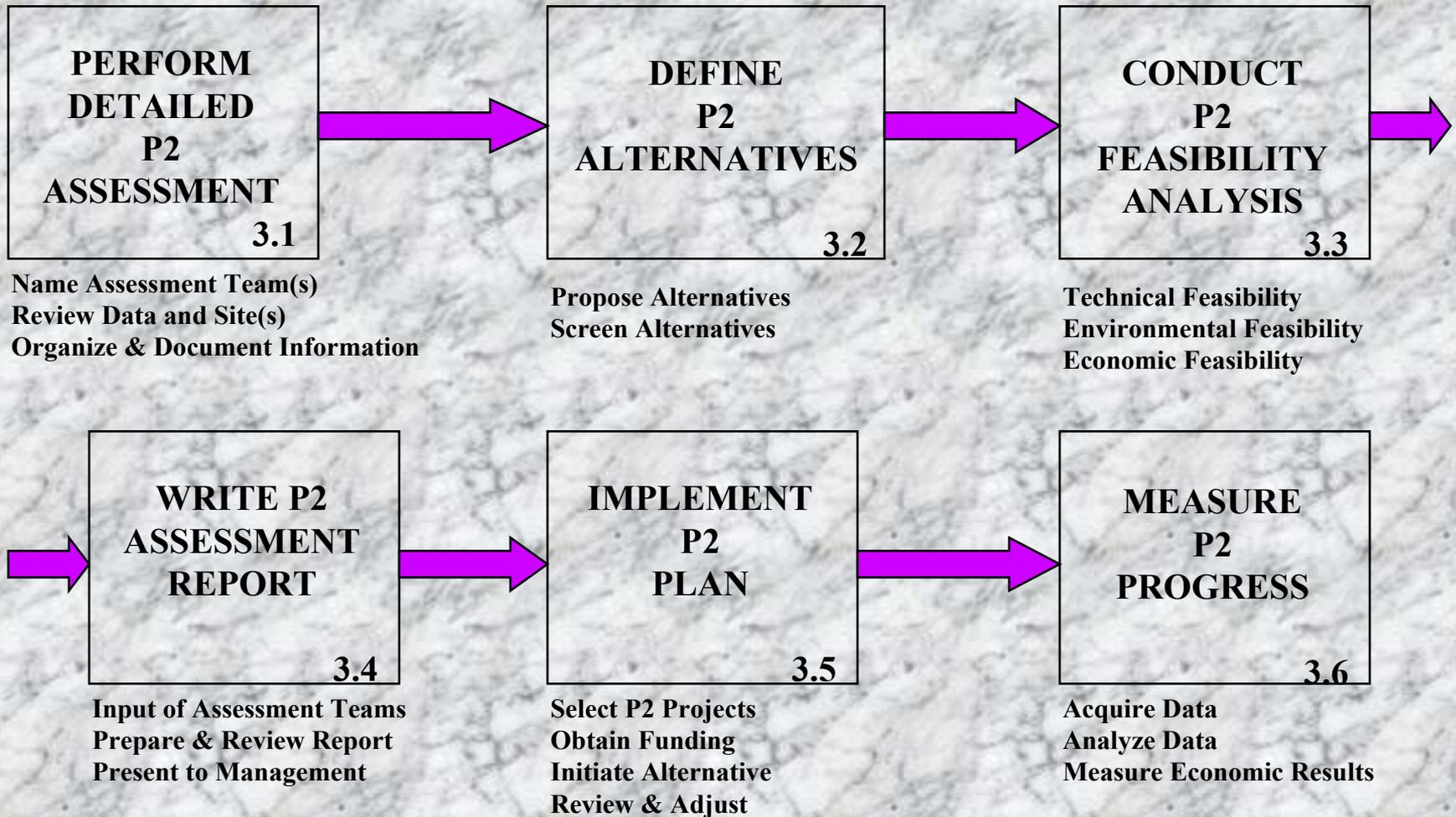
Consider External Groups
Define Objectives
ID Potential Obstacles
Develop Schedule



Primary Concerns

- Better Quality Products**
- Regulations & Other Requirements**
- Cheaper & Reliable Processes & Materials**
- Long-term Liabilities**

P2 Program Implementation



Who's on the Team?

