SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

Best Available Control Technology Guidelines

OVERVIEW

Part A: Policy and Procedures for Major Polluting Facilities

Part B: LAER/BACT Determinations for Major Polluting Facilities

Part C: Policy and Procedures for Non-Major Polluting Facilities

Part D: BACT Guidelines for Non-Major Polluting Facilities

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Deputy Executive Officer
Science and Technology Advancement
Chung S. Liu

Authors:	Martin Kay, P.E.	Program Supervisor
	Alfonso Baez	Senior Engineer
	Howard Lange	Air Quality Engineer II
Reviewed By:	Bill Wong	Senior Deputy District Counsel
	Kurt Wiese	District Counsel

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OVERVIEW

Chapter 1 - Introduction

The South Coast Air Quality Management District (AQMD) Regulation XIII – New Source Review (NSR) and Regulation XX – RECLAIM, require applicants to use Best Available Control Technology (BACT) for new sources, relocated sources, and for modifications to existing sources that may result in an emission increase of any nonattainment air contaminant, any ozone depleting compound (ODC), or ammonia. Additionally, Regulation XIII requires the Executive Officer to periodically publish BACT Guidelines that establish the procedures and the BACT requirements for commonly permitted equipment. The BACT Guidelines were first published in May 1983, and later revised in October 1988. The Guidelines consisted of two parts: Part A – Policy and Procedures, and Part B – BACT Determinations. Part A provided an overview and general guidance while Part B contained specific BACT information by source category and pollutant. Since the October 1988 revision, Part A was amended once in 1995, and Part B was updated six times between 1997 and 1998.

On December 11, 1998, the Governing Board approved a new format for listing BACT determinations in Part B of the Guidelines. While the previous part B of the BACT Guidelines specified BACT requirements and set out source category determinations which could be interpreted as definitive, the new format simply provides listings of recent BACT determinations by AQMD permitting staff and others as well as information on new and emerging technologies. Part B of the AQMD BACT Guidelines now follows the same outline as the permit listings in the California Air Pollution Control Officer Association (CAPCOA) BACT Clearinghouse and the United States Environmental Protection Agency (USEPA) RACT/BACT/LAER Clearinghouse. Further information on the new format of the Guidelines, including reasons for the change in direction, may be found in Board Letters presented at the October 1998 Board Meeting, Agenda No. 41, and the December 1998 Board Meeting, Agenda No. 28.

The public participation process was also enhanced to include technical review and comments by a focused Scientific Review Committee (SRC) at periodic intervals, prior to the updates of the AQMD BACT Guidelines. At the same time, the Board established a 30-day notice period for the SRC and interested persons to review and comment on AQMD BACT determinations that result in BACT requirements that are more stringent than previously imposed BACT.

As a result of amendments being proposed to AQMD's New Source Review (NSR) regulations in September 2000, the BACT Guidelines will be separated into two: one for major polluting facilities and another for non-major (minor) polluting facilities. (See Chapter 2 in the Overview for how to determine if a facility is major or minor).

The BACT Guidelines for major polluting facilities include:

- Part A: Policy and Procedures for Major Polluting facilities, and
- Part B: LAER/BACT Determinations for Major Polluting Facilities.

The BACT Guidelines for non-major polluting facilities include:

- Part C: Policy and Procedures for Non-Major Polluting Facilities, and
- Part D: BACT Guidelines for Non-Major Polluting Facilities.

Both the format of the guidelines and the process for determining BACT are significantly different between major and non-major polluting facilities. Major polluting facilities that are subject to NSR are required by the Clean Air Act to have the Lowest Achievable Emission Rate (LAER). LAER is determined at the time the permit is issued, with little regard for cost, and pursuant to USEPA's LAER policy as to what is achieved in practice. The Part B BACT and LAER determinations for major polluting facilities are only examples of past determinations that help in determining LAER for new permit applications.

For non-major polluting facilities, BACT will be determined in accordance with state law at the time an application is deemed complete. For the most part, it will be as specified in Part D of the BACT Guidelines. Changes to Part D for minor source BACT (MSBACT) to make them more stringent will be subject to public review and AQMD Board approval, in view of cost considerations.

In order to distinguish between BACT for major sources and BACT for minor sources, this document will use the following nomenclature for BACT:

- LAER for BACT at major polluting facilities
- MSBACT for BACT at non-major polluting facilities

Written comments about the BACT Guidelines are welcome at any time and will be evaluated by AQMD staff and included in the BACT Docket at the AQMD library. These comments should be addressed to:

South Coast Air Quality Management District
BACT Docket
Planning, Rule Development, & Area Sources
21865 E. Copley Dr.
Diamond Bar, CA 91765-4182

The BACT Guidelines may be obtained for a fee by contacting Subscription Services at the above address or calling (909) 396-3720. Revisions to the guidelines will be mailed to all persons that have purchased annual updates to the BACT Guidelines. The BACT Guidelines are also available without charge from AQMD's Internet web site at http://www.aqmd.gov/bact.

Chapter 2 – Applicability Determination

This chapter explains how to determine whether a facility is a major or minor polluting facility, and how a facility can become a minor polluting facility.

MAJOR POLLUTING FACILITY EMISSION THRESHOLDS

A facility is a major polluting facility (or a major stationary source as it is called in the federal Clean Air Act[CAA]) if it emits, or has the potential to emit, a criteria air pollutant at a level that equals or exceeds emission thresholds given in the CAA[1]. Table 1 shows those emission thresholds for each criteria air pollutant for each air basin in AQMD. The map in Figure 1 shows the location of the three air basins in AQMD. If a threshold for any one criteria pollutant is equaled or exceeded, the facility is a major polluting facility, and will be subject to LAER for all pollutants subject to NSR.

A facility includes all sources located within contiguous properties owned or operated by the same person, or persons under common control. Contiguous means in actual contact or separated only by a public roadway or other public right-of-way. However on-shore crude oil and gas production facilities under the same ownership or use entitlement must be included with offshore crude oil and gas production facilities located in Southern California Coastal or Outer Continental Shelf waters.

The following mobile source emissions are also considered as part of the facility[2]:

1) Emissions from in-plant vehicles; and
2) All emissions from ships during the loading or unloading of cargo and while at berth where the cargo is loaded or unloaded; and
3) Non-propulsion ship emissions within Coastal Waters under AQMD jurisdiction.

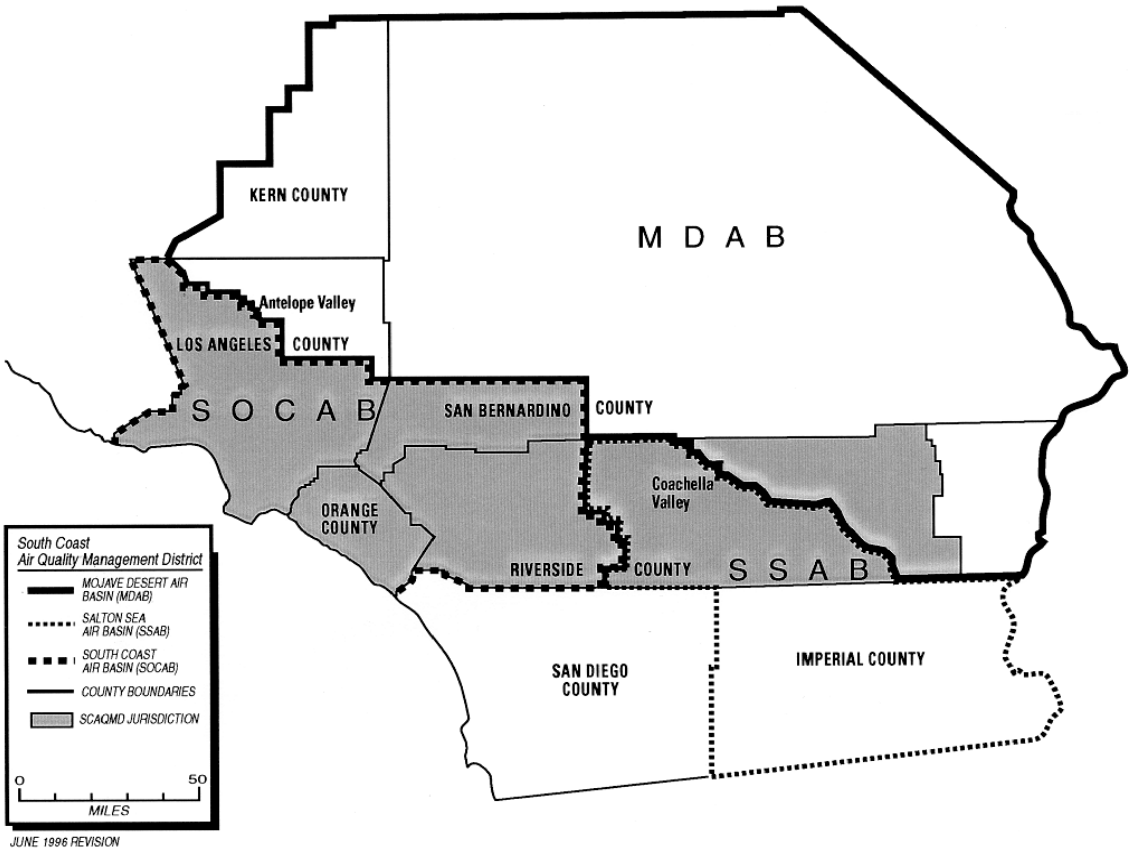
[1] The major source emission thresholds are higher for air basins that comply with the national ambient air quality standard and lower depending on how far an air basin is from compliance with the standard for a pollutant. The lowest thresholds apply to extreme non-attainment air basins, the only example of which is the South Coast Air Basin for ozone (VOC and NOx).

