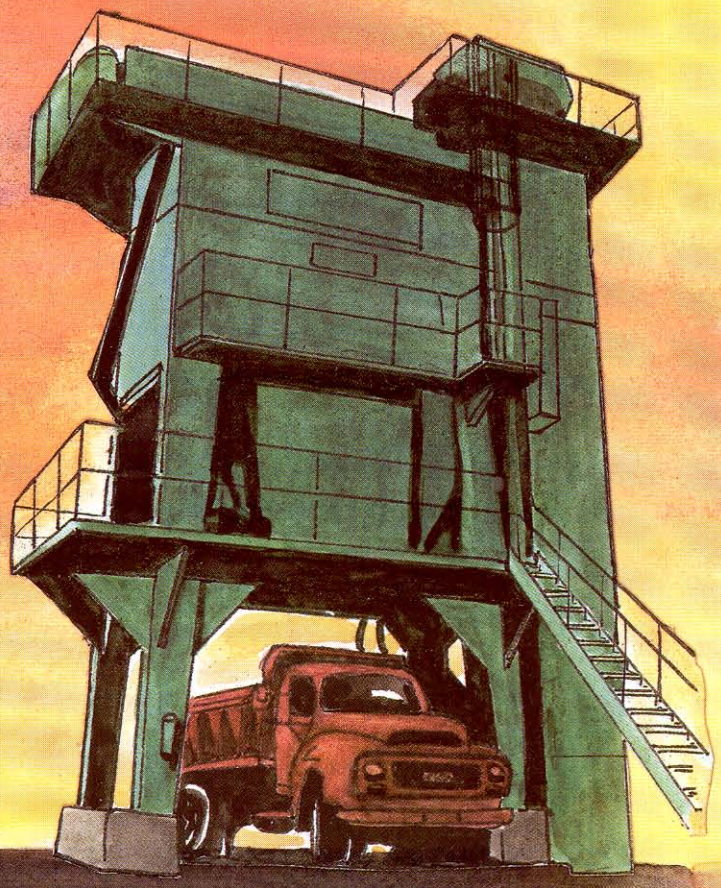
SELF-INSPECTION HANDBOOK FOR Hot Mix Asphalt Facilities

HOW TO COMPLY WITH REGULATIONS & REDUCE AIR POLLUTION



AIR RESOURCES BOARD
COMPLIANCE DIVISION
COMPLIANCE ASSISTANCE PROGRAM

IN COOPERATION WITH LOCAL
AIR POLLUTION CONTROL DISTRICTS

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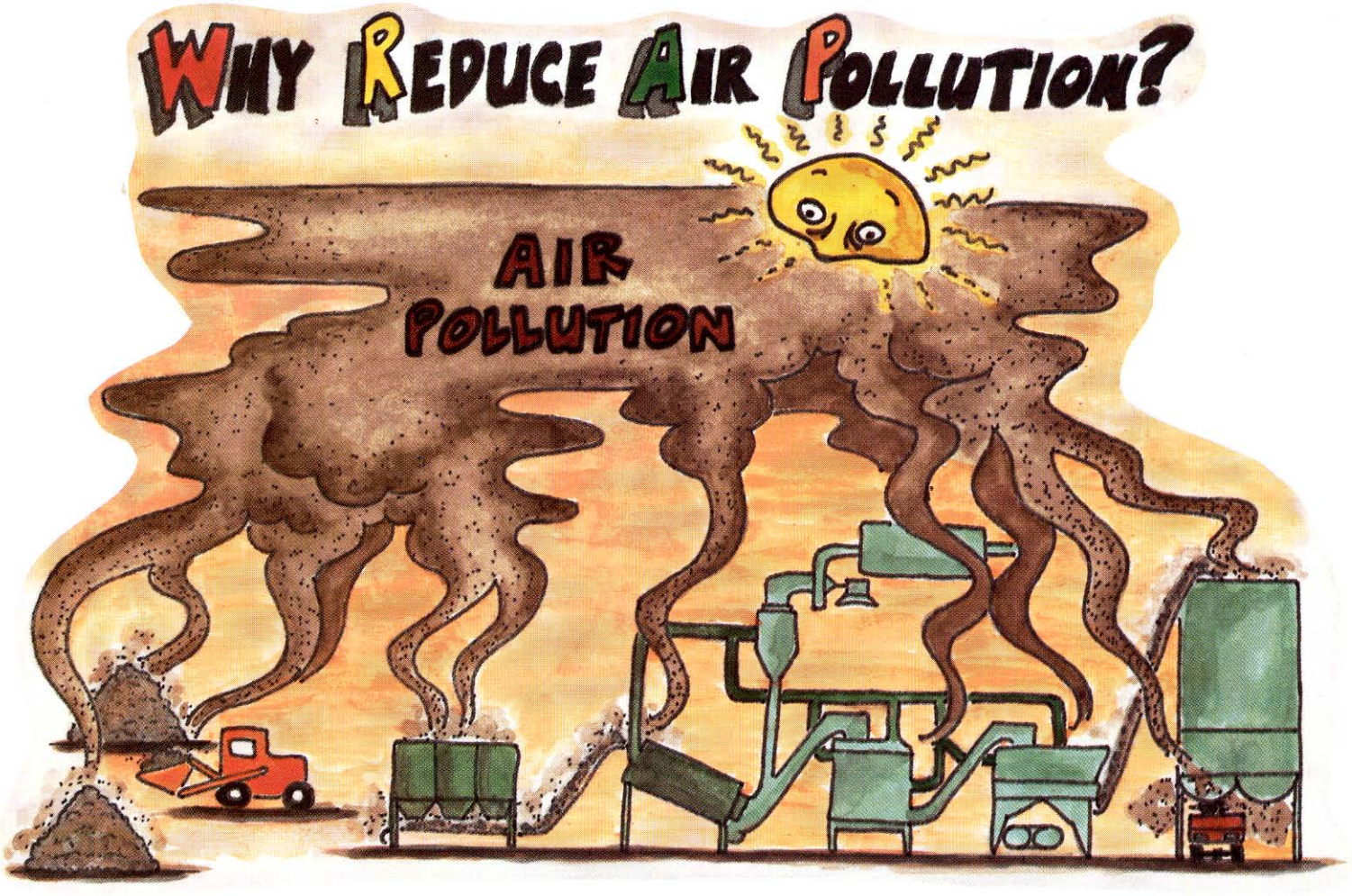


Air pollution affects millions of Californians every day. Air pollution in the form of **smog** irritates your lungs and eyes, increases allergic reactions, and causes crop damage estimated at $330 million per year in California. Air pollution in the form of **particulate matter**, especially particles that are 10 microns or less, can be inhaled deep into a person's lungs, aggravating and possibly even causing respiratory illnesses.

Air pollution comes from many sources including **hot mix asphalt facilities.** Hot mix asphalt facilities can emit dust and gases into the air during operation. These emissions contribute to the formation of smog and particulate matter, and contribute to the air pollution problem in our state.

To reduce air pollution, the California Air Resources Board and your local air pollution control district are asking for your help. You can help by knowing and complying with the laws that govern air pollution at your facility and by performing preventive maintenance. **This handbook is designed to help you know the laws and regulations and to suggests ways to help keep you in compliance.**

KNOW THE RULES THAT APPLY TO YOU!

Hot mix asphalt facilities are mainly regulated by the following:

- Permit to Operate Conditions
- Particulate Matter Regulation
- Fugitive Dust Regulation
- Visible Emissions Regulation
- Breakdown and Variance Procedures
- Nuisance Regulation

Additionally, most local air pollution control districts have legal requirements concerning the use of cutback and emulsified asphalt; the construction of new or the modification of existing facilities; limitations on the sulfur content of fuels; and limitations on carbon monoxide and nitrogen oxide emissions.

The content of these regulations, procedures, and conditions may vary from district to district. Make sure that you know and comply with the legal requirements in **your** district.

Compliance with these requirements is also required by the **California Department of Transportation (CALTRANS)**. Noncompliance can result in the inability to produce materials for CALTRANS contracts.