You

Other Facility Personnel:

Environmental, Health & Safety

Maintenance (Preventive Maintenance)

Production

Purchasing

Quality Control/Assurance

Outside Technical Assistance Provider

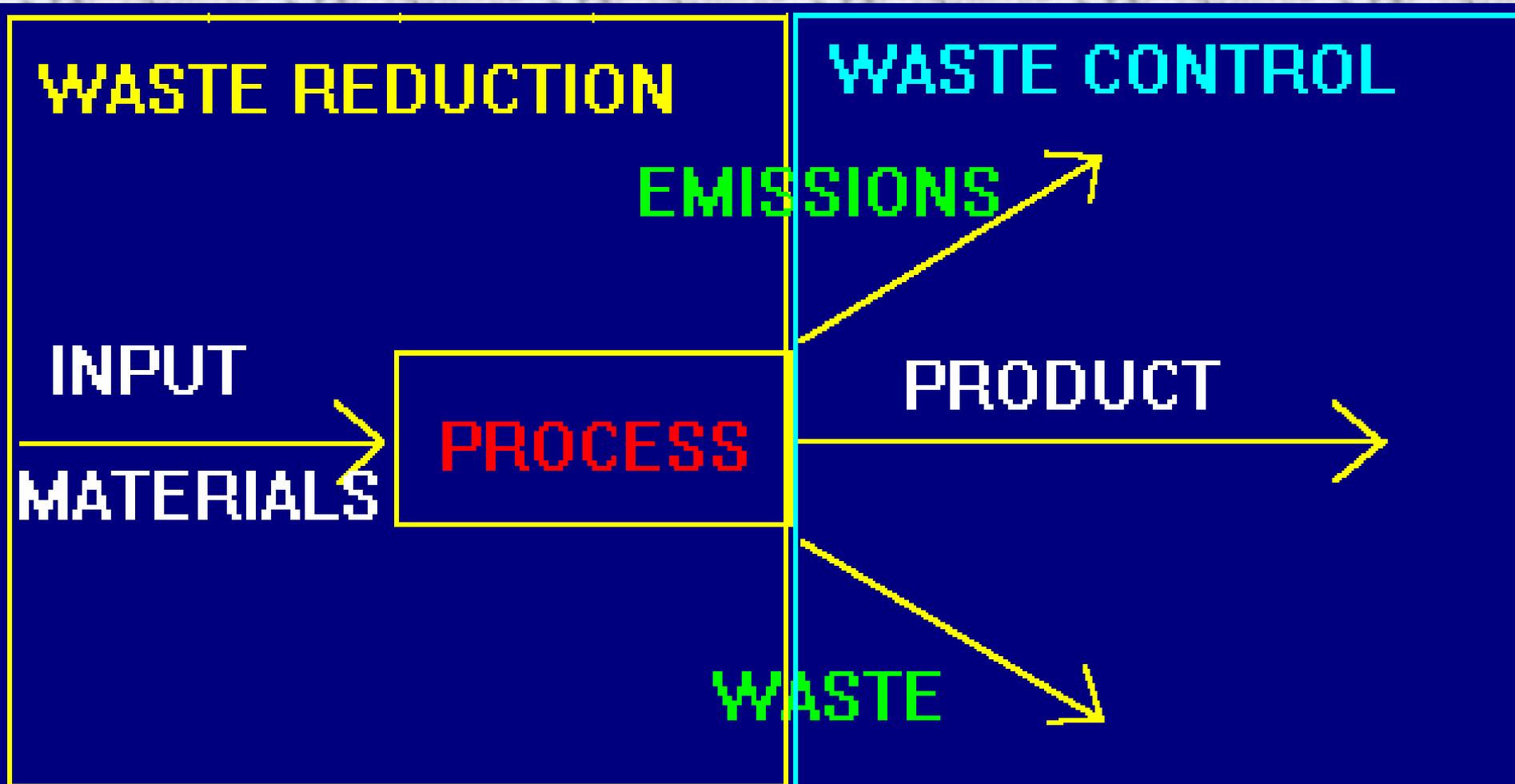
P2 Assessment Steps

- Gather Information**
- Prioritize Target Areas**
- Plant Assessment by Team (TAP Visit)**
- Brainstorm for Solutions**
- Analyze Potential Solutions**
- Written Report**
- Follow-up**