[2] In accordance with Rule 1306(g).

Table 1
Actual or Potential Emission Threshold Levels (Tons per Year)
for Major Polluting Facilities

Pollutant	South Coast Air Basin	Riverside County Portion of Salton Sea Air Basin	Riverside County Portion of Mojave Desert Air Basin
VOC	10	25	100
NOx	10	25	100
SOx	100	100	100
CO	50	100	100
PM-10	70	70	100

Figure 1: Map of AQMD



POTENTIAL TO EMIT

Potential to emit (PTE) is based on permit conditions that limit emissions or throughput. If there are no such permit conditions, PTE is based on:

- the maximum rated capacity; and
- the maximum daily hours of operation; and
- physical characteristics of the materials processed.

The PTE must include fugitive emissions associated with the source. RECLAIM emission allocations are not considered emission limits because RECLAIM facilities may purchase RTCs and increase their emissions without modifying their permit.

LIMITING POTENTIAL TO EMIT

A facility's PTE can be capped by an enforceable permit condition that limits emissions. This condition will likely involve monitoring, recordkeeping and reporting to ensure that emissions remain below the permit limit.

Chapter 3 - When is BACT Required?

This chapter explains when BACT is required by identifying the air pollutants subject to BACT, the permit actions that trigger BACT review, and the calculation procedures to determine emission increases.

POLLUTANTS SUBJECT TO NSR AND BACT

The AQMD's New Source Review (NSR) programs include *Regulation XIII - New Source Review* and *Rule 2005 - New Source Review for RECLAIM*. Rule 2005 applies only to NOx and SOx emissions from RECLAIM facilities, while Regulation XIII applies to other non-attainment air pollutants from RECLAIM facilities, all non-attainment air pollutants from all other facilities, and ammonia and ozone-depleting compound (ODC) emissions from all facilities. ODCs are defined as Class I substances listed in 40 CFR, Part 82, Appendix A, Subpart A, and are listed in Table 2.

Although the AQMD is in attainment with the ambient air quality standards for SO_2 and NO_2, NOx is a precursor to ozone, and both SOx and NOx are precursors to PM_{10} and $PM_{2.5}$, which are non-attainment air pollutants. Therefore, SOx and NOx are treated as non-attainment air pollutants as well. The net result is that VOC, NOx, SOx, and PM_{10}, are subject to NSR in all of AQMD, while CO is only subject to NSR in the South Coast Air Basin (SOCAB).

Although the AQMD complies with the ambient air quality standards for lead (Pb), Pb can be a component of a source's PM_{10} emissions and is therefore subject to BACT for PM_{10}. BACT for Pb will be BACT for PM_{10} or compliance with Rule 1420, whichever is more stringent. In addition, non-attainment pollutants include inorganic gases such as hydrogen chloride (HCl) and hydrogen fluoride (HF), which are precursors to PM_{10}, and hydrogen sulfide (H_2S), a precursor to SO_2.

The applicability of the various pollutants to NSR in the various air basins is summarized in Table 3. See Figure 1 in the previous chapter for a map of AQMD that shows the location of the three air basins in AQMD.

Table 2
Class I Substances (ODCs)*

A. Group I: $CFCl_3$ Trichlorofluoromethane (CFC-11) CF_2Cl_2 dichlorodifluoromethane (CFC-12) $C_2F_3Cl_3$ Trichlorotrifluoroethane (CFC-113) $C_2F_4Cl_2$ Dichlorotetrafluoroethane (CFC-114 C_2F_5Cl Monochloropentafluoroethane (CFC-115) All isomers of the above chemicals B. Group II: CF_2ClBr Bromochlorodifluoromethane (Halon-1211) CF_3Br Bromotrifluoromethane (Halon-1301) $C_2F_4Br_2$ Dibromotetrafluoroethane (Halon-2402) All isomers of the above chemicals C. Group III: CF_3Cl Chlorotrifluoromethane (CFC-13) C_2FCl_5 (CFC-111) $C_2F_2Cl_4$ (CFC-112) C_3FCl_7 (CFC-211) $C_3F_2Cl_6$ (CFC-212) $C_3F_3Cl_5$ (CFC-213) $C_3F_4Cl_4$ (CFC-214) $C_3F_5Cl_3$ (CFC-215) $C_3F_6Cl_2$ (CFC-216) C_3F_7Cl (CFC-217) All isomers of the above chemicals D. Group IV: CCl_4 Carbon Tetrachloride E. Group V: $C_2H_3Cl_3$ 1,1,1 Trichloroethane (Methyl chloroform) All isomers of the above chemical except 1,1,2-trichloroethane F. Group VI: CH_3Br Bromomethane (Methyl Bromide)	G. Group VII: $CHFBr_2$ CHF_2Br (HBFC-2201) CH_2FBr C_2HFBr_4 $C_2HF_2Br_3$ $C_2HF_3Br_2$ C_2HF_4Br $C_2H_2FBr_3$ $C_2H_2F_2Br_2$ $C_2H_2F_3Br$ $C_2H_2FBr_2$ $C_2H_3F_2Br$ C_2H_4FBr C_3HFBr_6 $C_3HF_2Br_5$ $C_3HF_3Br_4$ $C_3HF_4Br_3$ $C_3HF_5Br_2$ C_3HF_6Br $C_3H_2FBr_5$ $C_3H_2F_2Br_4$ $C_3H_2F_3Br_3$ $C_3H_2F_4Br_2$ $C_3H_2F_5Br$ $C_3H_3FBr_4$ $C_3H_3F_2Br_3$ $C_3H_3F_3Br_2$ $C_3H_3F_4Br$ $C_3H_4FBr_3$ $C_3H_4F_2Br_2$ $C_3H_4F_3Br$ $C_3H_5FBr_2$ $C_3H_5F_2Br$ C_3H_6FBr

* 40 CFR, Part 82, Appendix A, Subpart A

Table 3
Applicability of NSR and BACT to Various Pollutants in South Coast Air Basin (SOCAB), Salton Sea Air Basin (SSAB), and Mojave Desert Air Basin (MDAB)

Air Basin	VOC	NOx	SOx	CO	PM_{10}	NH_3	Pb	ODC
SOCAB	√	√	√	√	√	√	√	√
SSAB	√	√	√		√	√	√	√
MDAB	√	√	√		√	√	√	√

PERMIT ACTIONS SUBJECT TO NSR AND BACT

AQMD's NSR regulations are preconstruction permit review programs that require the Executive Officer to deny a permit to construct unless the proposed equipment includes BACT when:

- new equipment is installed,
- existing stationary permitted equipment is relocated, or
- existing permitted equipment is modified such that there is an emission increase.

If the new equipment is to replace the same kind of equipment, NSR[3] still requires BACT unless it is an identical replacement, which does not require a new permit according to paragraph (c)(3) of *Rule 219 -Equipment Not Requiring a Written Permit Pursuant to Regulation II*, as amended May 19, 2000.

BACT is not required for a change of operator, provided the facility is a continuing operation at the same location, without modification or change in operating conditions.

In case of relocation of a non-major facility, the facility operator may opt out of installing MSBACT, provided that the owner/operator meets the conditions specified in Rule 1302 (ae) and Rule 1306 (d)(3).[4]

It is AQMD policy that BACT is required only for emission increases greater than one (1.0) pound per day.

CALCULATION PROCEDURES FOR EMISSION INCREASES

The calculation procedures for determining whether there is an increase in emissions from an equipment modification that triggers BACT are different for NOx and SOx pollutants from RECLAIM facilities and for all other cases. In

[3] See Rules 1303(a) and 1304(a).

[4] USEPA has expressed concerns with this provision of the NSR Rules for minor polluting facilities as of September 2000. Staff will continue to work with USEPA to resolve this issue.

general, the calculation procedures for RECLAIM facilities are less likely to result in an emission increase that requires BACT.

For NOx and SOx emissions from a source at a RECLAIM facility, there is an emission increase if the maximum hourly potential to emit is greater after the modification than it was before the modification.[5]

For modifications subject to Regulation XIII, there are two possible cases[6]:

1. If the equipment was previously subject to NSR, an emission increase occurs if the new potential to emit in one day is greater than the previous potential to emit in one day.
2. If the equipment was never previously subject to NSR, an emission increase occurs if the new potential to emit in one day exceeds the actual average daily emissions over the two-year period, or other appropriate period, prior to the permit application date. However, for the installation of air pollution controls on any source constructed prior to the adoption of the NSR on October 8, 1976 for the sole purpose of reducing emissions, Rule 1306(f) allows the emission change to be calculated as the post-modification potential to emit minus the pre-modification potential to emit.

The potential to emit is based on permit conditions that directly limit the emissions, or, if there are none, then the potential to emit is based on a) maximum rated capacity; and b) the maximum daily hours of operation; and c) the physical characteristics of the materials processed.

[5] See Rule 2005(d).
[6] See Rule 1306(d)(2).

Chapter 4 - What is BACT?

This chapter explains the definitions of BACT found in AQMD rules, state law and federal law.