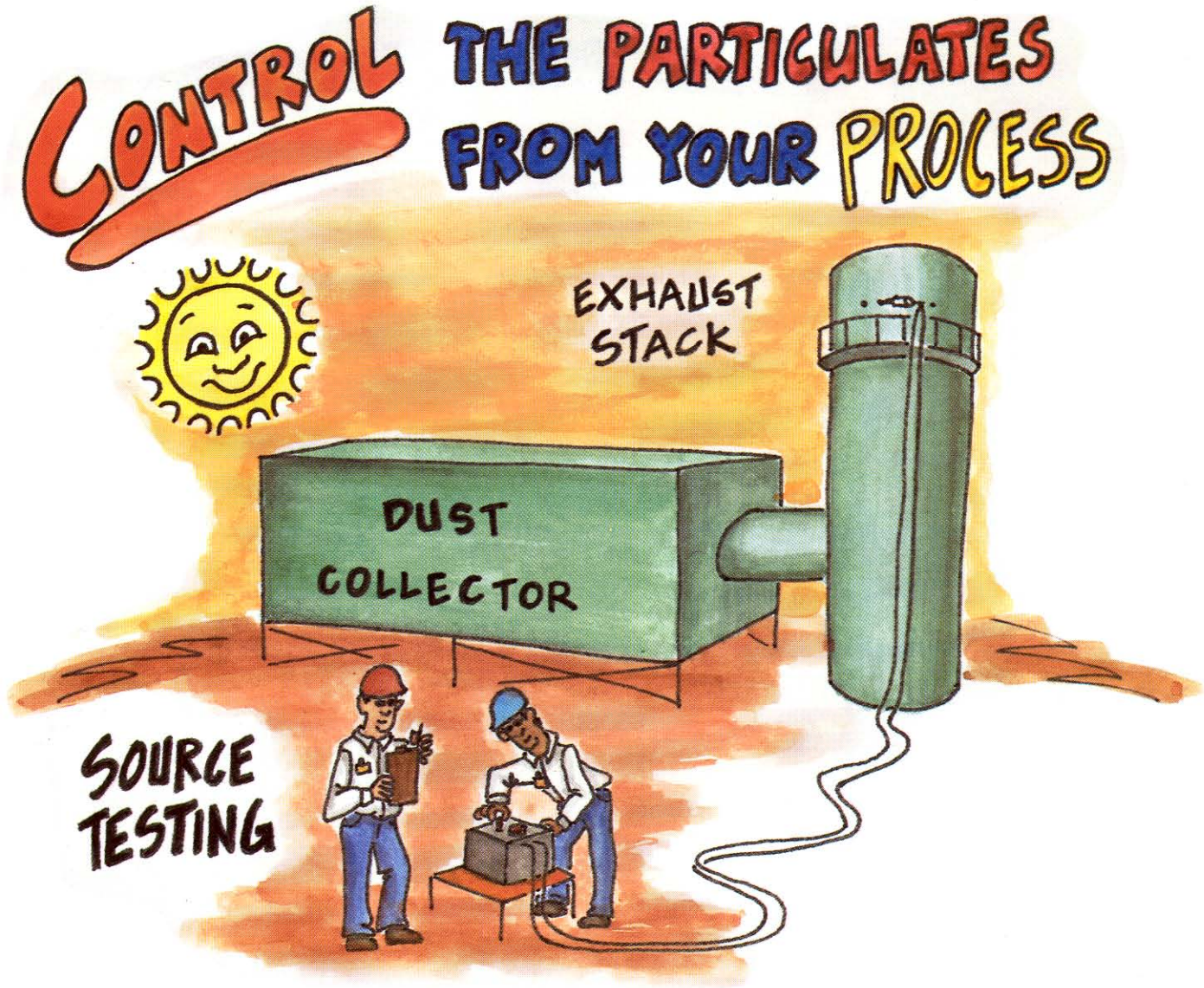
If you have any questions concerning legal requirements or the meaning of regulations, contact your local air pollution control district (APCD). Local APCD locations and phone numbers are shown on the back cover of this handbook.

Your **Permit to Operate** is issued by your local APCD. It usually contains **conditions** which must be met to stay in compliance with air pollution emission limits. Make sure that you and your operators know and follow all conditions outlined in your permit.

Permits are usually renewed annually. Make sure the renewed permits accurately reflect your equipment and operation. If they are not accurate, inform your district in writing **immediately.**

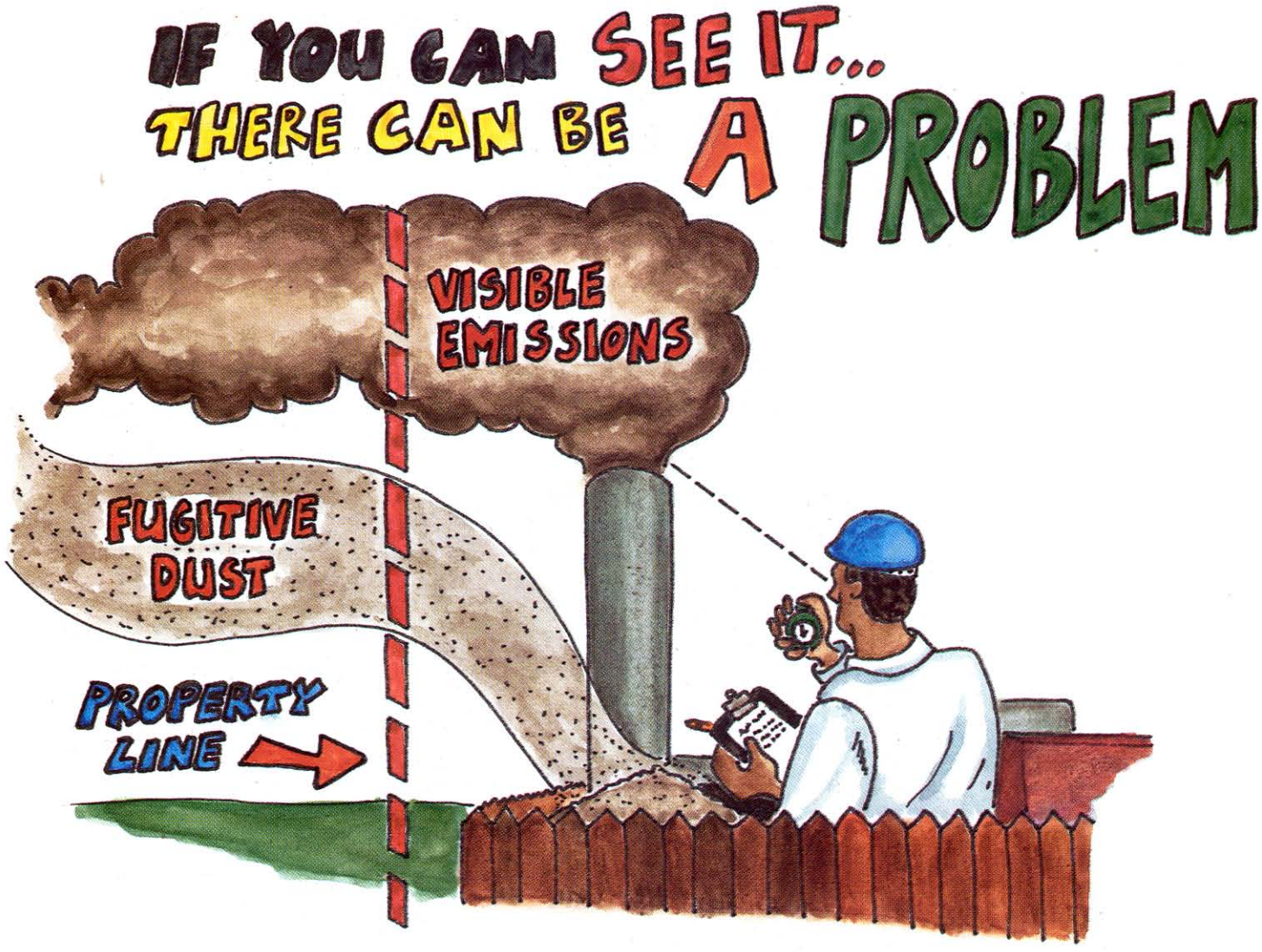
Always post the most recent version of your permit and make sure it is in a visible location, whenever possible. Many operators provide plastic covers for their permit to protect it from damage.

Check your facility for compliance with permit conditions on a regular basis. This will help you avoid excess emissions and costly penalties.



Hot mix asphalt facilities can emit **particulate matter**. Particulate matter can be smoke, dust, fumes, mists, or sprays. To control air pollution, particulate matter regulations in your district both limit the concentration and weight of particulate matter discharged from your process.

These regulations usually have lists of the volumes and maximum concentrations and of weights and maximum discharges. Compliance with these limits are determined by source testing the emissions while your facility is in operation. Make sure you know the "Particulate Matter" limits for your facility. **Proper inspection and maintenance will help you to stay within the limits of this regulation.**



Fugitive dust can come from any transport, handling, construction, or storage activity. The fugitive dust regulation applies when the presence of dust from these activities can be seen beyond the property line of your facility.