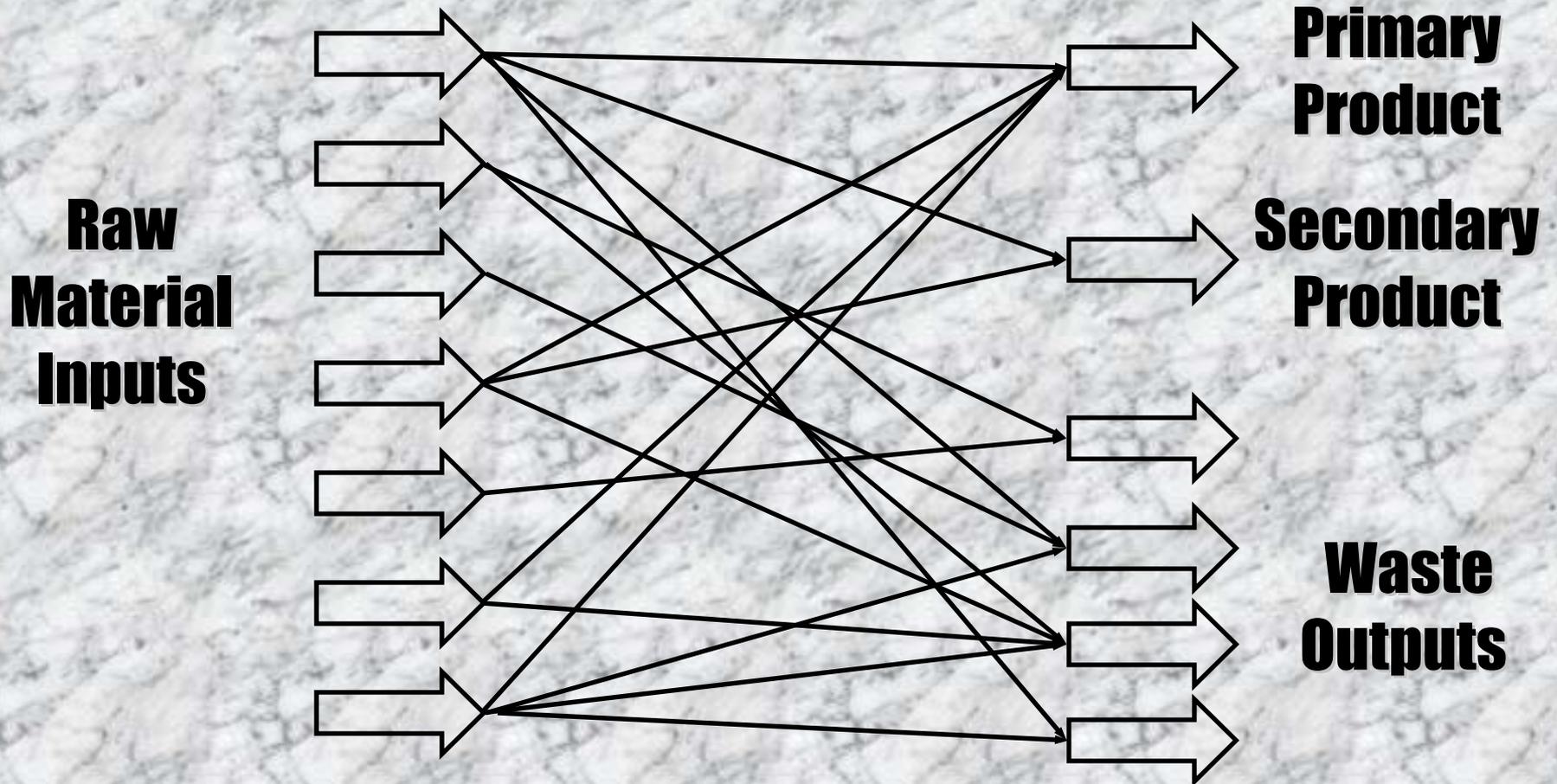
Gather Preassessment Information

- Interview/Preassessment Questionnaire
(See KPPC example)**
- Facility data, process flow diagrams & maps**
- Internet & Other Resources**
 - Review Checklists**
 - Process-related info**
 - Company-related info**
- Prioritize waste issues & problems**
 - Out of compliance (NOV), money or others?**