NSR RULES

New sources, relocations, and modifications of existing sources that increase emissions are subject to New Source Review (NSR) regulations which require BACT, among other requirements. Both federal and state laws require this strategy. The federal Clean Air Act (CAA) requirement for Lowest Achievable Emission Rate (LAER) is implemented through BACT in the AQMD. Federal LAER applies to major sources only. Although federal LAER applies to any emissions increase at a major stationary source, AQMD has interpreted this provision as a 1.0 lb/day increase in emissions from all sources subject to NSR. According to AQMD's rules, BACT requirements may not be less stringent than federal LAER for major polluting facilities. The California Health & Safety Code (H&SC) Section 40405 defines state BACT similar to federal LAER and requires the application of BACT for all new and modified permitted sources subject to NSR.

DEFINITION OF BACT

Definitions of BACT are found in: Rule *1302 -Definitions* of *Regulation XIII - New Source Review*, which applies to all cases in general, except for *Rule 2000 - General*, which applies to NOx and SOx emissions from nearly 400 RECLAIM facilities. While the definitions are not identical, they are essentially the same. Section (f) of *Rule 1302 - Definitions* defines BACT as:

> *BEST AVAILABLE CONTROL TECHNOLOGY (BACT) means the most stringent emission limitation or control technique which:*
>
> *(1) has been achieved in practice for such category or class of source; or*
>
> *(2) is contained in any state implementation plan (SIP) approved by the United States Environmental Protection Agency (EPA) for such category or class of source. A specific limitation or control technique shall not apply if the owner or operator of the proposed source demonstrates to the satisfaction of the Executive Officer or designee that such limitation or control technique is not presently achievable; or*
>
> *(3) is any other emission limitation or control technique, found by the Executive Officer or designee to be technologically feasible for such class or category of sources or for a*

> *specific source, and cost-effective as compared to measures as listed in the Air Quality Management Plan (AQMP) or rules adopted by the District Governing Board.*

The first two requirements in the BACT definition are required by federal law, as LAER for major sources. The third part of the definition is unique to AQMD and some other areas in California, and allows for more stringent controls than LAER.

Rule 1303(a)(2), as proposed to adopted, will further require that economic and technical feasibility be considered in establishing the class or category of sources and the BACT requirements for non-major polluting facilities.

REQUIREMENTS OF HEALTH & SAFETY CODE SECTION 40440.11

Senate Bill 456 (Kelley) was chaptered into state law in 1995 and became effective in 1996. H&SC Section 40440.11 specifies the criteria and process that must be followed by the AQMD to update its BACT Guidelines to establish more stringent BACT limits for listed source categories. After consultation with the affected industry, the CARB, and the U.S. EPA, and considerable legal review and analysis, staff concluded that the process specified in SB 456 to update the BACT Guidelines should be interpreted to apply only if the AQMD proposes to make BACT more stringent than LAER. Therefore, the SB 456 requirements do apply to BACT requirements for non-major polluting facilities, but do not apply to federal LAER determinations for major polluting facilities.

CLEAN FUEL REQUIREMENTS

In January 1988, the AQMD Governing Board adopted a Clean Fuels Policy that included a requirement to use clean fuels as part of BACT. The implementation of this policy is further described in Parts A and C of these guidelines.

Chapter 5 - Review of Staff BACT Determinations

The AQMD has included provisions for an applicant to request a review of particular circumstances regarding a permit application and reconsideration of the BACT determination. The following avenues are available to permit applicants for further review of staff BACT determinations.

MEETING WITH AQMD MANAGEMENT

AQMD management, starting with the Senior Manager of the permitting team, can consider unique and site-specific characteristics of an individual permit. The allowance for site-specific characteristics has been designed into the guidelines and can be reviewed with the manager of the section processing the permit. It is also possible to request review at the next level, with the Assistant Deputy Executive Officer of Engineering and Compliance. The Senior Managers and the Assistant Deputy Executive Officers are empowered to make case-by-case decisions on an individual permit. Further review can be obtained through a meeting with the Deputy Executive Officer (DEO) of Engineering and Compliance. Ultimately, all permitting decisions are the responsibility of the Executive Officer.

THE BACT REVIEW COMMITTEE

Beyond meetings with AQMD management, an applicant may also request, prior to permit issuance, that the proposed BACT for an individual permit be reviewed by the BACT Review Committee (BRC). The BRC is composed of five senior-level AQMD officials - the DEO of Public Affairs; the DEO of Science and Technology Advancement; the DEO of Engineering and Compliance; the DEO of Planning, Rule Development and Area Sources; and General Counsel. This committee can review pending individual applications and decide if the BACT determination is appropriate. The BRC can be accessed without any fee or legal representation, and will meet upon demand.

THE AQMD HEARING BOARD

After the permit is issued, the applicant can seek further independent review of an individual BACT determination through the AQMD Hearing Board. In order to access this venue, the permit applicant would need to submit a petition and fee to appeal the final BACT determination by AQMD (once the permit is denied or

issued)[7]. The Hearing Board is a quasi-judicial body composed of five members, who can review a permitting decision by the Executive Officer. In this venue, legal counsel represents the AQMD. Although not required, many petitioners choose to have legal counsel to represent their position.

THE AQMD GOVERNING BOARD

Any applicant may petition the AQMD Governing Board to review a pending application pursuant to AQMD Regulation XII and Health and Safety Code Section 40509. The Governing Board has the authority to hear and consider any pending permit application, but has only agreed to consider two pending permit applications in the last sixteen years.

[7] Applicants must file an appeal petition with the Hearing Board within thirty days of the receipt of the permit or the notification of permit denial. See Rule 216 - *Appeals*, Regulation V - *Procedure Before the Hearing Board*, and Rule 303 - *Hearing Board Fees* for more information.

PART A - POLICY AND PROCEDURES FOR MAJOR POLLUTING FACILITIES

Chapter 1 - How is LAER Determined for Major Polluting Facilities?

This chapter explains the criteria used for determining LAER[8] and the process for updating Part B of the BACT Guidelines for major polluting facilities.

CRITERIA FOR DETERMININING LAER FOR MAJOR POLLUTING FACILITES

AQMD staff determines LAER requirements on a permit-by-permit basis based on the definition of LAER. In essence, LAER is the most stringent emission limit or control technology that is:

- found in a state implementation plan (SIP), or
- achieved in practice (AIP), or
- is technologically feasible and cost effective.

For practical purposes, at this time, nearly all AQMD LAER determinations will be based on AIP LAER because it is generally more stringent than LAER based on SIP, and because state law constrains AQMD from using the third approach.

Based on Governing Board policy, LAER also includes a requirement for the use of clean fuels. Terms such as “achieved in practice” and “technologically feasible” have not been defined in the rule, so the purpose of this section is to explain the criteria AQMD permitting staff uses to make a LAER determination.

LAER Based on a SIP

The most stringent emission limit found in an approved state implementation plan (SIP) might be the basis for LAER. This means that the most stringent emission limit adopted by any state as a rule, regulation or permit[9] and approved by USEPA is eligible as a LAER requirement. No other parameters are required to be evaluated when this category is chosen. This does not include future emission limits that have not yet been implemented.

[8] In order to distinguish between BACT for major polluting facilities and BACT for minor polluting facilities, this document uses the term LAER when referring to BACT for major polluting facilities.

[9] Some states incorporate individual permits into their SIP as case-by-case Reasonably Available Control Technology requirements.

Achieved in Practice LAER

Regulatory Documents

An emission limit or control technology may be considered achieved in practice (AIP) for a category or class of source if it exists in any of the following regulatory documents or programs:

- AQMD BACT Guidelines
- CAPCOA BACT Clearinghouse
- USEPA RACT/BACT/LAER Clearinghouse
- Other districts' and states' BACT Guidelines
- BACT/LAER requirements in New Source Review permits issued by AQMD or other agencies

However, staff will check with the permitting authority (other than AQMD) on the status of the BACT or LAER requirement. If it is found that an emission limit is not being achieved or a control technology is not performing as expected in the equipment referenced in any of the above sources or in other equipment used as the basis for the BACT or LAER determination, then it will not be considered as AIP.

New Technologies/Emission Levels

New technologies and innovations of existing technologies occasionally evolve without a regulatory requirement, but still deserve consideration. They may have been voluntarily installed to reduce emissions, and may or may not be subject to an air quality permit or an emission limit. Therefore, in addition to the above means of being determined as AIP, a control technology or emission limit may also be considered as AIP if it meets all of the following criteria:

Commercial Availability: At least one vendor must offer this equipment for regular or full-scale operation in the United States. A performance warranty or guaranty must be available with the purchase of the control technology, as well as parts and service.

Reliability: All control technologies must have been installed and operated reliably for at least six months. If the operator did not require the basic equipment to operate daily, then the equipment must have at least 183 cumulative days of operation. During this period, the basic equipment must have operated: 1) at a minimum of 50% design capacity; or 2) in a manner that is typical of the equipment in order to provide an expectation of continued reliability of the control technology.

Effectiveness: The control technology must be verified to perform effectively over the range of operation expected for that type of equipment. If the control technology will be allowed to operate at lesser effectiveness during certain modes of operation, then those modes of operation must be identified. The verification shall be based on a performance test or tests, when possible, or other performance data.

Technology Transfer

LAER is based on what is AIP for a category or class of source. However, USEPA guidelines require that technology that is determined to be AIP for one category of source be considered for transfer to other source categories. There are two types of potentially transferable control technologies: 1) exhaust stream controls, and 2) process controls and modifications. For the first type, technology transfer must be considered between source categories that produce similar exhaust streams. For the second type, technology transfer must be considered between source categories with similar processes.

Cost in LAER Determinations

USEPA guidelines do not allow for routine consideration of the cost of control in LAER determinations. However, USEPA guidelines say that LAER is not considered achievable if the cost of control is so great that a new source could not be built or operated with a particular control technology. If a facility in the same or comparable industry already uses the control technology, then such use constitutes evidence that the cost to the industry is not prohibitive.