Visible emissions are emissions that can be seen coming from any single source. The Visible Emissions Regulation applies when a certain density of the emissions from a single source can be seen for more than any three minutes in one hour. **Note: It is advisable to have someone on your staff certified as a visible emissions evaluator. Call 800-952-5588 for details of this certification.**

Fugitive dust and visible emissions can be controlled by:

- Effective use of control equipment, e.g., venting, housing, and water spraying
- Regular inspection and maintenance of facility equipment and ducting

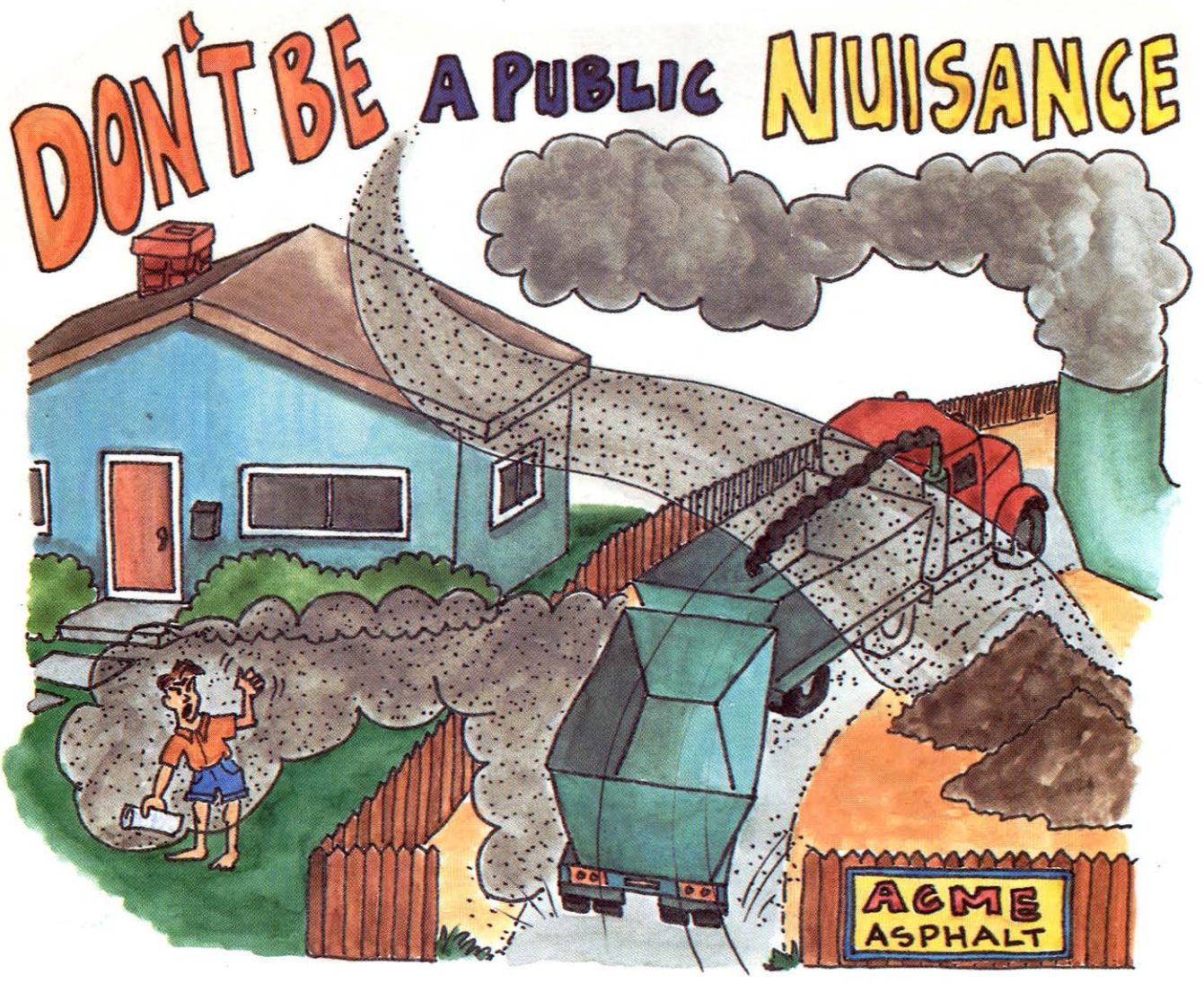
Make sure you know the specific details of your local APCD's fugitive dust and visible emissions regulations.

Your local APCD has **breakdown and variance procedures** to allow for unavoidable emissions into the air that violate regulations. Breakdown procedures usually require a report of the breakdown by the facility <u>within one hour</u> of the breakdown. If the breakdown is reported within the time limit and all other breakdown conditions are met, you will not be considered in violation for exceeding emission limits.

Emissions caused by human error or poor maintenance practices <u>may</u> <u>not</u> be considered breakdowns by your local APCD.

If the breakdown is longer than the time periods listed in your district's breakdown procedures, you may request an emergency variance rather than shut your facility down.

Make sure you know the **<u>specific</u> <u>details</u>** of the breakdown and variance procedures in your local APCD regulations.

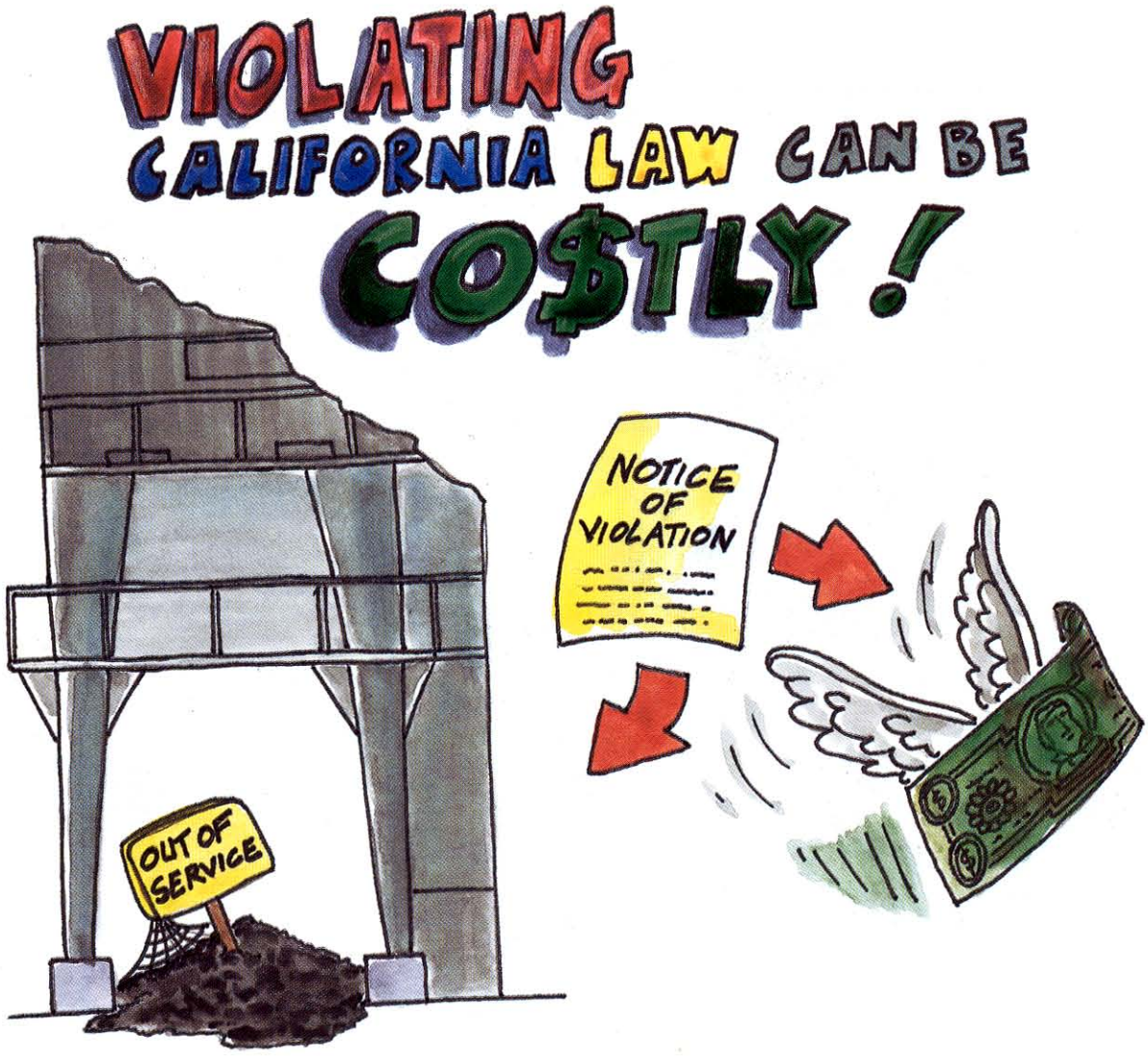


If your facility emits quantities of dust, smoke, or odor into the air, and enough citizens complain, you will be subject to your local APCD's **public nuisance regulation.**