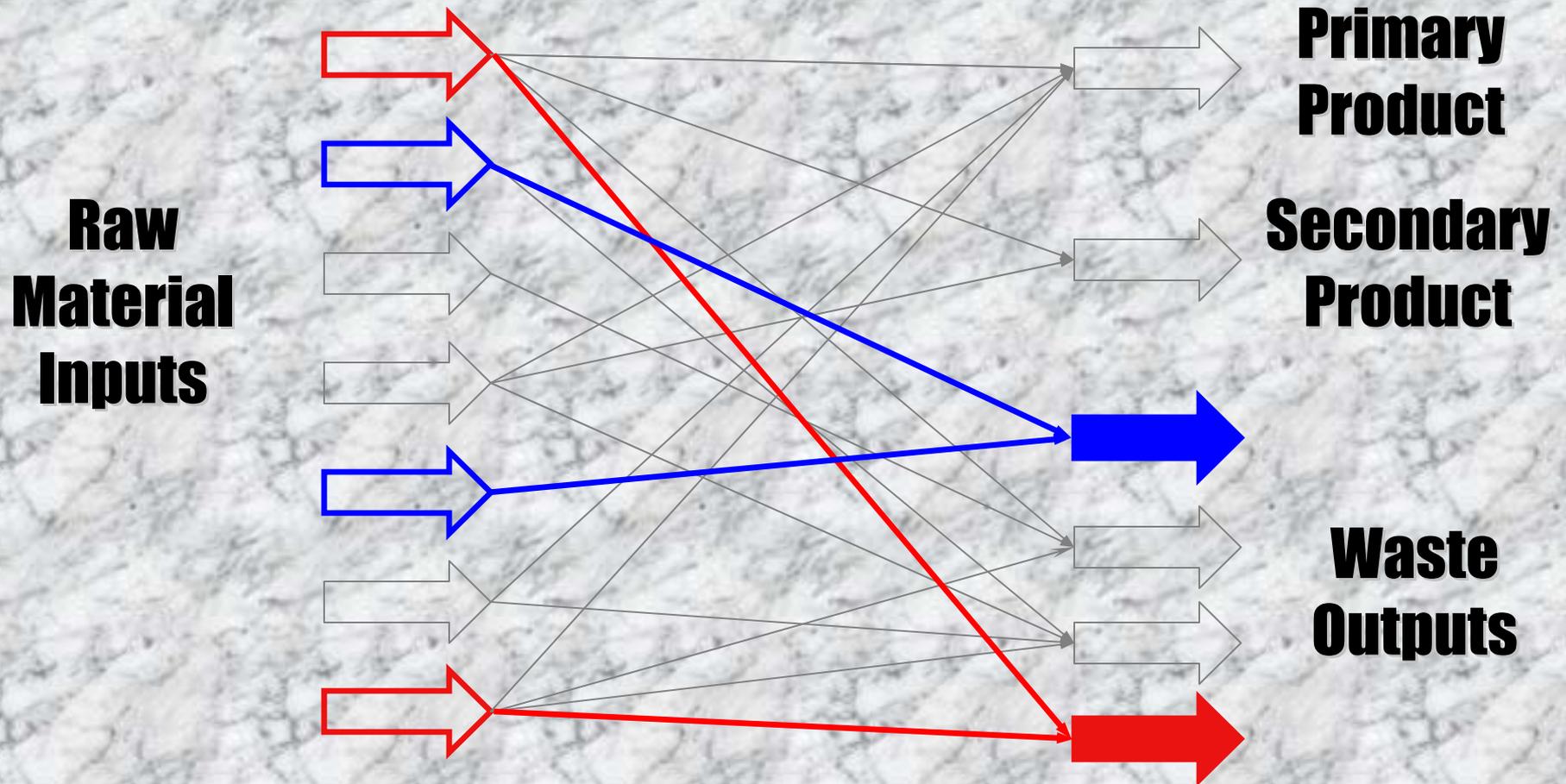
Process Flow Diagram



Process Assessment



Prioritize Waste Streams



On-Site P2 Assessment (Plant Visit by TAP)

Initial Opening Meeting

- Confirm Information**

- Finish Questionnaire**

- Check Provided Documents**

- Confirm company priorities, compliance, \$\$\$ & other**

Facility Tour

- Follow Process Flow, Ask Questions & Be Observant**

Closing Meeting

Pollution Prevention Assessments

Facility walk-through

- ❑ Look for P2 opportunities and possible regulatory concerns
- ❑ Observe operating and housekeeping practices
- ❑ Inspect storage area and spill equipment

Talk with front line employees!



Plant Visit: Closing Meeting

- Ask More Questions**
- Collect More Data (if Necessary)**
 - Especially on amounts, types & costs of wastes, raw materials, water & energy**
- Develop Flow Diagrams & Process Maps**
 - Check what you developed on the walk-through**
- Brainstorm Problems/Solutions**
 - What have they tried & what are they thinking?**

Input/Output Process Map for Prepress



Analyze Opportunities & Solutions

Technically Feasible

- Will it work and/or change other operations?

- Special Considerations?

Economically Feasible (Financial Protocol)

- Simple Payback

- Internal Rate of Return (IRR)

- Return on Investment (ROI)