State law (H&SC 40405) also defines BACT as the lowest achievable emission rate, which is the more stringent of either (i) the most stringent emission limitation contained in the SIP, or (ii) the most stringent emission limitation that is achieved in practice. There is no explicit reference or prohibition to cost considerations, and the applicability extends to all permitted sources. AQMD rules implement both state BACT and federal LAER requirements simultaneously, and furthermore specify that AQMD BACT must meet federal LAER requirements for major polluting facilities.

If a proposed LAER determination results in extraordinary costs to a facility, the applicant may bring the matter to AQMD management for consideration as described in Chapter 6.

Clean Fuel Requirements

In January 1988, the AQMD Governing Board adopted a Clean Fuels Policy that included a requirement to use clean fuels as part of BACT/LAER. A clean fuel is one that produces air emissions equivalent to or lower than natural gas for NO_x, SO_x, ROG, and fine respirable particulate matter (PM_{10}). Besides natural gas, other clean fuels are methanol, liquid petroleum gas (LPG), and hydrogen. The burning of landfill, digester, refinery and other by-product gases is not subject to the clean fuels requirement. However, the combustion of these fuels must comply with other AQMD rules, including the sulfur content of the fuel.

The requirement of a clean fuel is based on engineering feasibility. Engineering feasibility considers the availability of a clean fuel and safety concerns associated with that fuel. Some state and local safety requirements limit the types of fuel, which can be used for emergency standby purposes. Some fire departments or fire marshals do not allow the storage of LPG near occupied buildings. Fire officials have, in some cases, vetoed the use of methanol in hospitals. If special handling or safety considerations preclude the use of the clean fuel, the AQMD has allowed the use of fuel oil as a standby fuel in boilers

and heaters, and for emergency standby generators. The use of these fuels must meet the requirements of AQMD rules limiting NO_x and sulfur emissions.

Special Permitting Considerations

Although the most stringent, AIP LAER for a source category will most likely be the required LAER, AQMD staff may consider special technical circumstances that apply to the proposed equipment which may allow deviation from that LAER. The permit applicant should bring any pertinent facts to the attention of the AQMD permitting engineer for consideration.

Case-Specific Situations

AQMD staff may consider unusual equipment-specific and site-specific characteristics of the proposed project that would warrant a reconsideration of the LAER requirement for new equipment. Here are some examples of what may be considered.

Technical Infeasibility of the control technology: A particular control technology may not be required as LAER if the applicant demonstrates that it is not technically feasible to install and operate it to meet a specific LAER emission limitation in a specific permitting situation.

Operating schedule and project length: If the equipment will operate much fewer hours per year than what is typical, or for a much shorter project length, it can affect what is considered "achieved in practice"

Availability of fuel or electricity: Some LAER determinations may not be feasible if a project will be located in an area where natural gas or electricity is not available.

Process requirements: Some LAER determinations specify a particular type of process equipment. AQMD staff may consider requirements of the proposed process equipment that would make the LAER determination not technically feasible.

Equivalency

The permit applicant may propose alternative means to achieve the same emission reduction as required by LAER. For example, if LAER requires a certain emission limit or control efficiency to be achieved, the applicant may choose any control technology, process modification, or combination thereof that can meet the same emission limit or control efficiency.

Super Clean Materials

AQMD will accept the use of super clean materials in lieu of an add-on control device controlling volatile organic compound (VOC) emissions from coating operations. For example at this time, if a permit applicant uses only surface coatings that contain less than 5% VOC by weight, an add-on control device would not be required for VOC LAER.

Equipment Modifications

As a general rule, it is more difficult to retrofit existing equipment with LAER as a result of NSR modification when compared to a new source. The equipment being modified may not be compatible with some past LAER determinations that specify a particular process type. There may also be space restrictions that prevent installation of some add-on control technology.

LAER APPLICATION CUT-OFF DATES

For applications submitted by major polluting facilities, LAER requirements will be determined based on information available up to the date the permit to construct is issued. This requirement allows interested parties to comment on possible technologies that could provide lower emissions.

Applications for a Registration Permit for equipment issued a valid Certified Equipment Permit (CEP), which is valid for one year, will only be required to comply with LAER as determined at the time the CEP was issued. However, AQMD staff will reevaluate the LAER requirements for the CEP upon annual renewal of the CEP by the equipment manufacturer.

LAER UPDATE PROCESS

AQMD will update Section I – AQMD LAER/BACT Determinations of Part B of the BACT Guidelines on an ongoing basis with actual LAER determinations for AQMD permits issued to major polluting facilities. The process will depend on whether or not the LAER requirement is more stringent than previous AQMD LAER determinations for the same equipment category.

When AQMD permitting staff makes a LAER determination that is no more stringent than previous AQMD LAER determinations, the permitting team will issue the permit and forward information regarding this LAER determination to the BACT/NSR Team.[10] The BACT/NSR Team will review this LAER determination with the SRC prior to listing in the BACT Guidelines.

Whenever permitting staff makes a LAER determination that is more stringent than what AQMD has previously required as LAER, the permit to construct may be subject to a public review. The permitting team will forward the preliminary LAER determination to the BACT/NSR Team, who will prepare and send a public notice of the preliminary determination to the SRC, potentially interested persons, and anyone else requesting the information. Staff will consider all comments filed during the 30-day review period before making a permit decision. Staff will make every effort to conduct the public review consistent with the requirements of state law. However, if the 30-day review period conflicts with the deadline of the Permit Streamlining Act[11] for issuing the permit, the permit will be issued in accordance with state law. The 30-day public review may also be done

[10] To reduce the burden on AQMD of preparing hundreds of LAER Determination Forms each month, forms will not be prepared for routine LAER determinations after Part B, Section I of the guidelines has sufficient entries to demonstrate typical LAER requirements.

[11] The requirements of the Permit Streamlining Act are also found in AQMD's Rule 210.

in parallel with other public reviews mandated by *Rule 212 - Standards for Approving Permits and Issuing Public Notice* or *Regulation XXX - Title V Permits* in applicable cases.

On a quarterly basis, the AQMD BACT/NSR Team will provide standing status reports to the AQMD Governing Board's Stationary Source Committee and to the Governing Board.

In summary, as technology advances, many categories in the AQMD's BACT Guidelines will be updated with new listings. This on-going process will reflect new lower emitting technologies not previously identified in the Guidelines.

Chapter 2 - How to Use Part B of the BACT Guidelines

This chapter explains the LAER information found in Part B - LAER/BACT Determinations for Major Polluting Facilities. Part B is a listing of LAER/BACT determinations for major polluting facilities contained in AQMD and other air pollution control agencies' permits, and data on new and emerging technologies. These LAER/BACT determinations and data are guides and will be used, along with other information, to determine LAER as outlined in Chapter 1. For a listing of equipment types, refer to the Index of Equipment Categories. LAER determination for equipment not found in Part B of the BACT Guidelines is done according to the process outlined in Chapter 1.

GENERAL

Part B is divided into three sections. Section I – AQMD LAER/BACT Determinations, contains information on LAER/BACT determinations contained in permits issued by AQMD, with permit limits based on achieved in practice technology. Section II – Non-AQMD LAER/BACT Determinations, lists LAER/BACT determinations contained in other air pollution control agencies' permits or BACT Guidelines, with permit limits based on achieved in practice technology. Section III – Other Technologies, consists of information on technologies which have been achieved in practice but are not reflected in a permit limit, and information on emerging technologies or emission limits which have not yet been achieved in practice (i.e., do not qualify as LAER). All three sections are subdivided based on the attached Index of Equipment Categories. Within each category, the LAER/BACT determinations will be listed in order of stringency.

Each listing includes information subdivided into the following six sections:

1) Basic Equipment[12]
   This provides information on the type, model, style, manufacturer, function, and cost of the basic equipment. It also lists applicable AQMD Regulation XI rules. Cost data are generally obtained from the AQMD application forms, manufacturer or owner/operator, and are not verified.

2) Basic Equipment Rating/Size
   This identifies the size, dimensions, capacity, or rating of the basic equipment. It also provides additional information such as fuel type for combustion equipment, weight of parts cleaned per load for degreasers, and the number and size of blowers for spray booths.

[12] Basic equipment is the process or equipment, which emits the air contaminant for which BACT is being determined.

3) Company Information
This identifies the contact person and owner/operator of the equipment, along with telephone numbers.

4) Permit Information
This identifies the permitting agency and the name and telephone number of the agency's contact person. It also provides information on Permits to Construct/Operate. The AQMD is always the issuing agency for LAER determinations listed in Section I.

5) Emission Information
This identifies the actual permit limits and LAER/BACT requirements set forth by the issuing agency for the equipment being evaluated. It provides technical, performance, and cost data on the control technology used to achieve the permit limit and the LAER/BACT requirements.

6) Comment
This provides additional information relevant to basic equipment and control technology assessment, or further explains or clarifies the LAER/BACT determination.

The above six sections will enable permit applicants to assess the applicability of each LAER/BACT determination to their particular equipment.

The LAER requirements usually found in section 5A of the LAER Determination listings are in the form of:

- an emission limit;
- a control technology;
- equipment requirements; or
- a combination of the last two.

If the requirement is an emission limit, the applicant may choose any control technology to achieve the emission limit. The AQMD prefers to set an emission limit as LAER because it allows an applicant the most flexibility in reducing emissions. If control technology and/or equipment requirements are the only specified LAER, then either emissions from the equipment are difficult to measure or it was not possible to specify an emission limit that applies to all equipment within the category. Where possible, an emission limit or control efficiency condition will be specified on the permit along with the control technology or equipment requirements to ensure that the equipment is properly operated with the lowest emissions achievable.