Unpaved plant roads, vehicle speed, aggregate handling, equipment breakdown, blue smoke, and odor from asphalt storage can all create the potential for a public nuisance. Ways to limit the emissions from these sources include:

- Paving or wetting roads
- Using wind breaks: screens, walls, plantings
- Using vapor recovery on asphalt storage
- Housing or wetting stockpiles
- Limiting vehicle speed in plant
- Maintaining equipment

Make sure you know the **specifics** of the public nuisance regulation in your district. **BE A GOOD NEIGHBOR!**



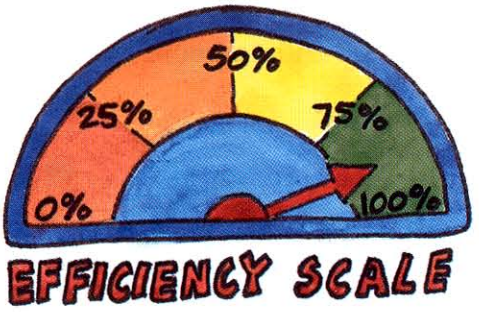
By complying with the law and inspecting and maintaining your facility on a regular basis, you can **avoid penalties for violations** that can be as high as $25,000 per day.

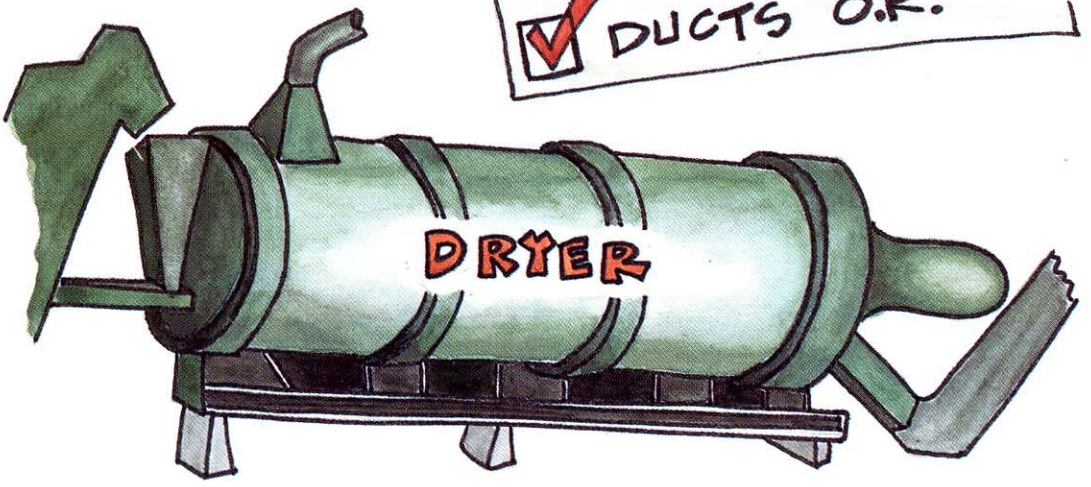
If you are issued a Notice of Violation (NOV), make sure that you correct the source of the violation **immediately**. If you are unsure of the procedures for handling an NOV, ask the issuing inspector or call your local APCD for instructions.

Remember, the benefits of compliance and maintenance include a more efficient operation and a healthier safer environment for everyone.

CONTROL YOUR DUST EMISSION SOURCES

The main sources of dust emissions from asphalt hot mix facilities are the dryer, dust collection system, hot material elevator, plant tower, and fan. The emissions from these sources must be controlled to avoid excess emissions and costly penalties.





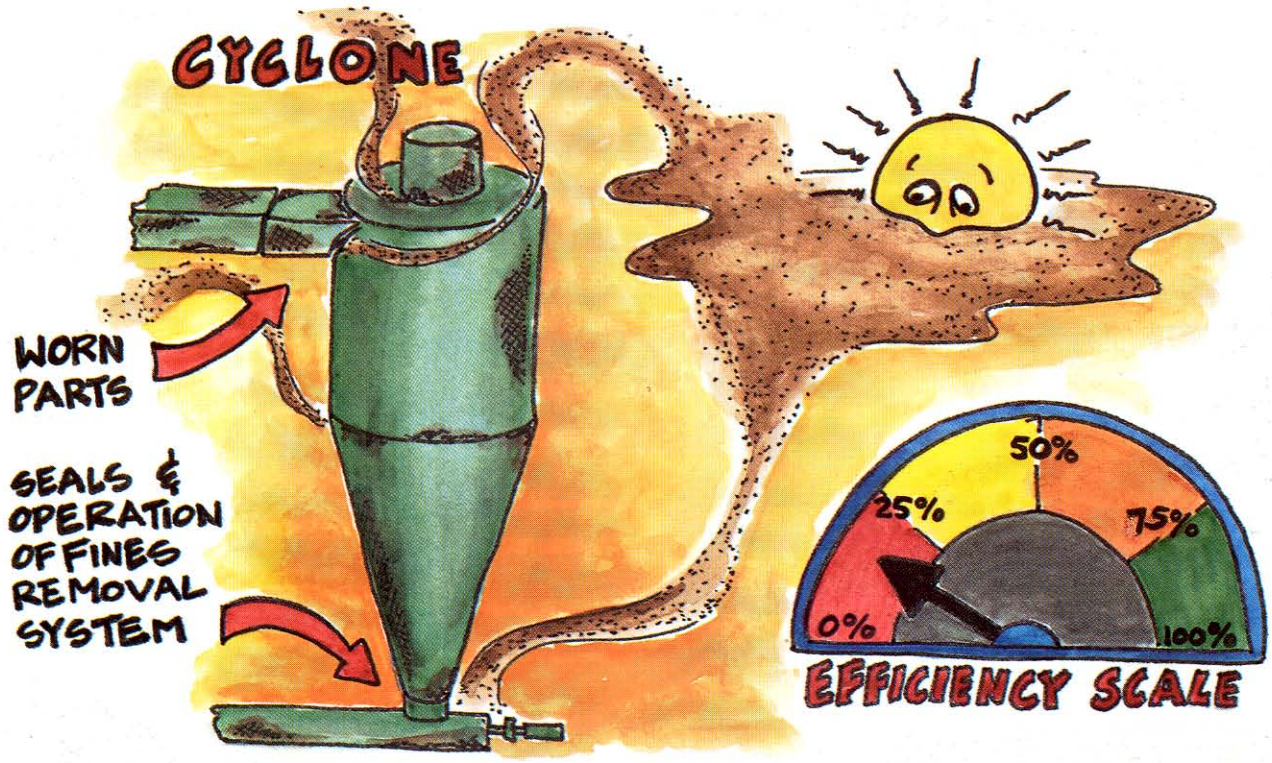
Dryers vaporize moisture and heat aggregate to desired temperatures. Dryer efficiency is mainly dependent on dryer design, blower air from the burner, draft air from the exhaust fan, and proper fuel feed. These elements **must** be in balance. When they are not in balance, "black smoke" from incomplete combustion and "puff back" from insufficient draft air can result. This can be corrected by adjusting the fuel feed, aggregate feed, blower air, and draft air.