9 Rules for Identifying Opportunities & Generating Interest

- ❑ Calculate purchase value of materials in wastestream**
- ❑ Jointly examine flow of materials, energy & labor**
- ❑ Investigate the quality of process controls**
- ❑ Introduce the right hand to the left hand**
- ❑ Be a skeptic when you hear “we tried that”**

9 Rules for Identifying Opportunities & Generating Interest (continued)

- ❑ Relate P2 to existing company improvement interests**
- ❑ View compliance “headaches” as manufacturing improvement opportunities**
- ❑ Take apart product costs**
- ❑ Always examine recycling solutions**

Remember

- Root causes of waste MAY have nothing to do with technology or process engineering**
- Root causes can be in surprising places**
- Whoever controls the cause, controls the waste**

Put It In Writing

Provide Written Report (Presentation)

- Technical Aspects

- Economic Aspects

- Include Assumptions

Follow up

- Answer Questions

- Provide Additional Contact Information

- Evaluate implementation & services

P2 Assessment Benefits

☐ Economic

- ☐ Lower Energy Bills**
- ☐ Lower Water Bills**
- ☐ Process Streamlining/Reduce “Bottlenecks”**
- ☐ Newer & Less Expensive Manufacturing Processes**
- ☐ Cost Savings from Lowering Volume and/or Toxicity of Wastes**