HOW TO DETERMINE LAER

The Part B LAER determinations are only examples of LAER determinations for equipment that have been issued permits or that have been demonstrated in practice. As described in Chapter 1, LAER is determined on a case-by-case basis. To find out what LAER is likely to be for a particular equipment, the applicant should review the Part B LAER determinations found at the AQMD website http://www.aqmd.gov/bact. The CAPCOA Clearinghouse maintained by the California Air Resources Board and the USEPA RACT/BACT/LAER

Clearinghouse should also be reviewed. These compendiums contain information from other districts, local agencies, and states that may not be included in the AQMD BACT Guidelines. Finally, the AQMD permitting staff may be contacted to discuss LAER prior to submitting a permit application.

As described in Chapter 1, the permit applicant should bring to the attention of the AQMD permitting engineer any special permitting considerations that may affect the LAER determination.

PART B - LAER/BACT DETERMINATIONS FOR MAJOR POLLUTING FACILITIES

Part B of the BACT Guidelines is maintained on the AQMD Internet website at http://www.aqmd.gov/bact.

PART C - POLICY AND PROCEDURES FOR NON-MAJOR POLLUTING FACILITIES

Chapter 1 - How Is MSBACT Determined for Minor Polluting Facilities?

This chapter explains the definitions of BACT for non-major polluting facilities (minor source BACT or MSBACT) found in AQMD rules and state law and how they are interpreted. It also explains the criteria used for initializing the Part D MSBACT Guidelines and the process for updating the MSBACT Guidelines.

INITIALIZATION OF PART D OF THE MSBACT GUIDELINES

Part D of the MSBACT Guidelines specifies the MSBACT requirements for all of the commonly permitted categories of equipment. (See Chapter 2 for a full explanation of Part D).

The initial listings in Part D of the MSBACT Guidelines reflect current BACT determinations for sources at non-major polluting facilities as of April 2000. This initialization does not represent new requirements but rather memorializes current BACT determinations and emission levels. This initialization is necessary to benchmark the transition from federal LAER to MSBACT for non-major polluting facilities. The control technologies and emission levels identified initially will apply to any non-major source subject to NSR until the Guideline is updated or becomes out of date.

CRITERIA FOR NEW MSBACT AND UPDATING PART D

MSBACT requirements are determined for each source category based on the definition of MSBACT. In essence, MSBACT is the most stringent emission limit or control technology that is:

- found in a state implementation plan (SIP), or
- achieved in practice (AIP), or
- is technologically feasible and cost effective.

For practical purposes, nearly all AQMD MSBACT determinations will be based on AIP BACT because it is generally more stringent than MSBACT based on SIP, and because state law contains some constraints on AQMD from using the third approach. For minor polluting facilities, MSBACT will also take economic feasibility into account.

Based on Governing Board policy, MSBACT also includes a requirement for the use of clean fuels.

Terms such as “achieved in practice” and “technologically feasible” (including technology transfer) have not been defined in the rule, so one of the purposes of this section is to explain the criteria AQMD permitting staff uses to make a MSBACT determination.

MSBACT Based on a SIP

The most stringent emission limit found in an approved state implementation plan (SIP) might be the basis for MSBACT. This means that the most stringent emission limit adopted by any state as a rule, regulation or permit[13] and approved by USEPA is eligible as a MSBACT requirement. This does not include future emission limits that have not yet been implemented.

Achieved in Practice MSBACT

BACT may also be based on the most stringent control technology or emission limit that has been achieved in practice (AIP) for a category or class of source. AIP control technology may be in operation in the United States or any other part of the world. AQMD permitting engineers will review the following sources to determine what is the most stringent AIP MSBACT:

- LAER/BACT determinations in Part B of the BACT Guidelines
- CAPCOA BACT Clearinghouse
- USEPA RACT/BACT/LAER Clearinghouse
- Other districts' and states' BACT Guidelines
- Permits to operate issued by AQMD or other agencies
- Any other source for which the requirements of AIP can be demonstrated

Achieved in Practice Criteria

A control technology or emission limit found in any of the references above may be considered as AIP if it meets all of the following criteria:

Commercial Availability: At least one vendor must offer this equipment for regular or full-scale operation in the United States. A performance warranty or guaranty must be available with the purchase of the control technology, as well as parts and service.

Reliability: The control technology must have been installed and operated reliably for at least twelve months on a comparable commercial operation. If the operator did not require the basic equipment to operate continuously, such as only eight hours per day and 5 days per week, then the control technology must have operated whenever the basic equipment was in operation during the twelve months.

Effectiveness: The control technology must be verified to perform effectively over the range of operation expected for that type of equipment. If the control technology will be allowed to operate at lesser effectiveness during certain modes of operation, then those modes must be identified. The verification shall be based on a performance test or tests, when possible, or other performance data.

Cost Effectiveness: The control technology or emission rate must be cost effective for a substantial number of sources within the class or category. Cost effectiveness criteria are described in detail in a later section. Cost criteria are not applicable to an individual permit but rather to a class or category of source.

[13] Some states incorporate individual permits into their SIP as case-by-case Reasonably Available Control Technology requirements.

Technology Transfer

MSBACT is based on what is AIP for a category or class of source. However, technology transfer must also be considered across source categories, in view of the other AIP criteria. There are two types of potentially transferable control technologies: 1) exhaust stream controls, and 2) process controls and modifications. For the first type, technology transfer must be considered between source categories that produce similar exhaust streams. For the second type, process similarity governs the technology.

Requirements of Health & Safety Code Section 40440.11

Senate Bill 456 (Kelley) was chartered into state law in 1995 and became effective in 1996. H&SC Section 40440.11 specifies the criteria and process that must be followed by the AQMD to establish new MSBACT limits for source categories listed in the MSBACT Guidelines. In general, the provisions require:

- Considering only control options or emission limits to be applied to the basic production or process equipment;
- Evaluating cost to control secondary pollutants;
- Determining the control technology is commercially available;
- Determining the control technology has been demonstrated for at least one year on a comparable commercial operation;
- Calculating total and incremental cost-effectiveness;
- Determining that the incremental cost-effectiveness is less than AQMD's established cost-effectiveness criteria;
- Putting BACT Guideline revisions on a regular meeting agenda of the AQMD Governing Board;
- Holding a Board public hearing prior to revising maximum incremental cost-effectiveness values;
- Keeping a BACT determination made for a particular application unchanged for at least one year from the application deemed complete date; and
- Considering a longer period for a major capital project (> $10,000,000)

After consultation with the affected industry, the CARB, and the U.S. EPA, and considerable legal review and analysis, staff concluded that the process specified in SB 456 to update the BACT Guidelines should be interpreted to apply only if the AQMD proposes to make BACT more stringent than LAER or where LAER is inapplicable. Staff intends to incorporate the spirit and intent of the SB 456 provisions into the MSBACT update process, as explained below, because non-major polluting facilities are no longer subject to federal LAER.

COST EFFECTIVENESS METHODOLOGY

Cost effectiveness is measured in terms of control costs (dollars) per air emissions reduced (tons). If the cost per ton of emissions reduced is less than the maximum required cost effectiveness, then the control method is considered to be cost effective. This section also discusses the updated maximum cost effectiveness values, and those costs, which can be included in the cost effectiveness evaluation.

There are two types of cost effectiveness: average and incremental. Average cost effectiveness considers the difference in cost and emissions between a proposed MSBACT and an uncontrolled case. On the other hand, incremental cost effectiveness looks at the difference in cost and emissions between the proposed MSBACT and alternative control options.

Applicants may also conduct a cost effectiveness evaluation to support their case for the special permit considerations discussed in Chapter 2.

Discounted Cash Flow Method

The discounted cash flow method (DCF) is used in the MSBACT Guidelines. This is also the method used in the 1999 Air Quality Management Plan. The DCF method calculates the present value of the control costs over the life of the equipment by adding the capital cost to the present value of all annual costs and other periodic costs over the life of the equipment. A real interest rate* of four percent, and a 10-year equipment life is used. The cost effectiveness is determined by dividing the total present value of the control costs by the total emission reductions in tons over the same 10-year equipment life.

Maximum Cost Effectiveness Values

The MSBACT maximum cost effectiveness values, shown in Table 4, are based on a DCF analysis with a 4% real interest rate.

Table 4: Maximum Cost Effectiveness Criteria (Second Quarter 2003)

Pollutant	Average (Maximum $ per Ton)	Incremental (Maximum $ per Ton)
ROG	20,200	60,600
NOx	19,100	57,200
SOx	10,100	30,300
PM_{10}	4,500	13,400
CO	400	1,150

The cost criteria are based on those adopted by the AQMD Governing Board in the 1995 BACT Guidelines, adjusted to second quarter 2003 dollars using the Marshall and Swift Equipment Cost Index. Cost effectiveness analyses should use these figures adjusted to the latest Marshall and Swift Equipment Cost Index, which is published monthly in Chemical Engineering.

* The real interest rate is the difference between market interest rates and inflation, which typically remains constant at four percent.

Top Down Cost Methodology

The AQMD uses the top down approach for evaluating cost effectiveness. This means that the best control method, with the highest emission reduction, is first analyzed. If it is not cost effective, then the second-best control method is evaluated for cost effectiveness. The process continues until a control method is found to be cost-effective.

AQMD staff will calculate both incremental and average cost effectiveness. The new MSBACT must be cost effective based on both analyses.