Too often the draft air is difficult to adjust because unwanted air is entering the dryer. To avoid unwanted air, it is important to inspect and maintain:

- Dryer seals
- Intake flap gates
- Product discharge chute
- Collector discharge valves
- Ducts attached to dryer
- Holes or leaks in fan housing

MAINTAIN DUST COLLECTION SYSTEMS

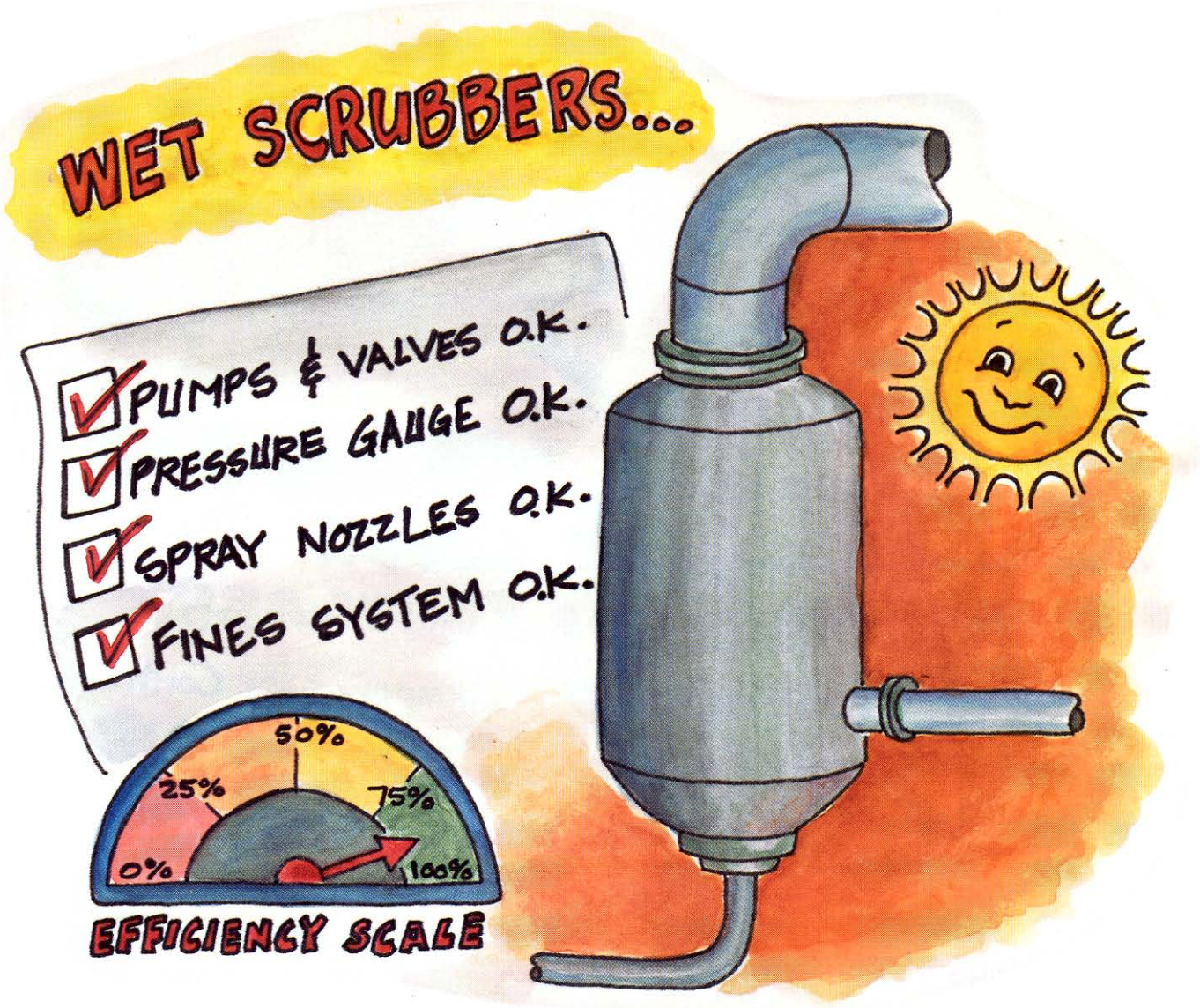
Dust collection systems collect dust from the dryer and either return it to the aggregate or discard it. These systems usually consist of a **primary collector** - ***cyclones*** (sometimes knockout boxes and multiclones) and a **secondary collector** - a ***wet scrubber*** or a ***baghouse.*** To achieve the desired collection efficiency and to avoid penalties due to excess emissions, these systems must be maintained and inspected on a regular basis.



Cyclones separate particles by spinning the air flow around inside causing larger particles to drop to the bottom of the cyclone to be returned to the aggregate or discarded, and then sucking the smaller particles out of the top of the cyclone and on to a secondary collector.

Collection efficiency is dependent on proper air flow. This is why the ductwork, main body, fines removal devices, and fines conveyors must be inspected and maintained on a regular basis. Make sure you inspect for and correct:

- Holes in duct work & main body
- Fines buildup and foreign matter in ducts
- Worn parts on main body
- Plugged dust outlets on main body
- Seals on fines removal devices
- Operation of fines removal devices

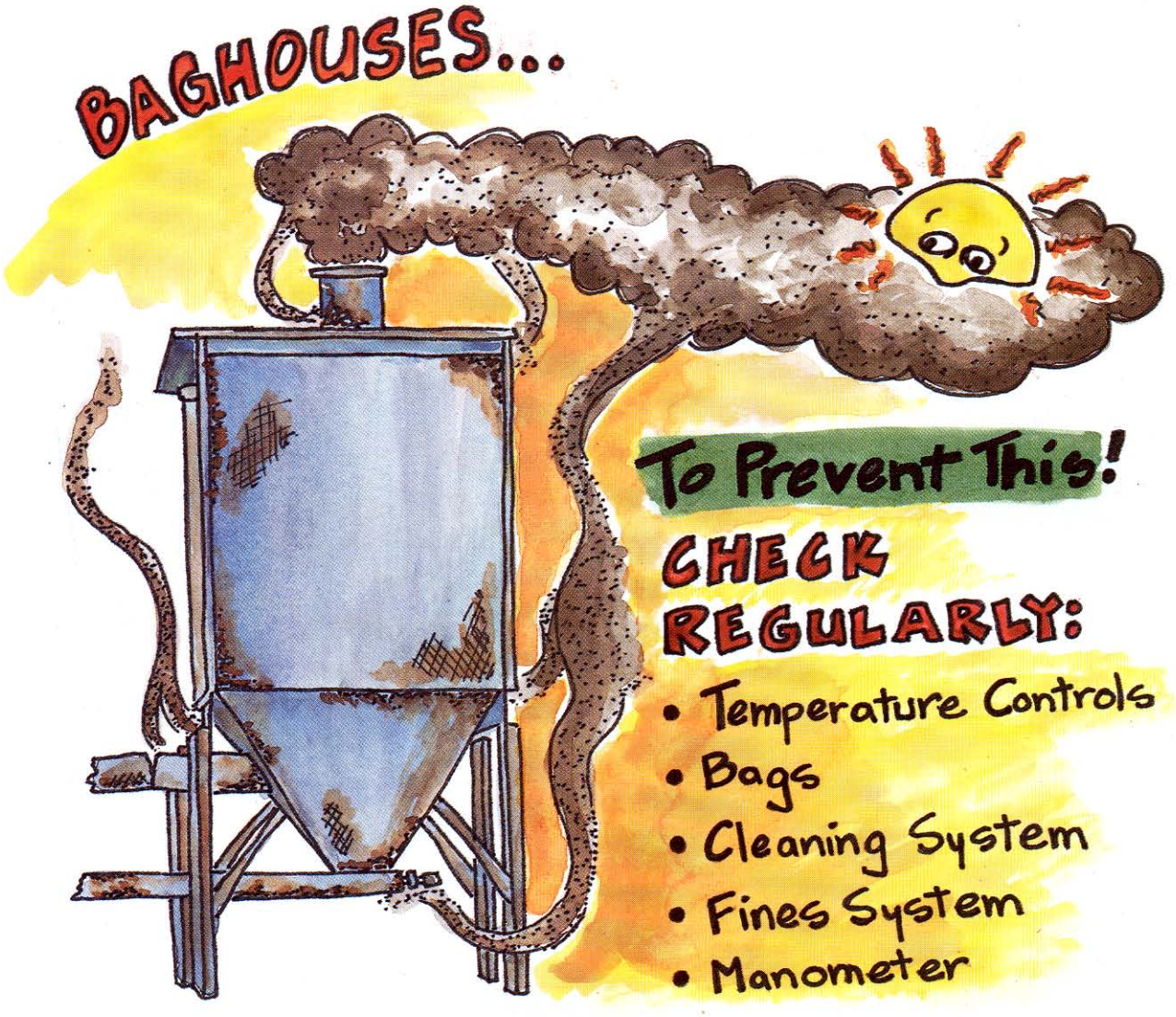


Wet scrubbers use a system of water sprayers to collect particulates from an air stream.