P2 Assessment Benefits

- Cost Savings from Lowering Volume and/or Toxicity of Wastes**
 - Disposal Fees**
 - Generator Fees/Taxes**
 - Transportation Costs**
 - On-site Storage & Handling**
 - Operating & Maintenance Costs**
 - Raw Materials**
 - Permitting, Reporting & Recordkeeping**
 - Emergency Preparedness & Site Cleanup**

P2 Assessment Benefits

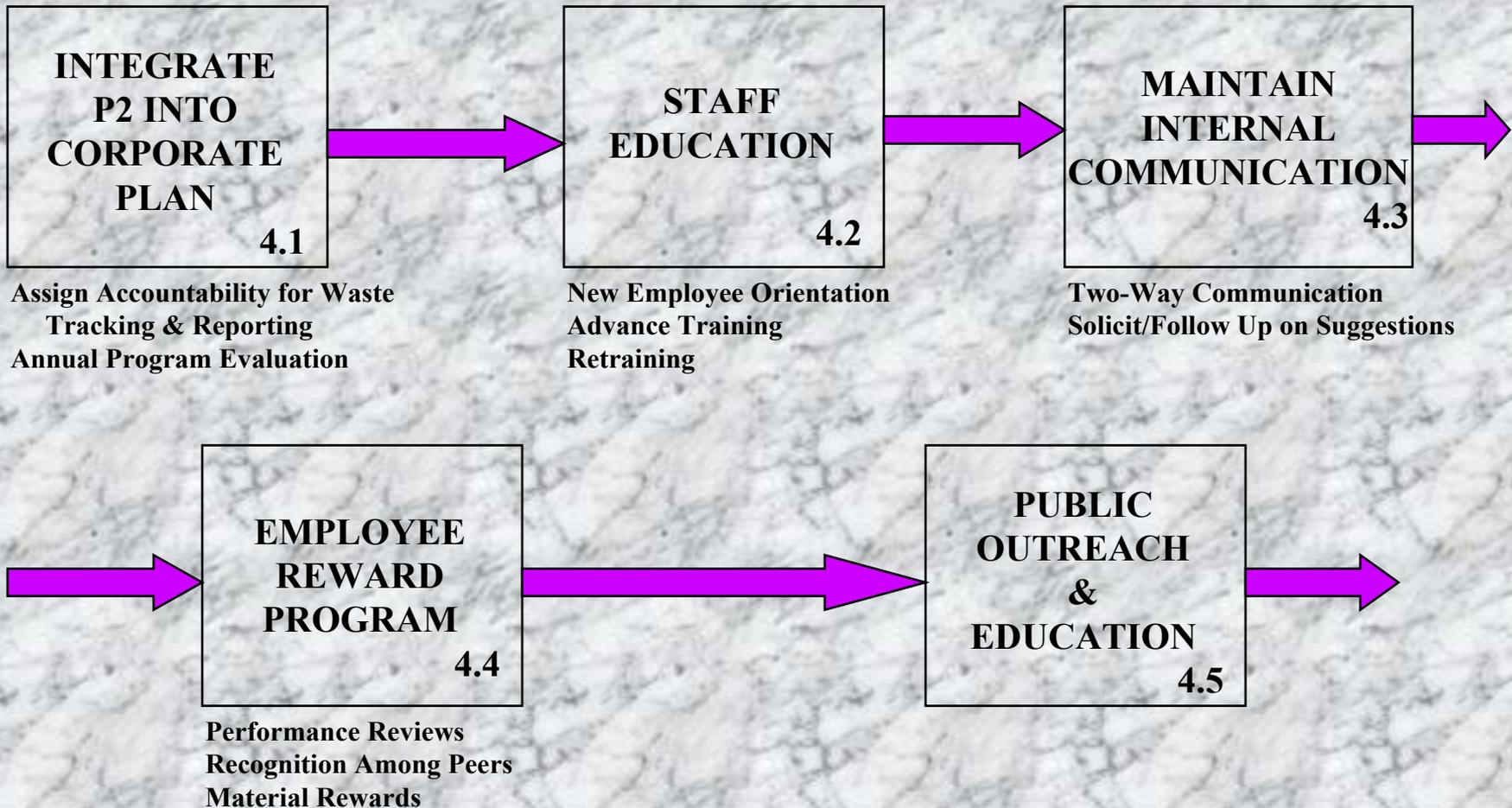
- Decreased Liability**
 - Civil**
 - Criminal**
 - Workers' Compensation**
 - Long-term Disposal Cleanup Liabilities**
- Train Staff**
 - Overcome Myths & Mental Blocks**
 - Avoid “Snap-Back” to prior procedures & practices**