Costs to Include in a Cost Effectiveness Analysis

Cost effectiveness evaluations consider both capital and operating costs. Capital cost includes not only the price of the equipment, but the cost for shipping, engineering and installation. Operating or annual costs include expenditures associated with utilities, labor and replacement costs. Finally, costs are reduced if any of the materials or energy created by the process result in cost savings. These cost items are shown in Table 5. Methodologies for determining these values are given in documents prepared by USEPA through their Office of Air Quality Planning and Standards (OAQPS Control Cost Manual, 4th Edition, USEPA 450/3-90-006 and Supplements).

The cost of land will not be considered because 1) add-on control equipment usually takes up very little space, 2) add-on control equipment does not usually require the purchase of additional land, and 3) land is non-depreciable and has value at the end of the project. In addition, the cost of controlling secondary emissions and cross-media pollutants caused by the primary MSBACT requirement should be included in any required cost effectiveness evaluation of the primary MSBACT requirement.

Table 5: Cost Factors

Total Capital Investment

Purchased Equipment Cost
- Control Device
- Ancillary (including duct work)
- Instrumentation
- Taxes
- Freight

Direct Installation Cost
- Foundations and Supports
- Handling and Erection
- Electrical
- Piping
- Insulation
- Painting

Indirect Installation Costs
- Engineering
- Construction and Field Expenses
- Start-Up
- Performance Tests
- Contingencies

Total Annual Cost

Direct Costs
- Raw Materials
- Utilities
  - Electricity
  - Fuel
  - Steam
  - Water
  - Compressed Air
- Waste Treatment/Disposal
- Labor
  - Operating
  - Supervisory
  - Maintenance
- Maintenance Materials
- Replacement Parts

Indirect Costs
- Overhead
- Property Taxes
- Insurance
- Administrative Charges

Recovery Credits
- Materials
- Energy

CLEAN FUEL REQUIREMENTS

In January 1988, the AQMD Governing Board adopted a Clean Fuels Policy that included a requirement to use clean fuels as part of BACT. A clean fuel is one that produces air emissions equivalent to or lower than natural gas for NO_X, SO_X, ROG, and fine respirable particulate matter (PM_{10}). Besides natural gas, other clean fuels are methanol, liquid petroleum gas (LPG), and hydrogen. The burning of landfill, digester, refinery and other by-product gases is not subject to the clean fuels requirement as they are considered industry. However, the combustion of these fuels must comply with other AQMD rules, including the sulfur content of the fuel.

The requirement of a clean fuel is based on engineering feasibility. Engineering feasibility considers the availability of a clean fuel and safety concerns associated

with that fuel. Some state and local safety requirements limit the types of fuel, which can be used for emergency standby purposes. Some fire departments or fire marshals do not allow the storage of LPG near occupied buildings. Fire officials have, in some cases, vetoed the use of methanol in hospitals. If special handling or safety considerations preclude the use of the clean fuel, the AQMD has allowed the use of fuel oil as a standby fuel in boilers and heaters, and for emergency standby generators. The use of these fuels must meet the requirements of AQMD rules limiting NO_X and sulfur emissions.

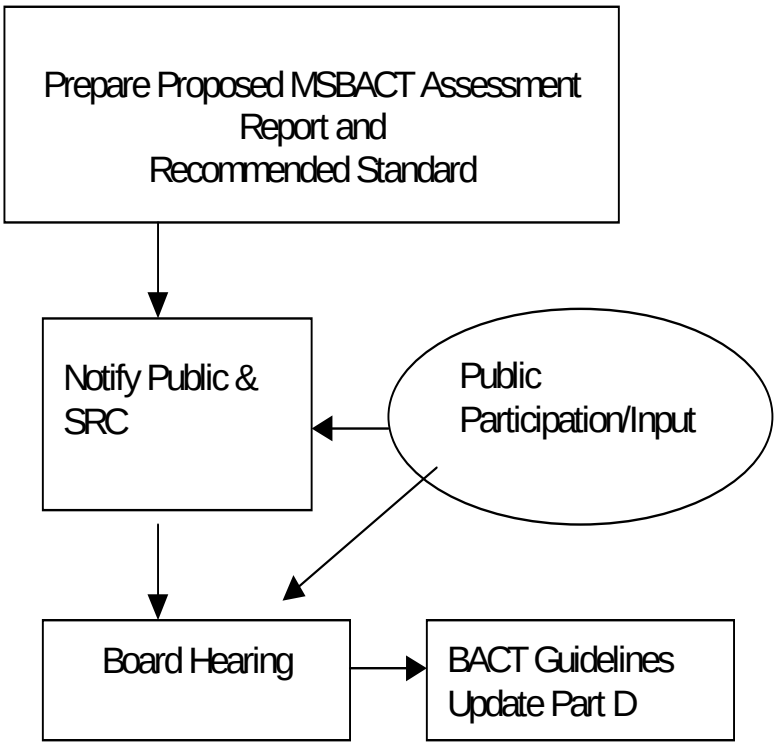
BACT UPDATE PROCESS

As technology advances, the AQMD's MSBACT Part D Guidelines will be updated. Updates will include revisions to the guidelines for existing equipment categories, as well as new guideline for new categories.

The MSBACT Guidelines will be revised based on the criteria outlined in the previous sections. Once a more stringent emission limit or control technology has been reviewed by staff and is determined to meet the criteria for MSBACT, it will be reviewed through a public process. The process is shown schematically in Figure 2. The public will be notified and the Scientific Review Committee (SRC) will have an opportunity to comment. Following the public process, the guidelines will be presented to the Governing Board for approval at a public hearing, prior to updates of the MSBACT Guidelines, Part D.

Figure 2

THE ONGOING UPDATE PROCESS



Chapter 2 - How To Use Part D of the MSBACT Guidelines

This chapter explains the MSBACT information found in Part D - MSBACT Guidelines. The Guidelines in Part D should be used to determine MSBACT for non-major polluting facilities. For a listing of equipment, refer to the Part D Table of Contents. Determination of MSBACT for equipment not found in Part D of the MSBACT Guidelines is also explained.

GENERAL

Part D includes MSBACT Guidelines for more than 100 categories of equipment commonly processed by AQMD. Some guidelines are further subdivided by equipment size, rating, type or the material used, as appropriate.

The MSBACT requirements are in the form of:

1) an emission limit;
2) a control technology;
3) equipment requirements; or
4) a combination of the last two.

If the requirement is an emission limit, the applicant may choose any control technology to achieve the emission limit. The AQMD prefers to set an emission limit as MSBACT because it allows an applicant the most flexibility in reducing emissions.

If a control technology and/or equipment requirements are the only specified MSBACT, then either emissions from the equipment are difficult to measure or it was not possible to specify an emission limit that applies to all equipment within the category. Where possible, an emission limit or control efficiency condition will be specified in the permit along with the control technology or equipment requirements to ensure that the equipment is properly operated with the lowest emissions achievable. An applicant may still propose to use other ways to achieve the same or better emission reduction than the specified MSBACT.

MSBACT is the control technology or emission limit given in Part D for the basic equipment or process being evaluated, unless the guideline is out of date, or there are special permitting conditions, or the equipment is not identified in Part D. In those cases, the procedures described in the following sections will be used to determine MSBACT. Applicants or other interested parties are encouraged to contact the AQMD permitting staff if there are any questions about MSBACT.

SPECIAL PERMITTING CONSIDERATIONS

Although the most stringent, AIP BACT for a source category will most likely be the required MSBACT, AQMD staff may consider special technical circumstances that apply to the proposed equipment which may allow deviation from that MSBACT. The permit applicant should bring any pertinent facts to the attention of the AQMD permitting engineer for consideration.

Case-Specific Situations

AQMD staff may consider unusual equipment-specific and site-specific characteristics of the proposed project that would warrant a reconsideration of the MSBACT requirement for new equipment.

Technical Infeasibility of the control technology: A particular control technology may not be required as MSBACT if the applicant demonstrates that it is not technically feasible to install and operate it to meet a specific MSBACT emission limitation in a specific permitting situation.

Operating schedule and project length: If the equipment will operate much fewer hours per year than what is typical, or for a much shorter project length, it can affect what is considered “AIP”.

Availability of fuel or electricity: Some MSBACT determinations may not be feasible if a project will be located in an area where natural gas or electricity is not available.

Process requirements: Some MSBACT determinations specify a particular type of process equipment. AQMD staff may consider requirements of the proposed process equipment that would make the MSBACT determination not technically feasible.

Equivalency

The permit applicant may propose alternative means to achieve the same emission reduction as required by BACT. For example, if BACT requires a certain emission limit or control efficiency to be achieved, the applicant may choose any control technology, process modification, or combination thereof that can meet the same emission limit or control efficiency.

Super Clean Materials

AQMD will accept the use of super clean materials in lieu of an add-on control device controlling volatile organic compound (VOC) emissions from coating operations. For example at this time, if a permit applicant uses only surface coatings that contain less than 5% VOC by weight, it may qualify as VOC MSBACT.

Equipment Modifications

As a general rule, it is more difficult to retrofit existing equipment with MSBACT as a result of NSR modification when compared to a new source. The equipment being modified may not be compatible with some past MSBACT determinations that specify a particular process type. There may also be space restrictions that prevent installation of some add-on control technology.

Equipment Not Identified in the MSBACT Guidelines

Although the BACT Guideline contains an extensive listing of practically everything the AQMD permits, occasionally applications will be received for equipment not identified in the Guideline. As required by Rule 1303, MSBACT for an equipment category not listed in the MSBACT Guidelines must be determined on a case-by-case basis using the definition of BACT in Rule 1302 and the general procedures in these MSBACT Guidelines, as shown in Chapter 1 and the previous sections of this chapter.