Collection efficiency is dependent on proper air and water flow. On wet scrubbers, it is important to inspect and maintain the pumps, piping, valves, and spray nozzles. Make sure you inspect:

- Pumps and valves for leaks, wear and operation
- Pressure gauges for accuracy and change
- Spray nozzles for spray pattern
- Pipes and manifolds for leaks and plugging
- Main body for abrasion, corrosion, and material feed buildup
- Fines system for leaks and proper discharge

Always use **clean** water in a wet scrubber to avoid plugging and excess wear of spray nozzles.

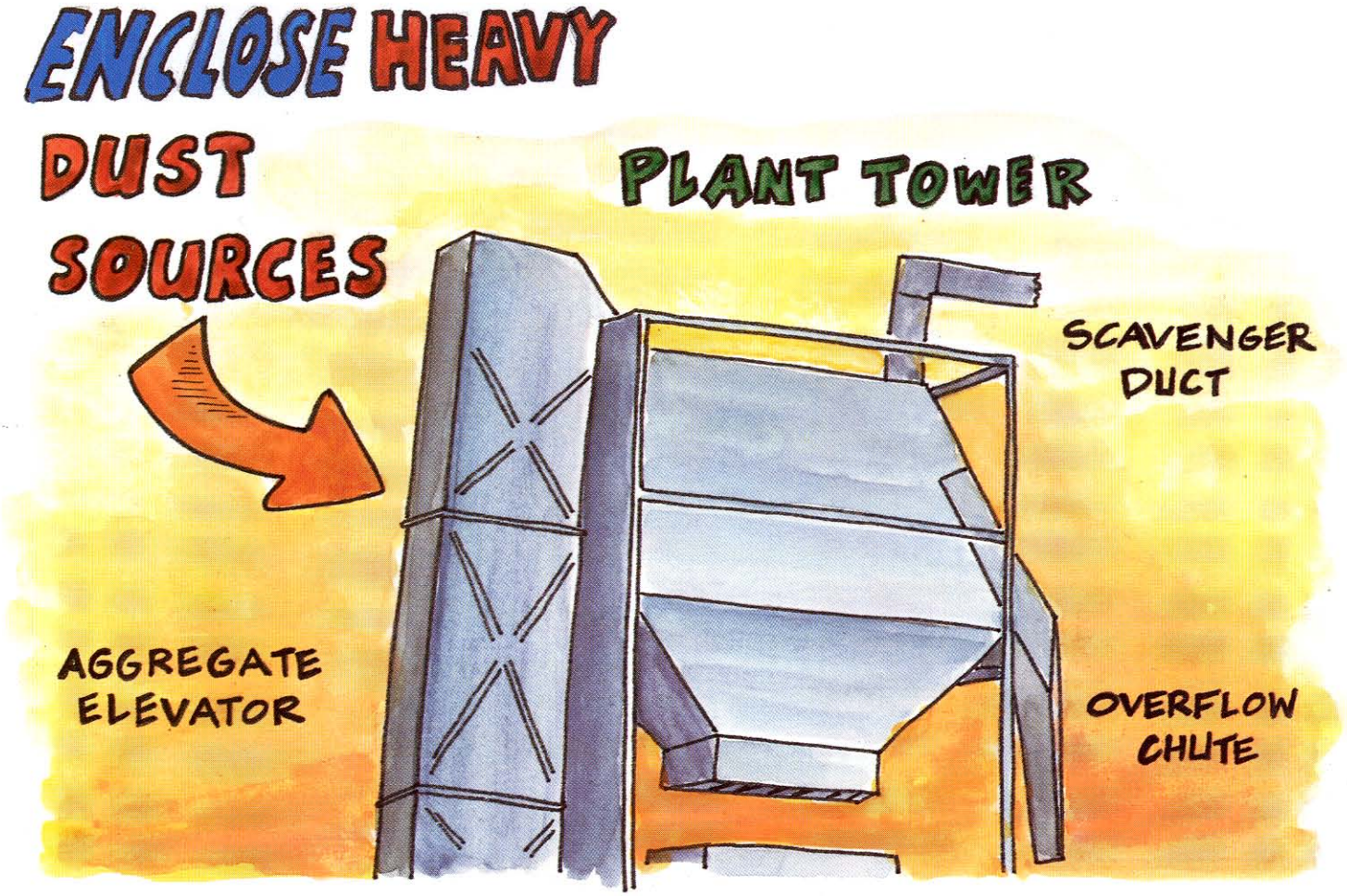


Baghouses use fabric filters (bags) to collect particles from an air stream. These bags are periodically cleaned and the dirt drops to the bottom of the baghouse and is transferred to a storage silo or is discarded.

Collection efficiency is dependent on proper air flow and temperature. On baghouses it is important to inspect:

- Temperature limit controls for accuracy and operation
- Manometer for operation and correct pressure drop
- Housing for leaks
- Bags for wear, burn holes, proper seating, corrosion of cage, abrasion
- Cleaning system valves and air supply for wear and proper operation
- Fines system for leaks and proper operation

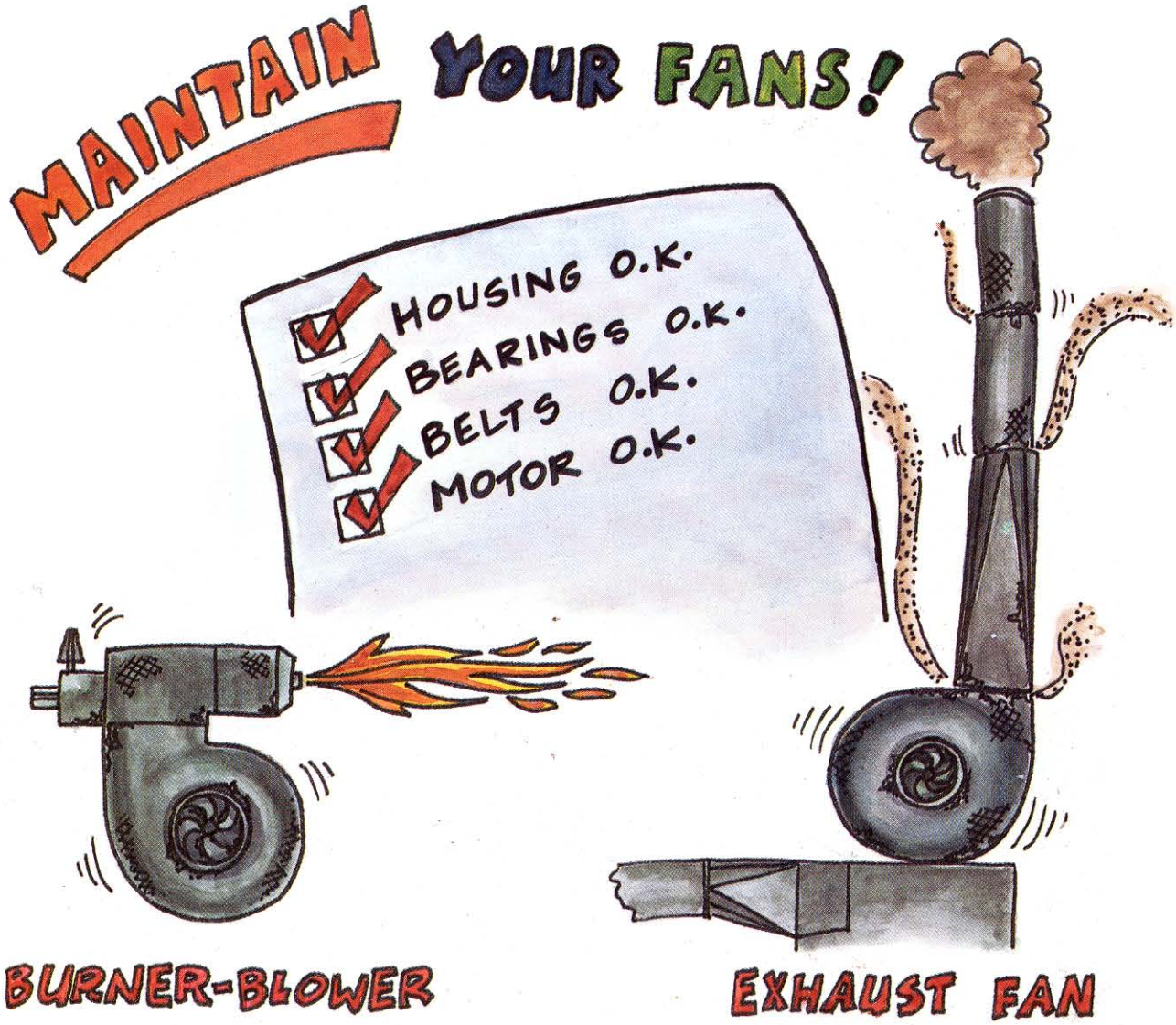
Fabric filters should be preheated above the dew point prior to starting production. This helps prevent plugging of the bags due to condensation.