P2 Assessment Benefits

□ Develop Benchmarks

- Costs (\$/Production Unit, \$/Ft², \$/1000 Gal.)**
- Raw materials & water usage & costs**
- Treatment & Disposal practices & costs**
- Energy (Btu/Ft²)**
- Demand (kW/mo)**
- Recycling revenue & avoided costs**

Maintaining the P2 Program



Source Reduction Training

- Manager Training**
- Employee Training**
- Process / Job / Shift**
- Internal Assessment**
- Demonstrate Organizational
Commitment**



Integrated P2 Assessment

- ❑ **An expanded assessment...**
- ❑ **Examining:**
 - ❑ **Business Systems**
 - ❑ **Business Practices**
 - ❑ **Overall Manufacturing Context**
- ❑ **So that:**
 - ❑ **P2 strategies are tailored to the organization's objectives & targets (EMS)**
 - ❑ **P2 is implemented as part of the business plan**

Senior Management Track

Investigate:

- Business goals & EMS policies
- Management perspectives on current operations
- Decision-making methods
- Amounts & types of planning
- Organizational structure & responsibilities

To Determine:

- Expressions & amount of management commitment
- Management triggers & priorities
- Sacred Cows--What P2 must be respectful of!
- Who holds key power & influences positions

Production Activities & Services: Management Track

□ Investigate:

- Purchasing & procurement methods (EPP & EMA?)**
- Production scheduling methods**
- Inventory control systems/JIT (FIFO & “FISH”)**
- Relationships with suppliers/contractors for quality assurance & meeting EMS objectives & targets**

□ To Determine Opportunities:

- For P2 through production control improvements**
- To link P2 to existing production management changes**
- For better coordination between buyers/suppliers (EPP)**

Services

Support Functions Track

☐ Investigate:

- ☐ Cost accounting/overhead allocation systems**
- ☐ Capital budgeting process**
- ☐ Training Programs**
- ☐ Compensation & incentive programs**
- ☐ Environmental data gathering & management**
- ☐ Quality improvement programs, methods & tools**

☐ To Determine:

- ☐ Total environmental management costs (ABC & EMA)**
- ☐ Amount & quality of resources available for P2/EMS planning & implementation**
- ☐ Ways to integrate P2 into quality improvement efforts**

EMS/ISO 14001 Gap Analysis

Initial Audit Review

- ❑ Assess current environmental management components & techniques (Up-to-date?)**
- ❑ Identify strengths (elements in-place) & improvements relative to EMS/ISO 14001**
- ❑ Develop final report with observations & recommendations (Concerns for the future)**
- ❑ Generate EMS plan to align with ISO 14001 (Employee involvement & continual improvement)**

An Organizational Guide to P2

P2 Manuals

The U.S. Environmental Protection Agency (EPA) has published two P2 manuals prior to the publication of this Guide. Both of these publications are available on this CD-ROM. In addition, a link is provided to an electronic version of this EPA manual. A number of other excellent P2 manuals and sample P2 plans are also available to help guide an organization that seeks to follow Chapter 8 in the Guide and prepare its own unique P2 program.

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Next Steps:

*Look at doing a P2 Assessment
for an Organization!*

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