Applicants whose equipment is not listed in Part D of the MSBACT Guidelines should contact the AQMD and arrange a pre-application conference. MSBACT issues can be discussed in the conference for leading to a MSBACT determination. Applicants are not required to conduct the MSBACT evaluation but the application may be processed more quickly if the applicant provides a MSBACT evaluation with the application for a permit to construct.

MSBACT Determinations Should the Guidelines Become Out of Date

Should the MSBACT Guideline Part D become out of date with state BACT requirements or permits issued for similar equipment in other parts of the state, staff will evaluate permits consistent with the definition of BACT considering technical and economic criteria as required by Rule 1303 (a) and Health & Safety Code Section 40405. The technical and economic factors to be considered are those identified in Chapter 1.

BACT APPLICATION CUT-OFF DATES

These guidelines apply to all non-major polluting facility applications deemed complete subsequent to AQMD Governing Board adoption of the Regulation XIII amendments in 2000.

Applications for a Registration Permit for equipment issued a valid Certified Equipment Permit (CEP), which is valid for one year, will only be required to comply with MSBACT as determined at the time the CEP was issued. However, AQMD staff will reevaluate the MSBACT requirements for the CEP upon annual renewal of the CEP by the equipment manufacturer.

PART D - BACT GUIDELINES FOR NON-MAJOR POLLUTING FACILITIES

Part D of the BACT Guidelines is published as a separate document.

LIST OF ABBREVIATIONS

AIP	Achieved in Practice
AQMD	South Coast Air Quality Management District
AQMP	Air Quality Management Plan
BACT	Best available control technology
BRC	BACT Review Committee, AQMD
CAA	Clean Air Act
CAPCOA	California Air Pollution Control Officers Association
CEP	Certified Equipment Permit
CFC	Chlorofluorocarbons
CFR	Code of Federal Regulations
CO	Carbon monoxide
DEO	Deputy Executive Officer
H&SC	Health and Safety Code, California State
LAER	Lowest achievable emission rate
LPG	Liquefied petroleum gas
MDAB	Mojave Desert Air Basin
MSBACT	Minor Source BACT
NO_2	Nitrogen dioxide
NOx	Oxides of nitrogen
NSR	New Source Review
ODC	Ozone depleting compounds
PM10	Particulate matter less than 10 microns in diameter
RACT	Reasonably available control technology
RECLAIM	Regional Clean Air Incentive Market
ROG	Reactive organic gas
SIP	State Implementation Plan
SOCAB	South Coast Air Basin
SOx	Oxides of sulfur
SRC	Scientific Review Committee
SSAB	Salton Sea Air Basin
USEPA	United States Environmental Protection Agency
VOC	Volatile organic compound

INDEX OF EQUIPMENT CATEGORIES

A

Abrasive Blasting
Absorption Chille
Air Start Unit
Air Stripper - Ground Water Treatment
Aluminum Melting Furnace - Crucible or Pot (All Charge)
Aluminum Melting Furnace - Crucible or Pot, Ingot and/or Clean Scrap Charge Only
Aluminum Melting Furnace - Reverberatory, Non-Sweating, Ingot or Contaminated Scrap Charge
Aluminum Melting Furnace - Reverberatory, Non-Sweating, Ingot or non-Contaminated Scrap Charge
Aluminum Melting Furnace - Reverberatory, Sweating, Ingot or Contaminated Scrap Charge
Aluminum Melting Furnace - Rotary, Sweating, Ingot or Contaminated Scrap Charge
Ammonium Bisulfate and Thiosulfate Production
Animal Feed Manufacturing - Dry Material Handling (see Bulk Solid Material Handling)
Asbestos Machining Equipment
Asphalt Batch Plant
Asphalt Roofing Line
Asphalt Storage Tank (see Storage Tank – Liquid)
Asphalt Day Tanker
Autobody Shredder

B

Ball Mill
Beryllium Machining Equipment
Blender (see Mixer)
Boiler
Boiler - Refinery Gas Fired
Boiler, CO - Refinery
Boiler - Agricultural Waste (Biomass) Fired
Boiler - Landfill or Digester Gas fired
Boiler - Municipal Solid Waste (MSW) Fired
Boiler - Wood Fired
Brake Pad Grinder
Brakeshoe Debonder
Brass Melting Furnace - Crucible
Brass Melting Furnace - Cupola
Brass Melting Furnace - Reverberatory, Non-Sweating
Brass Melting Furnace - Reverberatory, Sweating
Brass Melting Furnace - Rotary, Non-Sweating
Brass Melting Furnace - Rotary, Sweating
Brass Melting Furnace - Tilting Induction
Bulk Cement - Ship Unloading

Bulk Solid Material Handling
Bulk Solid Material - Ship Loading - Non-White Commodities
Bulk Solid Material - Ship Loading - White Commodities
Bulk Solid Material Ship Unloading - Except Cement
Bulk Solid Material Storage - Non-White Commodities
Bulk Solid Material Storage - White Commodities
Burnoff or Burnout Furnace (Excluding Wax Burnoff)

C

Calcined Petroleum Coke Handling
Calcined Petroleum Coke Truck Loading and Unloading
Calciner
Calciner - Petroleum Coke
Calciner - Portland Cement
Carpet Beating and Shearing
Carpet Oven (see Dryer or Oven)
Catalyst Manufacturing - Reactor
Catalyst Manufacturing - Rotary Dryer
Catalyst Manufacturing - Spray Dryer
Catalyst Regeneration - Fluidized Catalyst Cracking Unit
Catalyst Regeneration - Hydrocarbon Removal
Catalyst Regeneration and Manufacturing Calcining
Cement Handling (see Bulk Cement – Ship Unloading)
Charbroiler, Chain-driven (Conveyorized)
Chemical Milling Tank - Aluminum and Magnesium
Chemical Milling Tank - Nickel Alloys, Stainless Steel and Titanium
Chip Dryer
Chrome Plating - Decorative Chrome
Chrome Plating - Hard Chrome
Circuit Board Etcher - Batch Immersion Type, Subtractive Process
Circuit Board Etcher - Conveyorized Spray Type, Subtractive Process
Circuit Board Photoresist Developer
Clay, Ceramic, and Refractories Handling (Except Mixing) (see Bulk Solid Material Handling)
Cleaning Compound Blender
CO_2 Plant
Coal, Coke and Sulfur Handling and Storage (see Bulk Solid Material Handling and Bulk Solid Material Storage)
Coffee Roasting
Coffee Roasting – Handling Equipment
Commodities Handling and Storage (see Bulk Solid Material Handling and Bulk Solid Material Storage)
Composting
Compressors (see Fugitive Emission Sources)
Connectors - Gas/Vapor and Light Liquid (see Fugitive Emission Sources)
Concrete Batch Plant - Central Mixed
Concrete Batch Plant - Transit-Mixed
Concrete Blocks and Forms Manufacturing
Cotton Gin
Crematory

D

Degreaser - Batch-Loaded or Conveyorized Cold Cleaners
Degreaser - Conveyorized Vapor, Volatile Organic CompoundsDegreaser - Vapor Cleaning, Volatile Organic Compounds
Degreaser - Other
Detergent Manufacturing - Solids Handling
Detergent Manufacturing - Spray Dryer
Diaphragm (see Fugitive Emission Sources)
Diesel Engine (see I.C. Engine – Compression Ignition)
Drum Reclamation Furnace
Dry Cleaning - Perchloroethylene
Dry Cleaning - Petroleum Solvent
Dry Material Handling (see Bulk Solid Material Handling)
Dryer - Kiln
Dryer - Rotary, Spray and Flash
Dryer – Tenter Frame, Fabric
Dryer - Tray, Agitated Pan, and Rotary Vacuum
Dryer or Oven - Direct and Indirect Fired

E

Electric Furnace - Pyrolizing, Carbonizing and Graphitizing
Electrical Wire Reclamation - Insulation Burnoff Furnace
Ethylene Oxide Sterilization - Quarantine Storage
Ethylene Oxide Sterilization/Aeration
Expanded Polystyrene Manufacturing, Using Blowing Agent (see Polymeric Cellular [Foam] Product Manufacturing)
Extrusion (see Plastic or Resin Extrusion)

F

Fatty Acid - Fat Hydrolyzing and Fractionation
Fatty Alcohol
Feed and Grain Handling (see Bulk Solid Material Handling)
Fermentation - Beer and Wine
Fertilizer Handling (see Bulk Solid Material Handling)
Fiber Impregnation
Fiberglass Fabrication (see Polyester Resin Operations)
Film Cleaning Machine (see Degreaser)
Fish Cooker - Edible
Fish Reduction - Cooker
Fish Reduction - Digester, Evaporator and Acidulation Tank
Fish Reduction - Dryer
Fish Reduction - Meal Handling
Fish Rendering - Presses, Centrifuges, Separators, Tank, etc.
Fittings (see Fugitive Emission Sources)
Flare - Digester Gas or Landfill Gas from Non-Hazardous Waste Landfill
Flare - Landfill Gas from Hazardous Waste Landfill
Flare - Refinery, Non-Emergency
Flexographic Printing (see Printing)
Flow Coater, Dip Tank and Roller Coater