The **aggregate elevator** conveys dried dusty material to the screening unit. The elevator should be completely housed. It should be connected by a scavenger duct to the dust collection system to prevent dust emissions from any cracks or holes. Any detected cracks or holes should be sealed as soon as possible.

The **plant tower** screens, batches, and mixes the aggregate. These operations can cause a considerable amount of dust. These components should be completely housed and connected to a scavenger system, as well, to prevent dust emissions from any cracks or holes.

Overflow and reject chutes must be completely enclosed and maintained in good working condition to prevent dust emissions. Chute discharge should be made into transport devices and not onto the ground. Chutes should be designed to minimize the height the discharge drops through the air. It is advisable to put a shroud and a water sprayer around the discharge opening to avoid excess dust emissions.



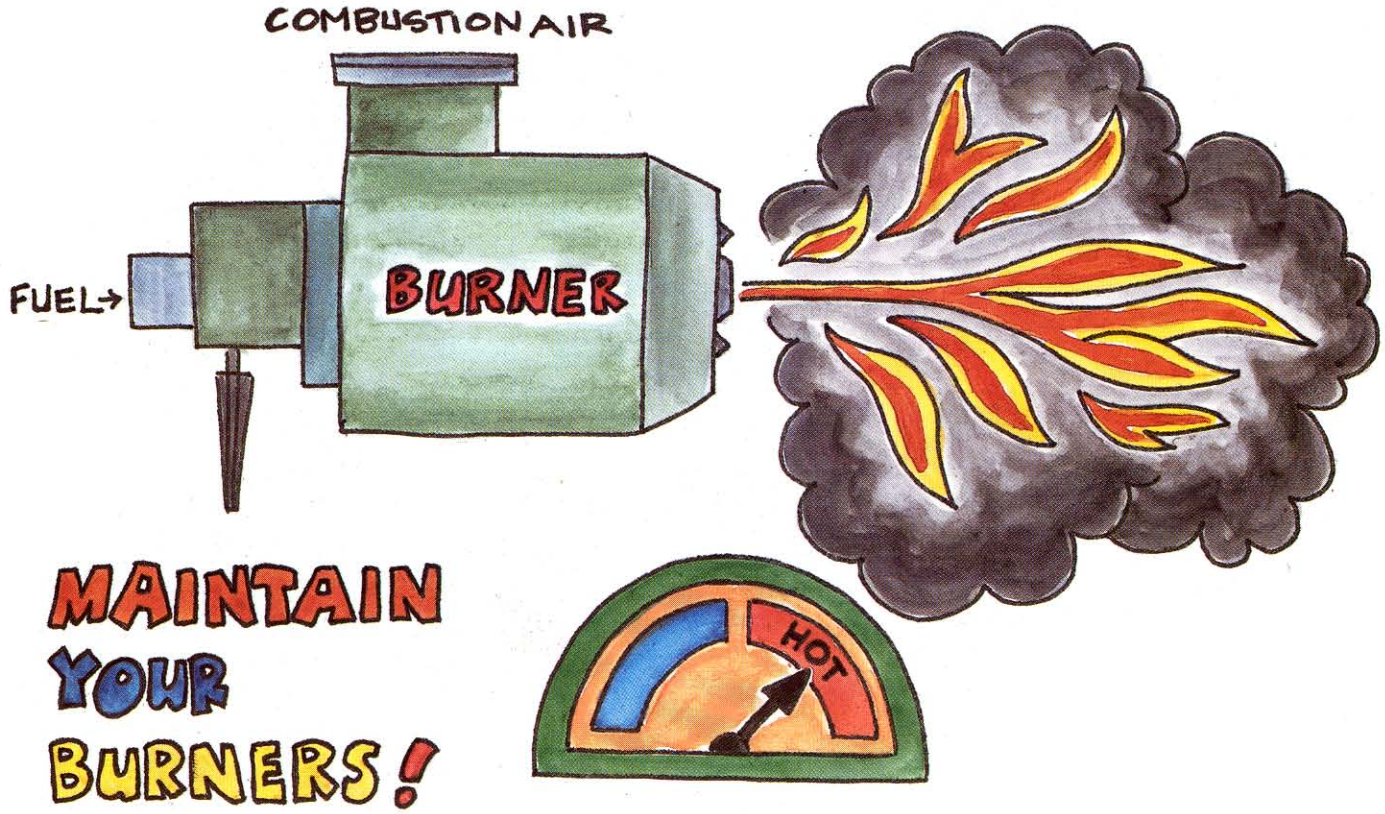
Hot mix asphalt facilities usually have two fans, the **burner blower** and the **exhaust fan**. These fans must operate efficiently to ensure proper combustion and air flow in the hot mix asphalt process.

The burner blower provides air and burns fuel. The exhaust fan provides air for combustion and removes exhaust gases, excess air, and steam from the dryer. Poor operation results in reduced production capacity and excess emissions. On the fans, make sure that you inspect and maintain:

- Housing for holes, corrosion, vibration
- Shaft for wear and balance
- Bearings for proper lubrication
- Sheaves for wear
- Fan wheel for wear and buildup
- Belts for wear and tension
- Bearings for moisture and dust
- Motor for proper operation

CONTROL GASEOUS EMISSION SOURCES

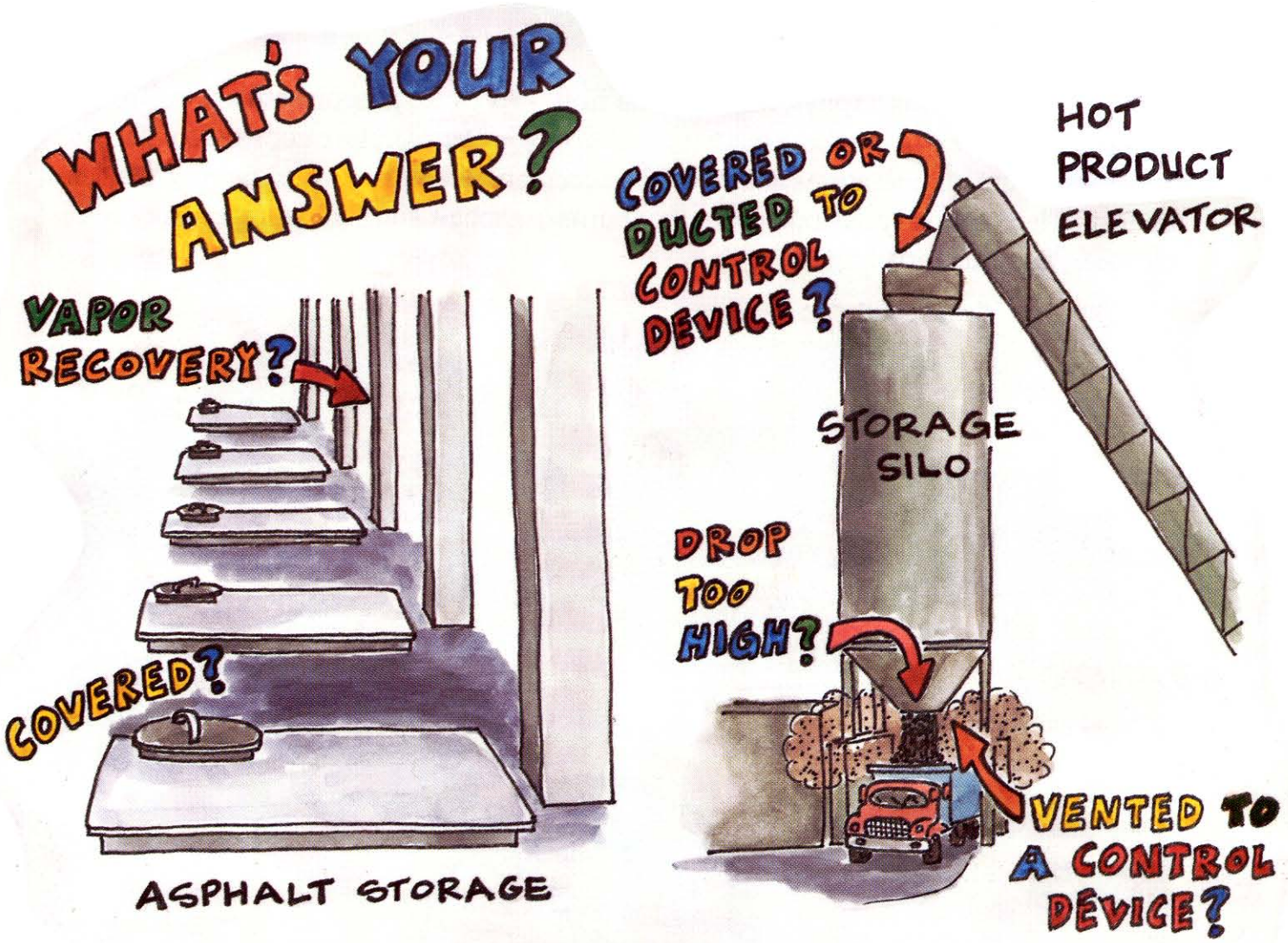
Running your hot mix asphalt facility **"too hot"** can cause gaseous emissions from the asphalt in the process. Make frequent checks of your temperature controls for accuracy and make sure temperatures stay within acceptable ranges. Your facility can emit undesirable gaseous emissions from the burner, asphalt and fuel storage, hot product elevator, and truck loading.



The **burner** can produce too much smoke and other undesirable products of combustion. These air pollutants can come from dirty clogged burners and improper air-fuel mixtures. Pay close attention to the cleanliness and adjustment of the burners and the fuel you use to help reduce these emissions. **Note: You must meet limitations for the sulfur content of fuels, nitrogen oxide emissions, and carbon monoxide emissions cited in your local APCD regulations - check with your local APCD.**

On the burner, make sure you check:

- Shut-off valves for leaks/operation
- Fuel atomizing pressure for adequacy
- Fuel pre-heat temperature for adequacy
- Air vanes for tightness/operation
- Nozzles for wear & clogging
- Air supply lines for plugging
- Burner adjustments for operation
- Refractory for cracks and holes

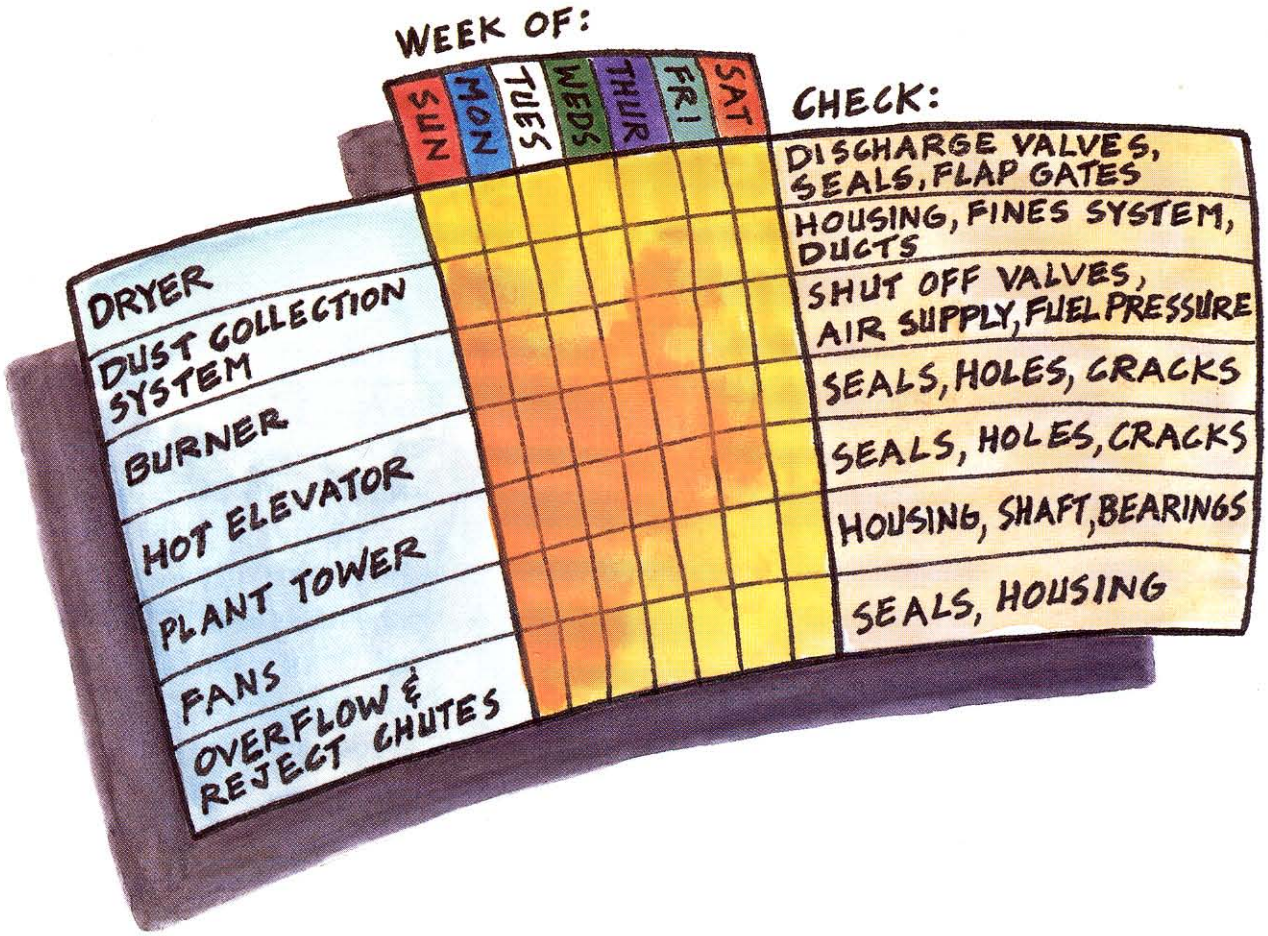


Asphalt and fuel storage can become sources of gaseous emissions if the covers are not kept on the tanks. Tanks should be kept clean and valves frequently checked for leaks. Maintaining proper temperature controls on asphalt storage tanks is also important in preventing gasesous emissions.

The hot product elevator can be a source of gaseous emissions. The top of the hot product elevator and the storage silo should be covered and/or ducted to a control device.

Truck loading can also be a source of gaseous emissions. To avoid excess emissions, minimize the **free fall distance** between the mixer discharge or storage silo and the haul truck. Some facilities have these emissions vented to a control device. Also, you can help reduce emissions by minimizing or avoiding the use of kerosene and/or fuel oil to coat truck beds. Check your permit to make sure that coating truck beds with kerosene and/or fuel oil is allowed.

SELF INSPECTION CHECKLIST



A **self inspection checklist** is a good way to protect yourself from large penalties and potential loss of business. At a minimum, you should inspect the main emission sources on a daily basis and resolve problems as soon as possible. On a daily basis you should be constantly looking for:

- Extra smoke off stack
- Covers off of asphalt storage tanks
- Signs of spillage
- Pressure drop across control devices
- Air flow problems
- Water flow (if applicable)
- Deviation in temperature controls
- Emissions from ducting

Incorporating these routine tasks into your daily schedule will help you identify problems before they get out of hand and will enable you to make adjustments or corrections **immediately**.

Experience tells us that the best way to comply with air pollution regulations is to <u>know the law</u> and <u>do preventive maintenance</u> on the equipment.

Need More Information?

Air Resources Board (800) 952-5588 **District: _____**

Multi-County Districts

1 - Bay Area (415) 749-5000
2 - Feather River (530) 634-7659
3 - Great Basin (760) 872-8211
4 - Monterey Bay (831) 647-9411
5 - North Coast (707) 443-3093
6 - Northern Sierra (530) 274-9360
7 - South Coast (909) 396-2000
8 - Yolo-Solano (530) 757-3650
9 - San Joaquin Valley (559) 230-6000

County Districts

Amador (209) 257-0112
Antelope Valley (661) 723-8070
Butte (530) 891-2882
Calaveras (209) 754-6504
Colusa (530) 458-0590
El Dorado (530) 621-6662
Glenn (530) 934-6500
Imperial (760) 482-4606
Kern (661) 862-5250
Lake (707) 263-7000
Lassen (530) 251-8110
Mariposa (209) 966-2220
Mendocino (707) 463-4354
Modoc (530) 233-6419
Mojave Desert (760) 245-1661
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Sacramento (916) 874-4800
San Diego (858) 650-4700
San Luis Obispo (805) 781-4247
Santa Barbara (805) 961-8800
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Siskiyou (530) 841-4029
Tehama (530) 527-3717
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Ventura (805) 645-1400

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