Fluidized Catalytic Cracking Unit
Foundry Sand Mold - Cold Cure Process
Fryer - Deep Fat
Fugitive Emission Sources at Natural Gas Plants and Oil and Gas Production Fields
Fugitive Emission Sources at Organic Liquid Bulk Loading Facilities
Fugitive Emission Sources, Other facilities
Fuming Sulfuric Acid Storage Tank (see Storage Tank – Fuming Sulfuric Acid)

G

Galvanizing Furnace - Batch Operations
Galvanizing Furnace - Continuous Sheet Metal Operations
Galvanizing Furnace - Continuous Wire Operations
Garnetting Equipment
Gas Turbine – Combined Cycle/Cogeneration
Gas Turbine - Emergency
Gas Turbine - Landfill or Digester Gas Fired
Gas Turbine – Simple Cycle
Glass Melting Furnace - Container Manufacturing
Glass Melting Furnace - Decorator Glass
Glass Melting Furnace - Flat Glass
Graphic Arts (see Printing)
Green Petroleum Coke Handling (see Bulk Solid Material Handling)
Green Petroleum Coke Truck Loading or Unloading (see Bulk Solid Material Handling)

H

Hatches (see Fugitive Emission Sources)
Hazardous Waste Incineration (see Incinerator – Hazardous Waste)
Heater (see Process Heater)

I

I.C. Engine - Emergency, Compression Ignition
I.C. Engine - Emergency, Spark Ignition
I.C. Engine - Fire Pump
I.C. Engine - Portable, Compression Ignition
I.C. Engine - Portable, Spark Ignition
I.C. Engine - Stationary, Non-Emergency
I.C. Engine - Landfill or Digester Gas Fired
Incinerator – Hazardous Waste
Incinerator - Infectious Waste
Incinerator Non-Infectious, Non-Hazardous Waste
Ink Jet Printing
Iron Melting Furnace - Cupola
Iron Melting Furnace - Induction
Iron Melting Furnace - Reverberatory

J

Jet Engine Test Facility - Experimental Jet Engine, High Altitude Testing
Jet Engine Test Facility - Experimental Jet Engine, Sea Level (Low Altitude) Testing

Jet Engine Test Facility - Jet engine Performance Testing

L

Laminator with Corona Transfer
Landfill Gas Gathering System
Latex Manufacturing - Reaction
Lead Melting Furnace - Cupola, Secondary Melting Operations
Lead Melting Furnace - Pot or Crucible, Non-Refining Operations
Lead Melting Furnace - Pot or Crucible, Refining Operations
Lead Melting Furnace - Reverberatory, Secondary Melting Operations
Lead Oxide Manufacturing - Reaction Pot Barton Process
Letterpress Printing (see Printing)
Liquid Transfer and Handling - Container Filling
Liquid Transfer and Handling - Marine, Loading
Liquid Transfer and Handling - Marine, Unloading
Liquid Transfer and Handling - Tank Truck and Rail Car Bulk Loading, Class A (SCAQMD's Rule 462)
Liquid Transfer and Handling - Tank Truck and Rail Car Bulk Loading, Class B (SCAQMD's Rule 462)
Liquid Transfer and Handling - Tank Truck and Rail Car Bulk Loading, Class C (SCAQMD's Rule 462)
Lithographic Printing Heatset (see Printing)
Lithographic Printing - Non-Heatset (see Printing)

M

Meat Broiler and Barbecue Oven
Metal Forging Furnace
Metal Heating Furnace
Metallizing Spray Gun
Meters (see Fugitive Emission Sources)
Mixer or Blender - Wet
Mixer, Blender, or Mill - Dry

N

Natural Fertilizer Handling (see Bulk Solid Material Handling)
Natural Gas Plants (see Fugitive Emission Sources)
Nitric Acid Manufacturing
Non-Metallic Mineral Processing - Except Rock and Aggregate
Nut Roasting - Handling Equipment
Nut Roasting

O

Offset Printing (see Lithographic Printing)
Oil and Gas Production - Combined Tankage
Oil and Gas Production - Wellhead
Oil and Gas Production Fields (see Fugitive Emission Sources)
Oil/Water Separator (see Wastewater System)
Open Spraying - Spray Gun

Open-ended Valves or Lines (see Fugitive Emission Sources)
Organic Liquid Bulk Loading Facilities (see Fugitive Emission Sources)
Oven (see Dryer or Oven)

P

Paper and Fiber Handling (see Bulk Solid Material Handling)
Perlite Manufacturing System
Petroleum Coke Calciner (see Calciner – Petroleum Coke)
Pharmaceutical Manufacturing
Pharmaceutical - Operations Involving Solvents
Phosphoric Acid - Thermal Process
Phthalic Anhydride
Pipe – Open Ended (see Fugitive Emission Sources)
Plasma Arc Metal Cutting Torch, Electrical Input Rating
Plastic or Resin Extrusion
Pneumatic Conveying - Except Paper and Fibers (see Bulk Solid Material Handling)
Polyester Resin Operations - Molding and Casting
Polyester Resin Operations – Fiberglass Fabrication, Hand and Spray Layup
Polyester Resin Operations – Fiberglass Fabrication, Panel Manufacturing
Polyester Resin Operations – Fiberglass Fabrication, Pultrusion
Polyethylene Manufacturing (see Resin Manufacturing)
Polymeric Cellular (Foam) Product Manufacturing
Polypropylene Manufacturing (see Resin Manufacturing)
Polystyrene Extrusion (see Plastic or Resin Extrusion)
Polystyrene Foam Product Manufacturing (see Polymeric Cellular [Foam] Product Manufacturing)
Polystyrene Foam Product Manufacturing, Using Blowing Agent (see Polymeric Cellular [Foam] Product Manufacturing)
Polystyrene Manufacturing (see Resin Manufacturing)
Polyurethane Tube Mfg.
Powder Coating Booth
Precious Metal Reclamation - Incineration
Precious Metals Recovery - Chemical Recovery and Chemical Reactions
Pressure Relief Valve (see Fugitive Emission Sources)
Printing (Graphic Arts) – Flexographic
Printing (Graphic Arts) – Letterpress
Printing (Graphic Arts) – Lithographic, Heatset
Printing (Graphic Arts) – Lithographic, Non-Heatset
Printing (Graphic Arts) – Rotogravure or Gravure – Publication and Packaging
Printing (Graphic Arts) – Screen Printing and Drying
Process Drains (see Wastewater System)
Process Heater – Non-Refinery
Process Heater - Refinery
Process Valves (see Fugitive Emission Sources)
Pultrusion (see Polyester Resin Operations)
Pumps (see Fugitive Emission Sources)

R

Railcar Dumper (see Bulk Solid Material Handling)

Railcar Loading/Unloading, Liquid (see Liquid Transfer and Handling)
Reactor with Atmospheric Vent
Rendering - Crax Pressing, filtering and Centrifuging Operations
Rendering - Evaporators, Cookers and Dryers
Rendering - Grease and Blood Processing
Rendering - Metal Grinding and Handling System
Rendering - Tanks and Miscellaneous Equipment
Resin Manufacturing
Rock - Aggregate Processing
Rocket Engine Test Cell
Rolling Mill
Rotogravure Printing - Publication and Packaging (see Printing)
Rubber Compounding - Banbury Type Mixer
Rubber Compounding – Roll Mill

S

Sampling Connections (see Fugitive Emission Sources)
Sand Handling System with Shakeout and/or Muller in System
Screen Printing and Drying (see Printing)
Sewage Treatment Plants
Sight Glass (see Fugitive Emission Sources)
Silo (see Bulk Solid Material Storage)
Smokehouse
Solder Leveling - Hot Oil or Hot Air
Solid Material Handling –(see Bulk Solid Material Handling)
Solid Material Storage –(see Bulk Solid Material Storage)
Solid Material Unloading - Railcar Dumper (see Bulk Solid Material Handling)
Solids Handling Catalyst (see Catalyst Manufacturing and Regeneration)
Solids Handling Pharmaceutical (see Pharmaceutical Manufacturing)
Solvent Reclamation
Spray Booth
Steam Generator - Oil field
Steel Melting Furnace - Basic Oxygen Process
Steel Melting Furnace - Electric Arc
Steel Melting Furnace - Induction
Steel Melting Furnace - Open Hearth
Storage Tank (see also Bulk Solid Material Storage)
Storage Tank - External Floating Roof, and VP <= 11 psia
Storage Tank - Fixed Roof
Storage Tank - Fuming Sulfuric Acid
Storage Tank - Grease or Tallow StorageStorage Tank - Internal Floating Roof
Storage Tank – Liquid
Storage Tank - Spent Sulfuric Acid
Storage Tank Underground
Sulfur Handling and Storage (see Bulk Solid Material Handling and Bulk Solid Material Storage)
Sulfur Pelletizing and Prilling
Sulfur Recovery Plant
Sulfuric Acid Storage (see Storage Tank – Liquid)
Surfactant Manufacturing

T

Tank Degassing
Tank - Grease or Tallow Processing
Tank Truck Loading/Unloading (see Liquid Transfer and Handling)
Tire Buffer
Tunnel Washer

V

Vegetable Oil Purification
Vinegar Manufacturing

W

Wastewater System
Wastewater System – Air Stripper
Wastewater System – Oil/Water Separator
Wastewater System - Sour Water Stripping
Wax Burnoff Furnace
Wet Material Handling (see Bulk Solid Material Handling)
Wood Processing Equipment
Woodworking

Z

Zinc Melting Furnace - Crucible or Pot
Zinc Melting Furnace - Reverberatory, Non-Sweating Operations
Zinc Melting Furnace - Reverberatory, Sweating Operations
Zinc Melting Furnace - Rotary, Sweating Operations